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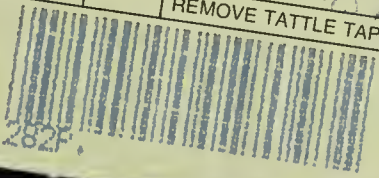
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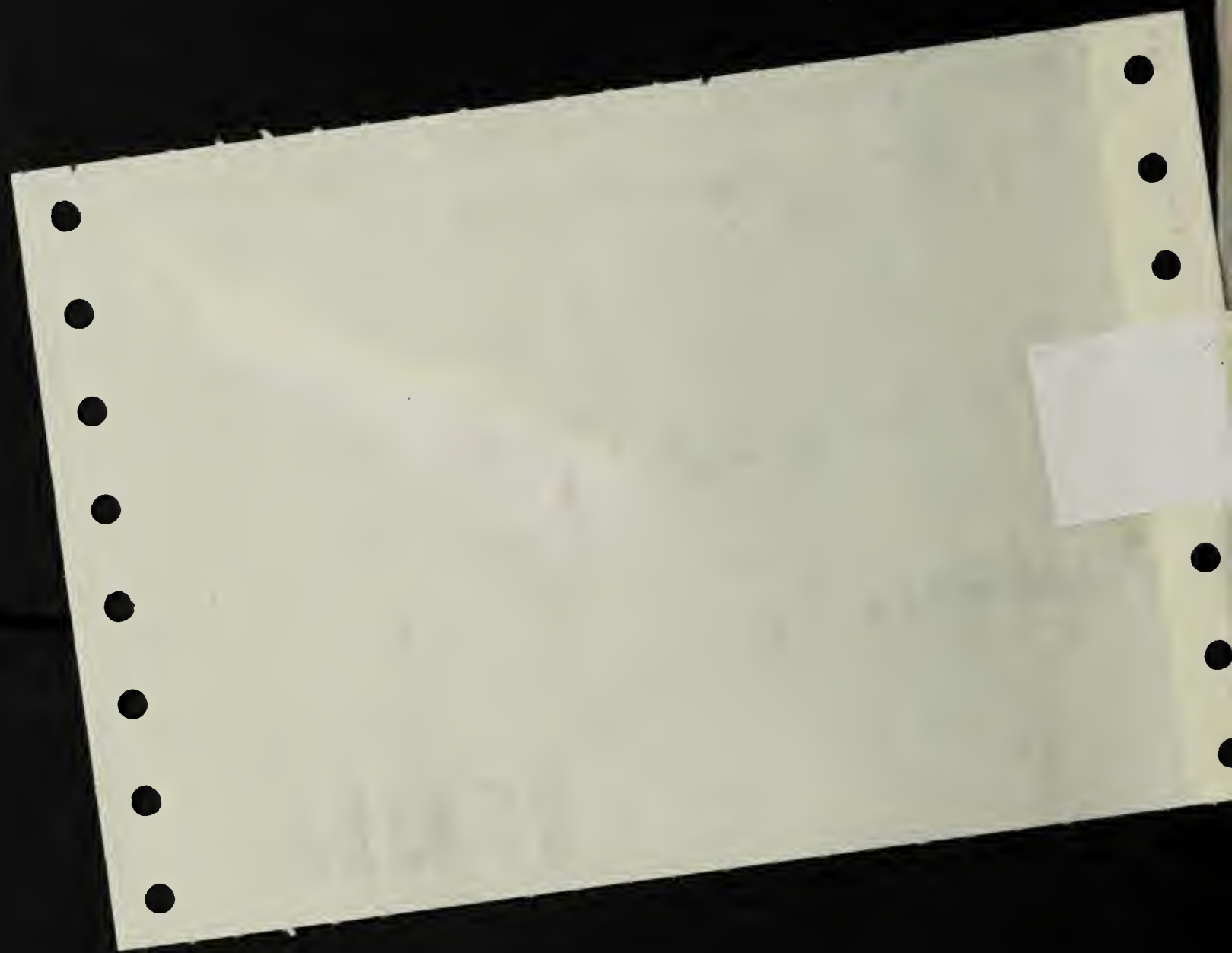


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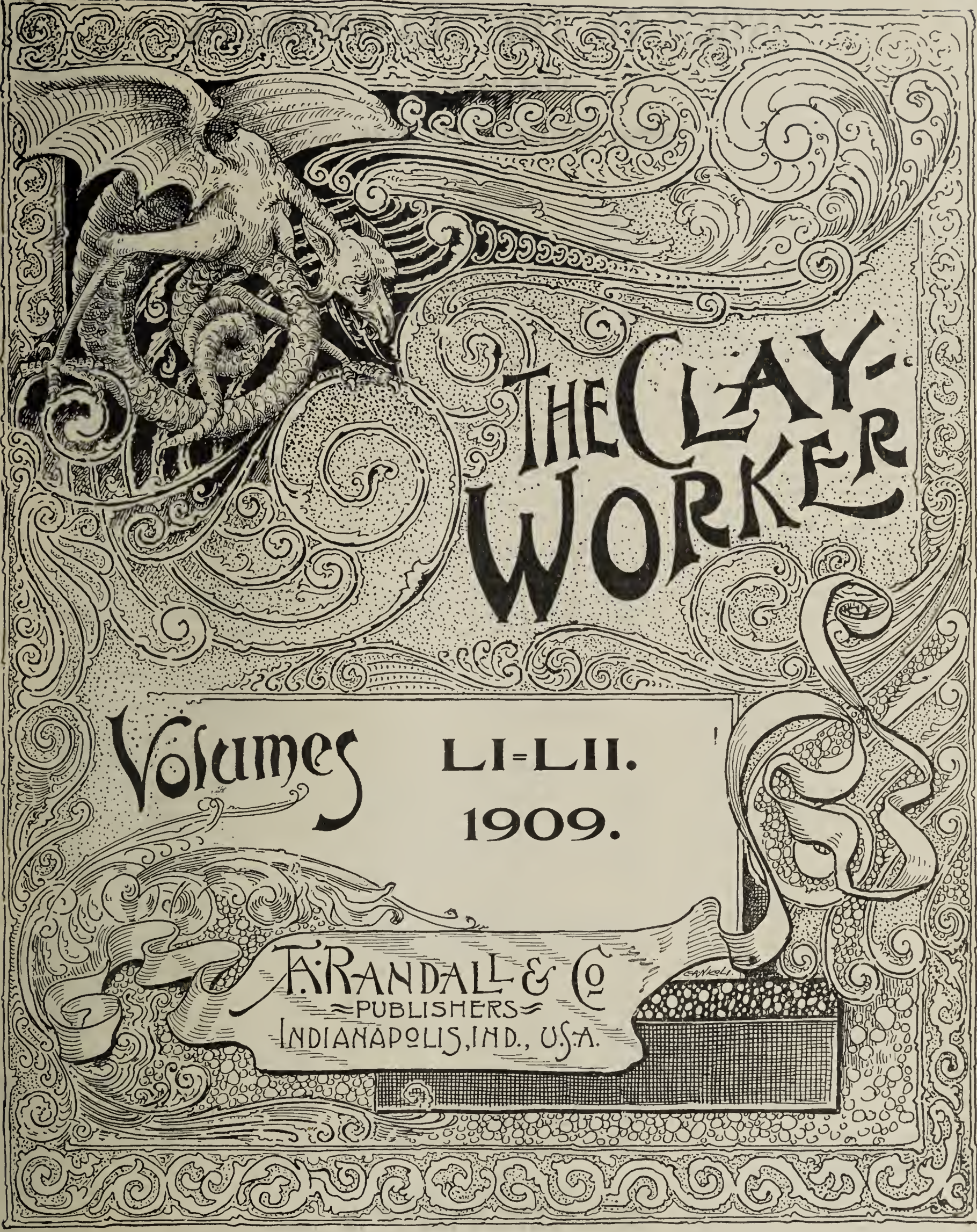
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THE CLAY- WORKER

Volumes

LI-LII.
1909.

A. RANDALL & CO
PUBLISHERS
INDIANAPOLIS, IND., U.S.A.

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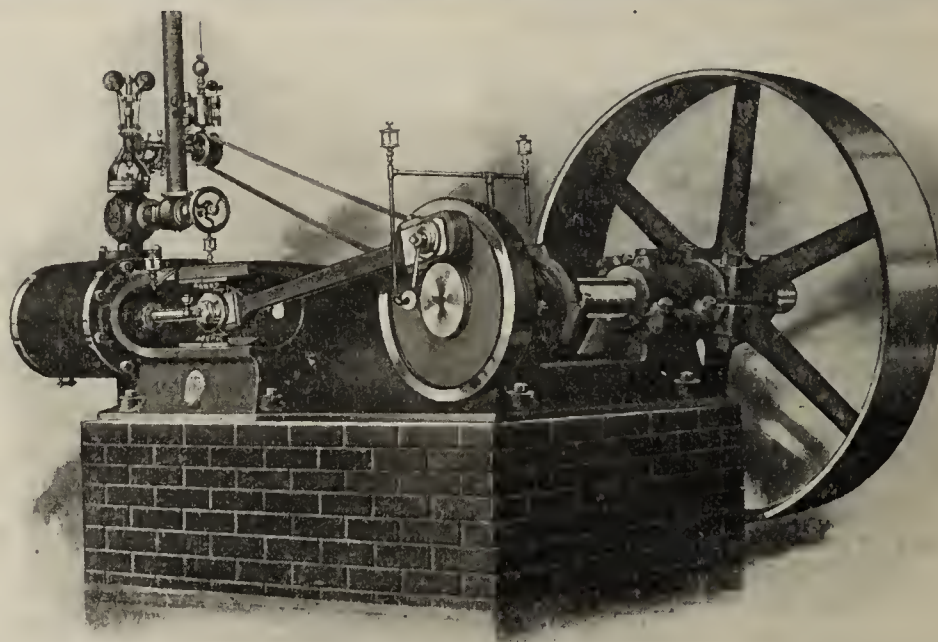
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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LI.

INDIANAPOLIS, IND., JANUARY, 1909.

No. 1.

Written for THE CLAY-WORKER.

THE TALLEST BUILDING IN THE WORLD.

A Modern Brick Structure Which Out-Towers the Tower of Babel and All Other Buildings Reared by Man.

THE FAMOUS SINGER BUILDING, at 149 Broadway, New York City, is probably the most widely known structure in the world today. Forty-seven stories, or 612 feet from sidewalk to pinnacle, its tremendous height is enough in itself to attract universal attention, especially when it is realized that its beautifully proportioned tower overtops the great Pyramid of Egypt by 127 feet, the spires of

the renowned Cologne Cathedral by 96 feet, and the Washington Monument by 57 feet!

The Roman Pantheon would reach only to the twelfth, and the Campanile of Giotto, at Venice, to the twenty-fifth story of the Singer building. It is not, however, the height alone of the wonderful edifice that has commanded the attention of the scientific world and general public since its completion in April of the present year. Of more than equal interest is the fact that momentous engineering problems were encountered and successfully solved in the course of its construction, and that so long as the building stands it will remain a monument of mechanical genius and architectural beauty of surpassing richness.

The original Singer building was a ten-story structure,



ST. PETER'S, ROME, 400 FT. CATHEDRAL, TOULON, FRANCE, 490 FT. MADISON SQ. GARDEN, N.Y.C., 305 FT. PHILADELPHIA CITY HALL, 537 FT. BANK ROW BUILDING, N.Y., 382 FT. WASHINGTON MONUMENT, 555 FT. PYRAMID, EGYPT, 485 FT. CATHEDRAL, SALISBURY, 400 FT. ST. MARK'S, ST. PETERSBURG, 365 FT. ST. STEPHEN'S, VIENNA, 450 FT. CATHEDRAL, COLOGNE, 516 FT. ST. SOPHIA, CONSTANTINOPLE, 200 FT. THE GRALDA, SEVILLE, 350 FT. THE PANTHEON, ROME, 150 FT. SINGER BUILDING, 612 FT. THE SINGER MANUFACTURING COMPANY, 149 BROADWAY, COR. LIBERTY STREET, NEW YORK CITY, NEW YORK, U.S.A. CITY INVESTING CO. BLDG. N.Y.C., 400 FT. CAMPANILE, VENICE, 325 FT.

erected some ten years ago. When it was proposed to materially enlarge it and surmount the new portion with a tower of dimensions never before attempted in the history of the world, the problem immediately arose of so blending the old with the new as to form a harmonious and artistic whole, while at the same time embodying in the added structure the most advanced principles of engineering science. That this was accomplished with such signal success is due almost wholly to the ingenuity and artistic skill of one man, the architect, Ernest Flagg.

The foundation was, of course, the first great question to engage the attention of the engineers, since upon it would depend the safety and stability of the entire fabric. As finally constructed, it consists of thirty-four caissons of solid concrete, distributed over an area approximately 9,000 square feet, and sunk to bed rock 90 feet below the street level. Upon these caissons rests a gridiron of steel girders, by means of which the weight of the tower proper, with its ground area of 4,200 square feet, is evenly distributed over a surface so large that the rock foundation only supports a weight equivalent to that of a twenty-story building.

One of the most noteworthy features of the Singer building from the tenant's standpoint, is the perfection of its fireproofing, neither labor nor expense having been spared in the attainment of this end. Almost no wood enters into the building's composition, the chief materials employed being steel, concrete, limestone and terra cotta, with marble, face brick and statuary bronze as decorative accessories. Every inch of the steel construction is protected with terra cotta hollow tile, which is also laid in spans between steel beams to form the floorings. The building contains 541,020 terra cotta floor blocks, which cover all told an area of 8.36 acres. Placed end to end, these blocks would reach a distance of ninety-seven miles, or farther than from New York to Philadelphia. The terra cotta furring blocks number 874,504, and if uniformly piled would cover an area of one-fourth acre to a depth of 12 feet. Placed end to end in a straight line, they would extend from New York to Saratoga. The total quantity of terra cotta hollow tile employed weighs 7,800 tons, and would make more than 500 average carloads. It was supplied by the National Fireproofing Company, of New York.

The entire masonry contract was executed by the John T. Brady Company, of New York, and was one of the largest and most important of the contracts for the erection of the building. It included the construction of foundation walls, all the common, face and enamel brick masonry, the setting of all exterior terra cotta, the terra cotta floor and roof arches, terra cotta block furring for walls, columns and partitions—in short, all filling in and encasing of the structural steel framework and all anchors for masonry work. The tower walls were 12 inches thick at the top, and 40 inches thick at the base, thus giving a maximum of strength and rigidity with a minimum of material. All the brickwork was laid up in Atlas Portland cement mortar.

The exterior finish of the building is of face brick, deep red in color, laid up in English bond, using half brick in the alternate header courses and breaking joint in the stretcher courses; nine courses to 2 feet. The joints are wide and are raked out to a depth of about half an inch. This original and very effective treatment was first employed in the Singer building of a decade ago, and has since been extensively copied. The face brick were furnished by the John B. Rose Company, of New York.

The Highest Brick in the World.

An interesting fact, known to but few people, is that a single brick of solid silver—"the highest brick in the world"—occupies the position of honor in the very apex of the tower.

The latter structure is distinguished by rare beauty of design, a unique conception being the four mammoth bay windows—one on each face of the tower—which extend from the fourteenth to the thirty-fourth story, and are capped with arches supporting semi-circular balconies. The roof of the tower, of the curved mansard type, comprises three stories. It is surmounted by a huge copper lantern containing a powerful searchlight, whose rays are visible at night for a

distance of from sixty to seventy-five miles. The roof and facade are studded with 1,800 concealed incandescent lights, and further illuminated by searchlights of the United States naval standard, which are directed upward from the roof of the main building. The total exterior lighting capacity is 13,000,000 candle power.

The illumination of the interior of the building is effected by means of 15,000 incandescent lights, with a total capacity of 260,000 candle power. Uniform illumination is assured by the fact that the lighting plant is entirely distinct from the power and heating equipment, which includes five Babcock & Wilcox boilers, aggregating 1,925 h. p., five large dynamos, thirty-two pumps, and two air compressors. Eight thousand tons of coal per year are required to run this enormous plant.

All of the water used in the building is passed through filters to storage tanks holding altogether 28,500 gallons. The water piping is subdivided into that for ordinary house service, ice water service, and a third system to be used in event of fire, each independent of the others and all inexhaustible. There are 100 fire hose stations distributed among the forty-seven floors of the building.

The comfort of tenants has been provided for by the installation of every conceivable luxury and convenience, from the 8,000 safe deposit boxes in the basement, to the suction air brushes in each office, by means of which dust may be removed from hats and clothing. Sixteen electric elevators of 70 h. p. each give access to the various floors. The cars in the tower travel at the rate of 600 feet per minute, and each can carry about eighteen persons. It is estimated that these cars travel annually about 98,270 miles, or about four times the distance around the earth. The elevator, telephone, electric light and fan systems require 3,425 miles of wire, or enough to extend from the top of the Eiffel Tower, in Paris, to the top of the Singer building, and have 300 miles to spare.

If the structural steel used in the building were made into a $\frac{3}{4}$ -inch wire cable, it would reach from New York to Buenos Ayres. If all the strands were joined end to end, they would reach from the earth to the moon three and a half times, or, rolled into quarter-inch plates, would cover an area of fifty acres.

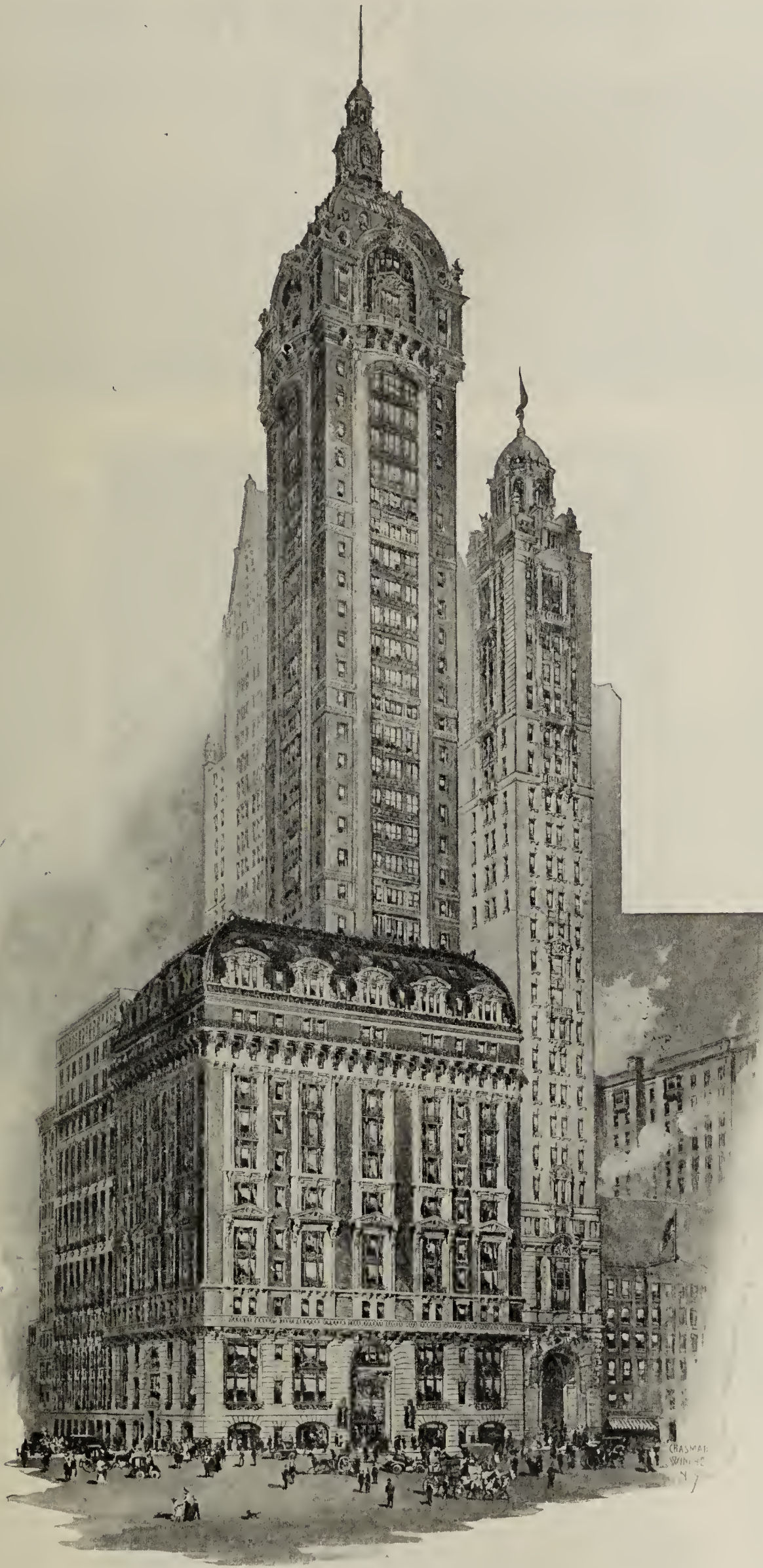
The decorative scheme of the interior of the Singer building is one of impressive richness, yet so subdued as to produce an effect of restfulness and quiet harmony. The treatment of the main floor is in Pavonazza marble combined with marble of other colors, and the metal trimmings and ornaments are of statuary bronze. If the latter were combined with the 101 tons of sheet copper used in various parts on the structure, the resulting metal would be the same as that used in coining the United States pennies, and would make enough of these to amount in value to \$462,080.

The ceiling of the main hall forms a series of shallow domes, with relief ornamentation in ivory and gold, supported by imposing arches. The entrance doors, grills and stair rails are of solid bronze. One of the stairs has an unbroken ascent of twenty-three stories.

The floor space of the building aggregates the enormous total of nine and one-half acres. There are sixteen offices to each floor of the tower, and forty offices to a floor in the main structure. The offices are arranged on all four sides of the building, the elevators, lavatories, stairways and corridors being grouped in the center. This not only insures ample light, but proper ventilation.

Perhaps none of the many unusual points in connection with this noted edifice is more surprising than the fact that, starting with the raw materials which were made into steel in open hearth furnaces, cast into ingots and rolled into plates and shapes in the rolling mills, thence transferred to the bridge shops to be sheared, punched, assembled, riveted and machined to proper dimensions, and finally set in their places in the mammoth structure, every detail of the metal work was performed in New York by New York workmen. Not a single important piece of material was dropped during the erection, and there was not a fatal accident from start to finish. This is unprecedented in the history of steel construction, and establishes a record for careful and skillful management.

The total labor expended on the Singer building would have taken 860,000 days if performed by a single man, whose job would thus have lasted 2,360 years!



THE SINGER BUILDING

The Twentieth Century Wonder in the Building World.

CLAYWORKING IN SOUTH AFRICA.

Brick, Tile, Sewer Pipe and Pottery Making in a High State of Development in the Transvaal.

NOW THAT PRESIDENT ROOSEVELT is casting longing eyes towards the jungle lands of far-off Africa, we find the columns of the yellow newspapers full of vivid word pictures, painting in deep red colors the dangers of this seemingly unknown country, imbuing the minds of many with the impression that the entire African continent is one large tangled mass of unexplored wilderness, with wild animals of every description lying in wait to devour every semblance of humanity. Such is not the case, however, for, on the contrary, in southern Africa is one of England's richest possessions, populated with a highly civilized, progressive people, who are building up industries of the best modern types, and excelling the better established colonies in a number of enterprises.

This is especially true in the brick, tile and pottery industries in the Transvaal. At Olifantsfontein Station, a short distance from Pretoria, which is located in the south central portion of the South African Republic, are the large plants of the Consolidated Rand Brick, Pottery and Lime Company. Here we find the unusually interesting manufactories of brick, tiles, sewer pipe, sanitary ware and pottery, turning out an enormous quantity of excellent clay products, which find a ready market in that far-away country.

The establishment of these clay plants is due to the dogged perseverance and incorrigible optimism of Mr. T. M. Cullinan, of Premier Diamond fame, who, as everyone knows, is not wrapped up solely in the work of diamond mining, but has vast interests all over the Transvaal, is an enthusiastic farmer, and whose latest and perhaps most important enterprise is the building of the big pottery works, an addition to the comparatively old-established brick and pipe making plants.

The Rich Clay Deposits.

The greatest asset the company has, and the one that led them to investing such a large sum of money

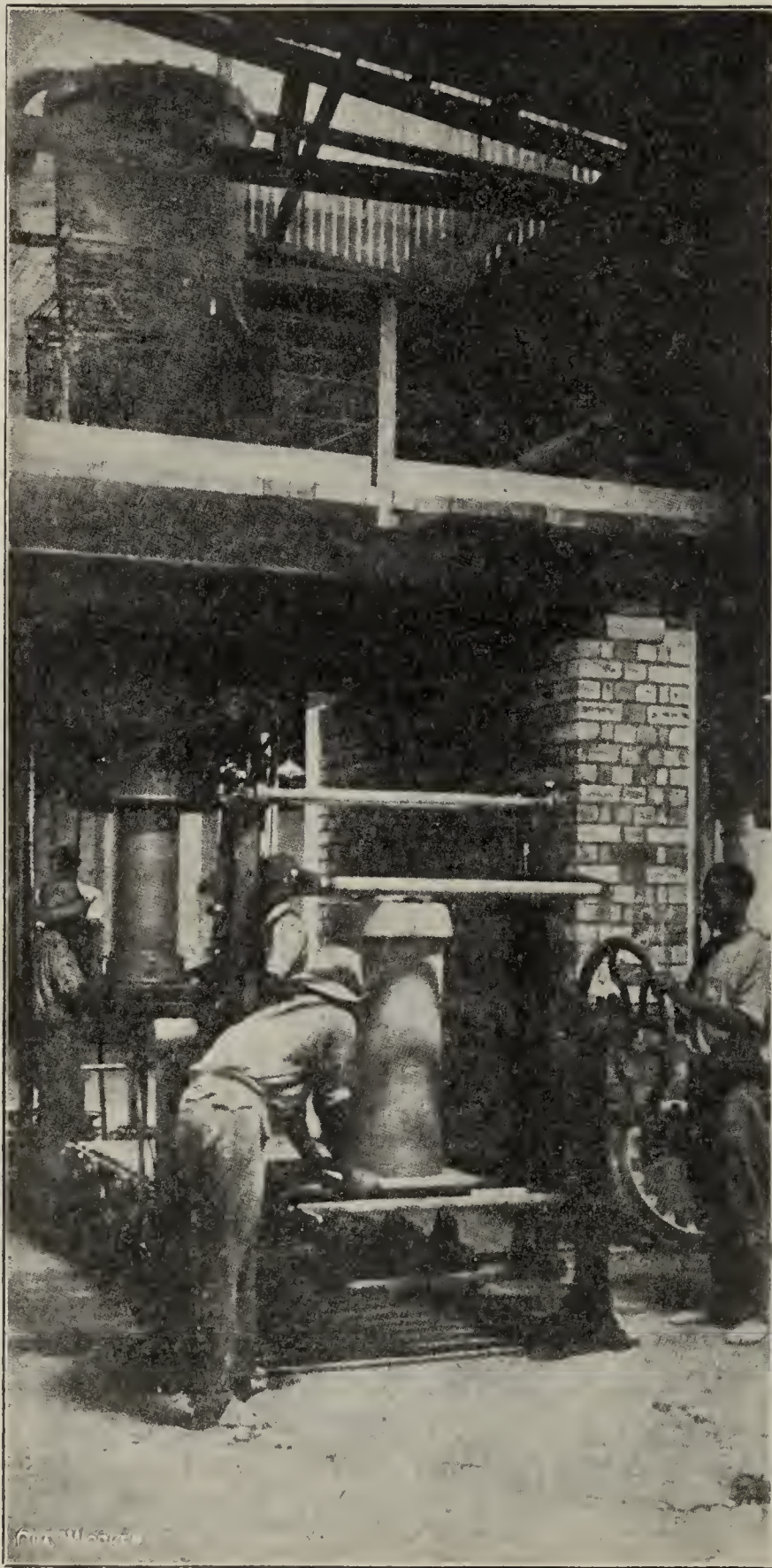
in the new pottery works, is the wonderful deposit of fire clay upon the property. It is believed to be, if not the largest, one of the largest deposits in the world. The present pit is 150 feet across in either direction, and the clay face is fully 70 feet deep, and extends below the present level for about another 100 feet. In other countries, as is well known, the fire clay is found below the coal measures, usually hundreds of feet below the surface, and then only in thin bands. The fact that it is found here, from the surface downwards, is an

interesting geological feature, as indicating the enormous denudation of surface that has gone on to completely effect the erosion of the coal measures. In the pit, some 70 feet from the surface, are large quantities of lignite, and this is largely used, as it burns a beautiful pearly white.

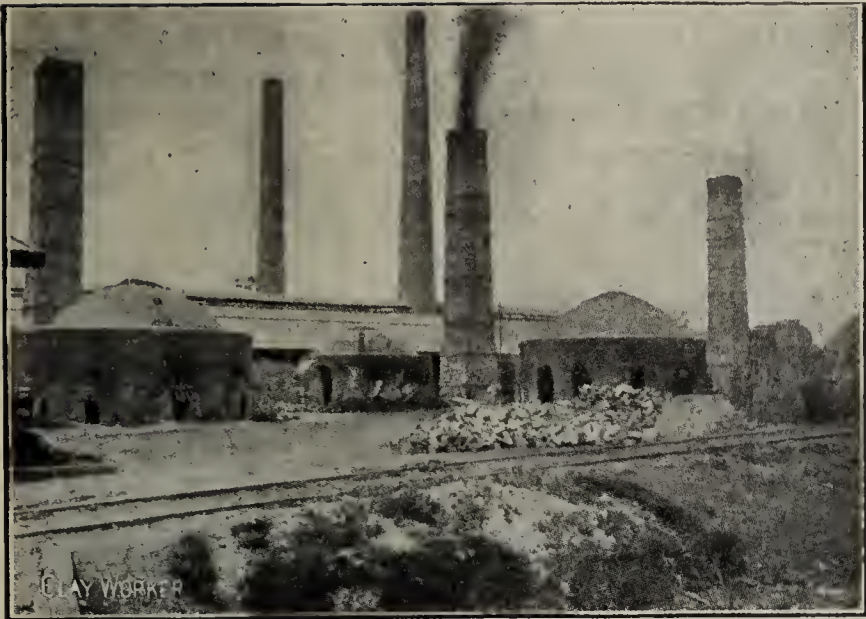
In order to be quite satisfied that the clay was suitable for pottery purposes, a large shipment was sent to England, and the result of the test was to show that the clay could not possibly be improved upon. Experience has proved the desirability of using a small quantity of clay found in another part of the country, together with a small quantity of finely-ground quartz, which give the article exceptional finish and strength.

The Potteries.

We will deal first with the new potteries. The molding, mixing and drying sheds are all solidly built of brick. The buildings are built in two blocks of 500x180 feet, and are so admirably arranged that the various clays go in at one end of the buildings in their rough state, and come out at the other end as finished articles, and are loaded direct onto the railway trucks. The works are fitted up with the finest pottery machinery in the world. Granite edge runners for the grinding of quartz and other materials, and tube mills for reducing it to a still finer condition, have been fitted with patent "mixers" or "blungers," fitted with large underground arcs or paddles, worked by



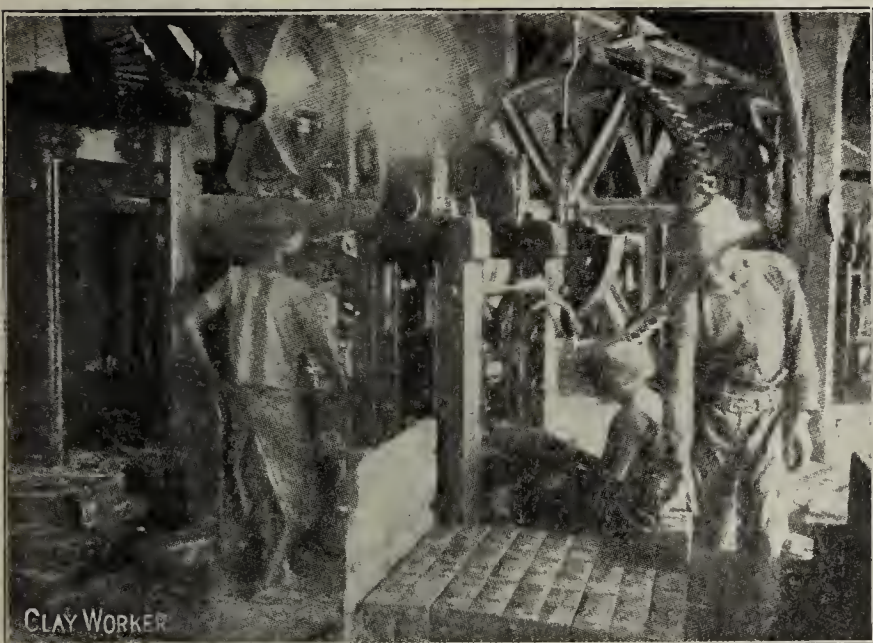
Pipemaking Department, Showing Sewer Pipe Press.



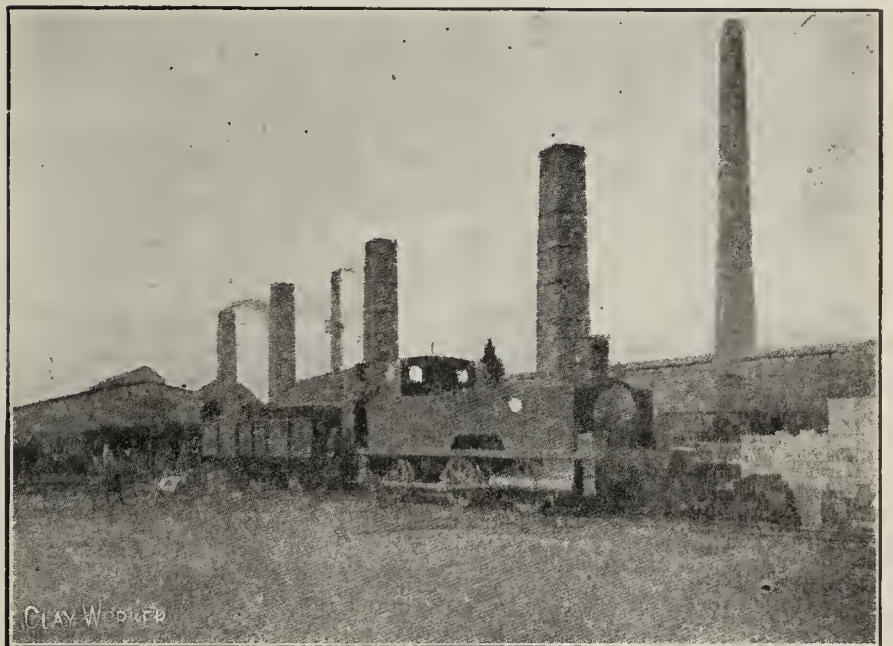
The Kilns in Which Fire Brick and Pipes Are Burned.



The Great Clay Pit with a Face of 70 Feet of Fire Clay.



Brickmaking by Machinery in the Transvaal.



Loading a Car with South African Clay Products.



Making Four-Inch Inspection Bends.



Men Making and Finishing Ten-Inch Bends.

Interesting Views in and About the Plants of the Consolidated Rand Brick, Pottery and Lime Company.

powerful machinery. There are also powerful presses for making exquisitely patterned tiles for wall decoration, and even the potters' wheels are driven by machinery.

In view of the enormous demands that are being made for sanitary appliances in Johannesburg, the potteries have naturally devoted their attention to producing articles such

all the year round. The clay is hauled from the pit direct to the roller mills, where it is pulverized, and thence passes to the hydraulic brickmaking machines, where, under a pressure of seventy tons to the square inch, brick are turned out at the rate of twenty-three a minute. The advantage of the hydraulic method is that the brick need no drying,



A Panoramic View of the Consolidated Rand Brick, Pottery and Lime Co.'s Plants, Showing the New Potteries on the Right.

as are likely to be in immediate demand, but while these are the first articles to be turned out, there will be practically no limit to the number and variety of the products. Ornamental tiles of excellent patterns have already been made, and jugs, dishes, basins and other articles have been produced equal to home products. Molds are being made for plates, dinner services, baths, cups and saucers—in fact, for practically everything that North Staffordshire produces.

Brick and Pipe Works.

From the great clay pit fifty millions of ordinary brick, besides pipe and fire brick, have been made during the past few years, and those people who have had the brick from this property have enjoyed the advantage of having them made from probably the finest fire clay in the world. Its value as a fire clay has only recently been demonstrated,

and are taken direct to one of the two great Hoffman kilns, each of which holds 350,000 brick. Owing to the stagnation in the building trades, one of these kilns is at present not in use. It is an interesting spectacle to observe the operations of the one in action, and to realize the apparent impossibility of seeing brick at a white heat in one portion of the kiln, while only a few yards away men are wheeling out finished brick and placing in position thousands of new brick fresh from the hydraulic machine. The work goes on continuously day and night, the fire being fed from above. Each brick, after being burned, will stand a pressure of 5,000 tons; and over 1,000,000 of these are turned out every month. The present large Hoffman kiln, which cost over £12,000 to build, has been in continuous operation for three years, the double circle of fires being fed by continuous shifts of natives. Speaking of kilns, reference must be made



A Comprehensive Selection of the Various Articles Manufactured in the Rand Pipe Works, Pretoria, Transvaal.

and as a result, the company has supplied enormous numbers of specially-made fire brick to the gold mines, the municipality, and, in fact, almost every place where boilers are used. Quite a small industry is being built up in this one department alone.

The making of ordinary brick proceeds without cessation

to the ten small kilns in which the fire brick and pipes are burned. These, as the photographs show, are dome-shaped, are fed by fires all around from the outside, and here the salt glaze on sanitary pipes, glazed brick, etc., is put on, salt being added to the fires and drawn in by the powerful draughts to the center of the kilns.

The manufacture of pipes, which are turned out in considerable quantities and of an infinite variety of patterns, is one of the most delicate branches of the company's work. The straight pipes are made with great rapidity by hydraulic machines, which turn them out in all sizes with mathematical accuracy. Curved sections, inspection bends, and the hundred and one patterns that are in use, require different treatment. They are cast in molds, and require a vast amount of hand work before they can be dried and then put into the kilns. Some of the photographs show these interesting operations in progress. It can be readily understood that the slightest variation in a pattern necessitates new molds and subsequent manipulation by hand, adding greatly to the cost of production. If only users of pipes, etc., would agree to standardize their shapes and sizes, they would be able to obtain them far more cheaply than at present. As indicating the excessive cost which might be saved in the production of certain articles, we may mention that over 100 different patterns of fire brick are made for

ment, at any rate, a new industry of great importance to the Transvaal has been definitely established.

HOW POOR ROADS HURT THE FARMER.

Costs Him Three Times as Much to Haul as on Good Roads.

The average cost of carrying a ton of goods a mile by lake is eight-tenths of a mill, and by rail seven and sixteenths mills. The average cost of carrying a ton of goods a mile on first-class roads is said to be 7 cents, and on common country roads 25 cents.

The latest report (made by the Department of Agriculture for 1904) shows 2,151,570 miles of public roads in the United States, of which 7.14 per cent. were improved. In old, populous and rich States, such as New York, Pennsylvania, Illinois and Michigan, improvements were reported on less than 10 per cent. of the public roads.

Almost every pound of freight originating upon or destined



Specimens of Pottery Made at the Rand Potteries, Including Sanitary Fittings, Jugs, Basins and Ornamental Tiles.

the use of various mines, etc., on the Rand, each company having its own design. One of the photographs gives some idea of the infinite variety of the articles turned out by the works. Among them are fire brick, slabs and blocks for boilers, furnaces and stoves, crucibles, muffles, vitrified covers, destructor blocks for municipalities, salt-glazed pipes, junction bends, and all pipe connections and ornamental flower pots.

The whole of the works occupy about fifty acres of ground, and at the present time furnish employment for twenty-four white employees and 200 natives, exclusive of the men employed in the potteries.

Another feature of the company's operations is the hydraulic lime works. The limestone is brought by a ropeway from the quarry, about a mile distant, and burned at the works in special lime kilns.

We understand the company will shortly arrange an exhibition in Johannesburg of the new pottery products, and thereby afford a most convincing proof that in this depart-

to a farm moves over a country road; most of it over a "common" country road, at a cost some three times as high as it would be if the road were first-class. Sometimes the goods actually pay a heavier toll for a few miles' carriage between railroad station and farm than for all the remainder of the journey.

The railroads themselves spend millions to clip off 1 or 2 per cent. from operating expenses, here and there; and, if farmers were presented with a feasible scheme for reducing their railroad freights even one-quarter, they would feel that there, indeed, was a burning issue.

Road improvement receives much more attention than formerly, but much less than it deserves.—Exchange.

A number of the country's political machines now seem to be in need of repair, and a few even appear to be booked for the scrap pile; and the average citizen naturally hopes that if we must have machines to handle our politics, the new ones will be an improvement on the old, as improvement is the order of the day in everything else.

The Pioneer Gas Producer and Gas-Fired Continuous Kiln.

A Little History of its Operation Twenty-Five Years Ago.

Gas Producer—Theoretically. (Part First.)

THE WORD PIONEER is defined by "Webster" as meaning one who goes before to remove obstructions or prepare the way for another; and when it comes to the above-named propositions we were mostly pioneers, in the true sense of the word, in that we had nothing to guide us but the literature and prospectuses of the inventors and promoters, who, then as they do now, picture everything in the most alluring and plausible expressions possible.

As to gas producers, we were told about as follows: That all of the solid fuel, whether ordinarily capable of volatilization or not, would be converted into a gaseous fuel, ashes only remaining in the gas producer, in turn eliminating the damaging effect of soot and ashes in the kilns, thereby preventing the closing and clogging of flues. It was represented to us that the steam entering the gas producer would break up all clinkers, and, at the same time, would be converted into hydrogen or hydro carbons, which products, upon oxidation or combustion, would give us the highest possible heat-producing agents or factors.

The figures submitted to us read about like this: Carbon converted into carbonic oxide would produce 4,452 B. T. U. Carbon converted into carbonic and would produce 14,500 B. T. U. Light carburetted hydrogen upon complete combustion would produce 231,513 B. T. U. Bi-carbonetted hydrogen upon complete combustion would produce 21,343 B. T. U. Hydrogen upon complete combustion would produce 62,032 B. T. U., and, besides, these results could and would be effected from an average coal having a heat capacity of 14,133 B. T. U.

We believed all these statements about the phenomenally economic results which could and would be obtained. Yes, gentlemen, we swallowed the bait—hook and all. The simplicity of the gas producer was described to us in about the following words:

The portion of the fuel next to the grate, upon combustion with air, is converted into carbonic acid, which, upon rising and passing through incandescent fuel, in combining with its proper proportion of carbon, is transformed into carbonic oxide, which, in the upper part of the gas producer, the volatile hydro-carbons and other gases are distilled off. The whole product is a mixture of the following gases: Hydro-carbons, carbonic oxide and nitrogen, which, with a proper mixture of air, are consumed at a predetermined place and result in the usual products of combustion—carbonic acid, steam and nitrogen.

Dr. Siemens concisely described the functions of a gas producer: "In the lower portion the fuel is burned, and this position is called the zone of combustion; higher up, the carbonic acid takes up a further equivalent of carbon. This may be called the zone of carbonization, whilst at the uppermost layer of the producer, hydro-carbons are produced in what may be called the zone of distillation.

"The functions of gas are then to distill and volatilize the fuel into carbonic oxide and hydro-carbon gases in the gasogene; to conduct the resultant gaseous mixture into a combustion chamber, the place where it is acquired to develop the heat, and then to mingle with it the proper proportion of atmospheric air required for effecting its complete combustion. The combustible and the air are in the same physical condition—gaseous, so that they may be intimately mixed in suitable proportions and with but a slight excess of air. Herein is an important source of economy

of fuel in the gas furnace; with the regularity and constancy of the supply of the combustible, there is great facility and opportunity for measuring a quantity of air and regulating its admission with precision. An ordinary grate, immediately after having been fired with fresh fuel, should be supplied with twice as much air as is needed before having been stoked. When the needful supply of air is wanting, the hydro-carbons which are immediately generated are carried off unburnt, taking with them the heat expended in volatilizing them, thus creating a loss.

"But since in the producer of the gasogene (gas furnace) the layer of fuel is of construed thickness, the rate at which the gas is generated and delivered is regulated by the damper once for all, and exactly the same conditions are uniformly present for the supply of air to be mingled with the gases. Much labor is saved, as the fuel need only be supplied at intervals of from eight to twelve hours, and inexperienced laborers can without difficulty be trained to become good firemen. Very considerable indeed is the money saving, apart from the economy of fuel, by the employment of a gas furnace, simply by the facility with which small coal and fuel of inferior quality may be utilized."

Gas Producer.

We built a large gas producer with a view to be able to make a large quantity of gas rapidly in case it should be needed; at any rate, we started in the customary way by lighting a fire on the grates and when fairly well burning began to feed from the fuel box or hopper for making gas. We started in with the poorest grade of coal we could get, but we found our grates choked and clogged up so rapidly that we had no ingress for the steam and air, besides the fine coal dirt closed up the gas producer so badly that no gas could ascend, so, necessarily, we abandoned the grade of coal, as, besides, punching holes in the fuel bed did not do much good.

The next trial was with a better grade of bituminous soft coal. We had the same trouble with the grates, but, in addition thereto, we found that the fuel in the gas producer would arch over and prevent the supersaturated fuel from passing downward as uniformly, and the fire would come up in spots which gave us a lower value gas, in that the carbonic acid had not been changed into carbonic oxide.

The next trial was with a selected grade of bituminous coal (high in volatile matter). We found the same trouble with clinkers, in that the steam did not break them up, but we found upon charging that the percentage of hydro-carbon gases was excessively large for the burning conditions, and, therefore, had a reducing fire, which was detrimental to the ware that we were trying to burn. The reader being informed that our tests were being made on a red burning clay that demanded oxidizing conditions to make face brick of the best quality and to yield a high percentage in the kiln. The next fuel experimented with was a first class bituminous blacksmith coal, low in hydro-carbons, but high in fixed carbon. We did better with this type of coal, as there was not as much variation in the character of the gas, but the high price of the fuel barred its use, in that the fuel bill was higher than when we used ordinary bituminous coal.

We also experimented with anthracite coal, coke, and

mixtures of different kinds of coal, but the results were not satisfactory.

Conclusions.

1. Our gas producer was not profitable or advisable, as the character of the gas could not be regulated or controlled by intermittent feed of fuel.
2. The loss of time in cleaning out the gas producer was detrimental to continuous gas production.
3. Forcing the time of gas productions is not admissible, as the cokes generally clinker through strong draft.
4. In our case, the admission of steam did not break or crack the clinkers in the grates so as to make them easy of cleaning out or removal.
5. Caking coals are liable to bag together and cause the formation of poor gas.
6. Gas producers do not reduce the "ash" property of fuel, and the dirtier the coal the more difficult it will be to make gas plentifully.
7. Extraordinary favorable conditions must exist for producing large quantities of gas of uniform quality and character.
8. A gas producer is not such a simple affair to operate

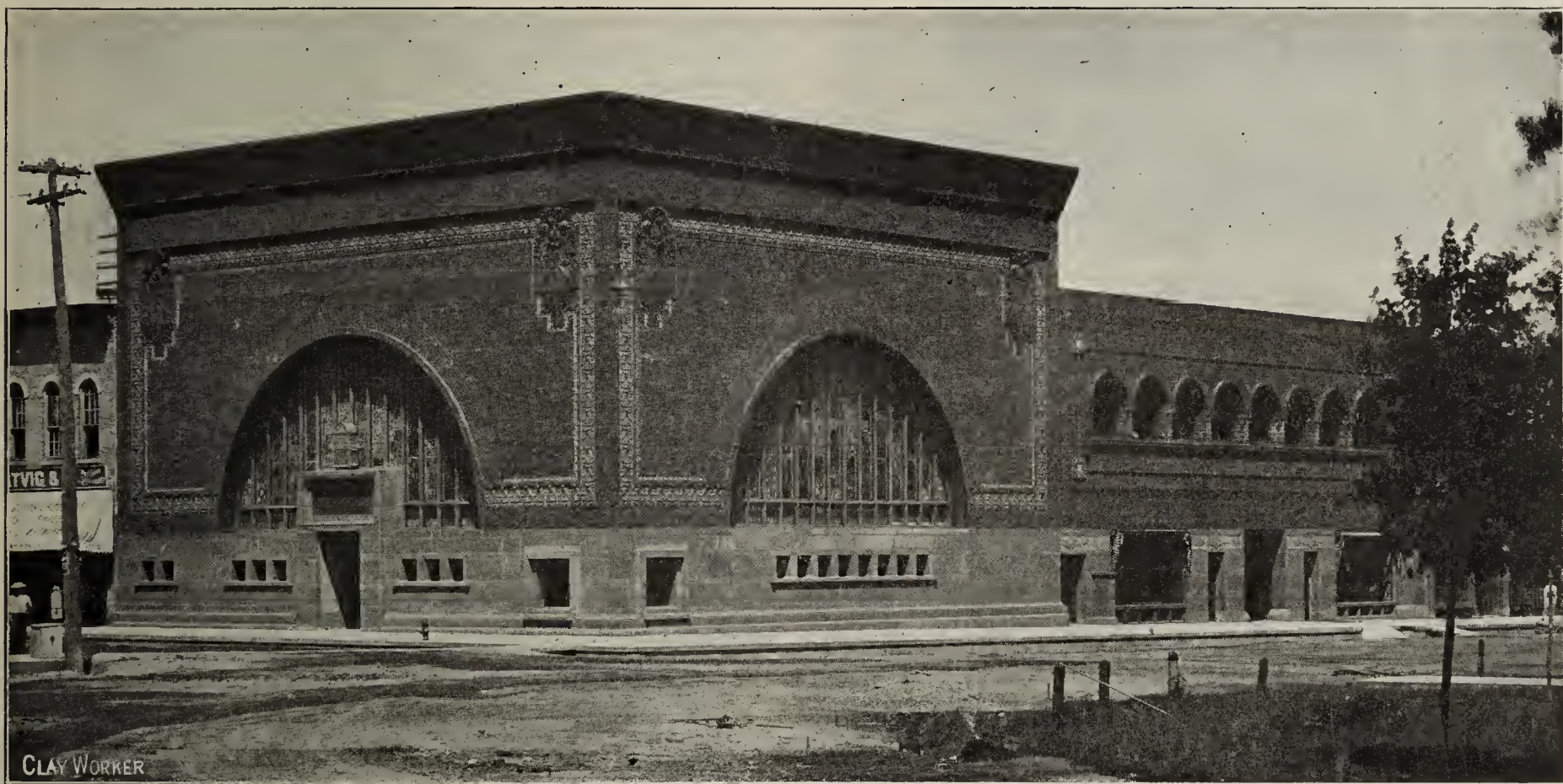
Written for THE CLAY-WORKER.

PERFECTION IN ARCHITECTURE.

The Artistic Side of Brick and Terra Cotta Construction Exemplified.

UP IN OWATONNA, MINN., is a veritable gem of a bank building which is already renowned throughout the entire Northwest, and which has commanded the attention and the praise of the architects and builders the country over. It is the new home of the National Farmers' Bank of Owatonna, and it is a monument of triumph and achievement for Chicago as well as for Owatonna.

It was the idea of Carl K. Bennett, vice-president of the bank, to put up a highly artistic structure which should stand for something more than fidelity to established types, but it remained for Louis H. Sullivan, a Chicago architect, to take the idea which had long lain in Mr. Bennett's mind and mold it and phrase it until it became virtually his own, and it remained for two Chicago companies to furnish the plastic



The Artistic Building of the Farmers' National Bank, Owatonna, Minn.

successfully, and it therefore takes a man of better mental calibre than the ordinary laborer.

9. If you want good gas plentifully, then use good fuel.

The second part will treat of the gas-fired continuous kiln.

J. J. KOCH.

A GREAT N. B. M. A. SIDE TRIP.

Rochester to Niagara Falls and New York City.

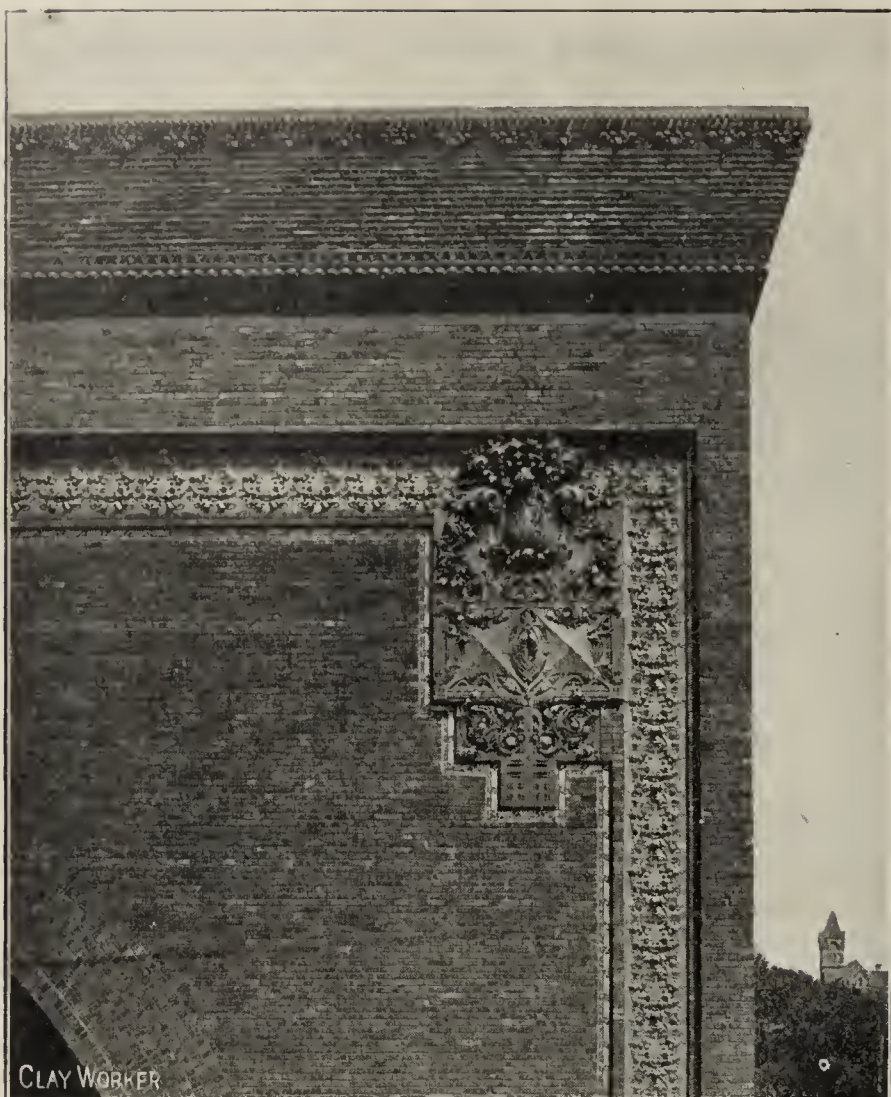
Arrangements are being made that will afford those who attend the National Convention at Rochester, February 1-6, an opportunity of visiting New York City, first spending a few hours at Niagara Falls. By the arrangement contemplated, a ten days' stop-over will be granted, so that those who wish to do so may spend a week or more at the metropolis. Full particulars will be found in the official announcement on a subsequent page of this issue. A very low rate will be made for the side trip, and special train service of Pullman cars provided. Write the Secretary if you contemplate making the trip, stating the number of your party.

material through which Mr. Sullivan has given expression to this masterpiece of his.

The chief material thus employed could be none other, of course, than brick and terra cotta, and the very highest types of each. The American Terra Cotta and Ceramic Company, of which W. D. Gates is the artistic chief, furnished the terra cotta, while the Bonner & Marshall Co. contributed their new famous Oriental brick to make a rich structural cloak, the equal of which has not been noted in the Northwest, if it has, indeed, in the whole country.

In its massive simplicity of outline, the building reminds strongly of some piece of early Egyptian architecture, yet this impression is scarcely strong enough to be really convincing. For one sees another similarity from another angle, and perhaps still another and another, each evanescent with the change of view, and all fading, or rather melting, together when the building is contemplated as a whole. So that there is little left to say, except that the architecture is "Sullivan-esque."

"It is my own," Mr. Sullivan says modestly when asked



Detail of Brick Cornice.

what type he has followed to get such wonderful proportions, such wealth of detail, such beauty and attractiveness, and yet produce a building so charmingly simple in line, and so expressive of practical purposes and the stern realities of busy life.

"You might call it common sense architecture," he adds simply.

Mr. Sullivan has long had a reputation for genius and originality and daring, and withal for sanity and practical good sense, and this latest product of his brain is held to more than bear out his previous renown. Mr. Gates and his company have given the western world some fine samples of structural ornamentation, or better, perhaps, of ornamental construction, and they too are credited with a triumph more wonderful than all their others. Messrs. Bonner & Marshall have been getting their new clay brick product into more and more artistic jobs for three years, and this, they assert, is the one of which they are most proud.

In short, the building is about as near perfection as it is possible to get, according to all testimony, expert and lay. Even in the item of bricklaying the builders were unusually fortunate, and everyone who has seen the building affirms that the walls offer the best exhibition of brickwork they have ever seen. The bricklaying honor must go to Owatonna, and to a man of the name (not unique in that State) of Anderson.

The bank itself is thirty-five years old, having been established by Dr. I. L. Bennett, who is still its president. When it came time to construct the new building, the bank had at its disposal for a site more land than was really necessary for strictly banking uses. There was a corner lot 68 feet on the west, and 154 feet on the south. To use Mr. Bennett's own expression, "the problem resolved itself into one for the construction of a monumental building for banking purposes, occupying 68 feet square on the corner, and of so covering the remainder of the lot as to insure a fair cash revenue by using it for two shops, fifteen office units, and a small warehouse." All this was to be part of the one building,

and would have of necessity to be entirely harmonious in material, design and construction.

The exterior of the building shown in the photograph indicates how beautifully this aim was achieved in points of design and construction. It would take actual observation or a faithfully tinted photograph to illustrate the height of art also struck in the matter of material, and to show the way it was worked into a harmonious color scheme.

On the exterior, reddish brown sandstone forms the base of the entire structure. Above this comes with all the soft effect of tapestry the Oriental brick, with their wealth of soft variegated shades, all harmonizing together, and with



Terra Cotta Ornamentation of Bank Clock.

the sandstone base. The bricks are laid with every fifth course a "header" course, and with raked-out joints. The chief part of this brick wall in the main bank building is framed in a border which is one of the most striking features of the exterior. It is in the Teco green, shot with faint yellows and orange, while the large ornament at the turn of the band and the work in the cornice above is of a soft, dark red, to harmonize with the brick.

The border itself is framed in a band of glass mosaics in high colors. This color scheme is further carried out by the stained glass windows inclosed by the mammoth arches which break the "wall of tapestry" with its green border. These windows also give the effect of a richly variegated green, thus hemming in the mass of brick completely. Strong and varying as these colors are there is nothing garish about them. In the distance they blend, but close at hand they hold their individuality without "swearing."

The photograph of the detail shows the exquisite workmanship put into the exterior alone. The fine example of bricklaying in the overhanging support for the terra cotta cornice is also brought out distinctly.

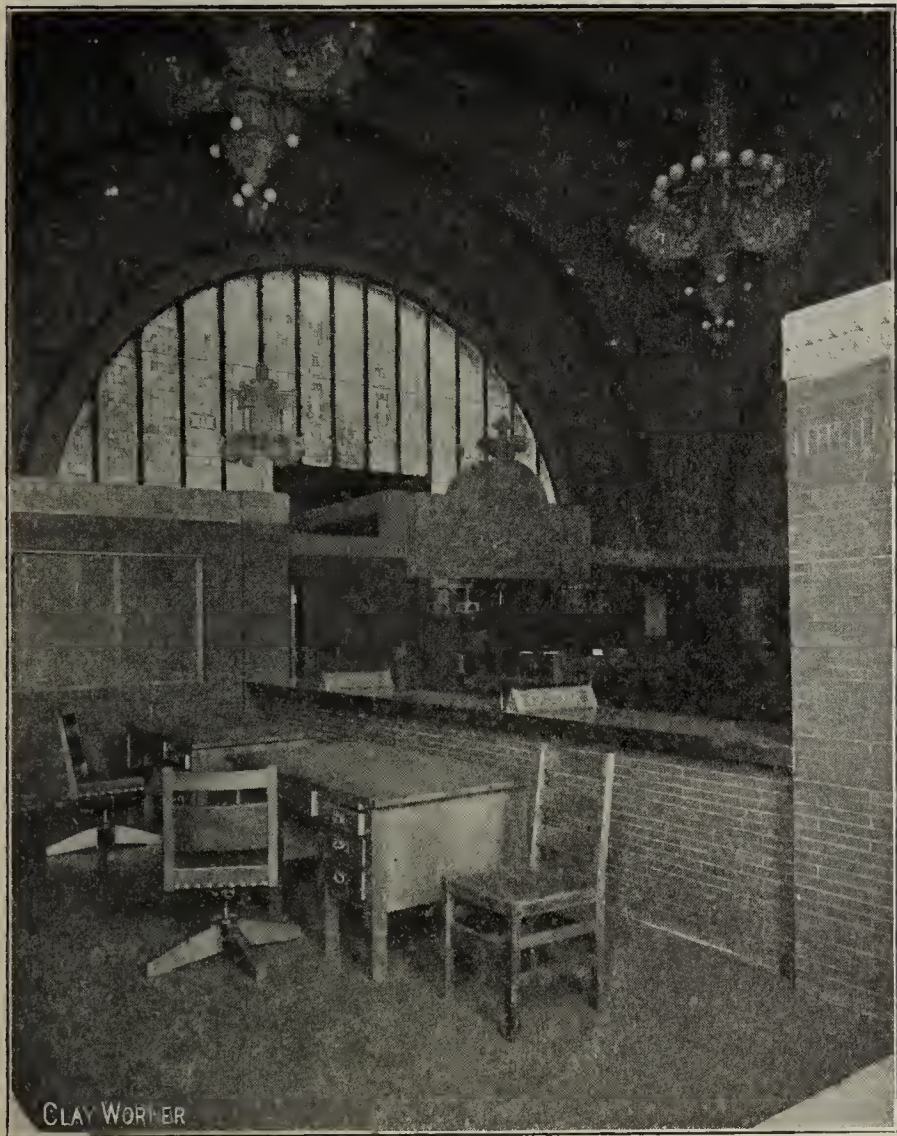
The interior is in perfect accord with the outside. It is ornate, but with nothing of the "gingerbread" character which, in ornamental structures of small cities in the west, is prone to take the place of genuine artistic merit. The

color scheme of the exterior is carried out on the interior—green and dark reds predominate in masses of color. The floor is of plain green tile, and the wainscoting is of Roman brick of a rich red color (the "Hanover Reds," also furnished by the Bonner & Marshall Co.) Topping this wainscoting is an ornamented band of terra cotta, also in Teco green.

The same effect is preserved in the counters and partitions. They are of the rich red bricks, capped with green terra cotta, while the counter tops and deal plates are of Belgian black marble. The color scheme of green and ruddy browns—"colors of early spring and autumn," Mr. Bennett calls them—is held even in the craftsman woodwork and furniture, quarter-sawed oak of soft brown finish, with a subtle undertone of green.

It is the terra cotta work against the brick, however, which is the glory and the wonder of the building. The beautiful work on the exterior is an index, but a wonderful vision of detailed work meets the eye once on the inside.

Straight away in front of the door, above the tellers' windows, and back of them, a wonderful clock, framed in by a still more wonderful terra cotta wreath meets the eye. The clock is the crowning piece of the partition wall back of the "cages," a narrow, horizontal section of which shows above the line of the bow-windows, in front of the "cages."



A Corner of the Directors' Room.

This back partition wall of red brick is surmounted by an ornamental band of terra cotta—green—which is so gracefully molded to the wall that it fairly flows along it and into the wonderful clock frame in the middle. The face of the clock is in bronze, harmonizing with the ruddy wall, and the surrounding wreath is of enamel terra cotta.

Rivalling, if not surpassing the clock frame as a tour de force in terra cotta work, is the magnificent panel above the door. Many critics have declared it to be the finest single piece of work in position anywhere in the country, and the sympathetic details of contour and color whereby it harmonizes perfectly with its surroundings, speak volumes for

the art and workmanship of architect, designer, and manufacturer.

The same general effects are carried on through the shop and office portion of the building, the interior of this building being notable for its piers of rich brown terra cotta, brightened by ornaments of Teco green and bright blue.

Little has been said of the shop and office "extension," if the term may be used of the bank building. Extension it is not in any sense, save that of usage, for the entire structure is a graceful, strong unit of architecture. The same force and beauty is observed in this portion, however, with a shade less ornamental variety.

Provision is made that the farmers' who bring their business to the bank shall be attracted rather than repelled or frightened away by the unwonted grandeur and luxury. A farmers' exchange room, a women's room, and a consultation room have been included. The farmers' exchange room is finished with white glazed tile walls, green tile floor, and leaded glass panels between heavy beams of oak for a ceiling. The women's room is arranged in homelike fashion of the very richest type, for the convenience and comfort of the farmers' wives. The consultation room is for the transaction of private business, and for private conferences.

SCRIP.

A FEW HINTS IN MAKING TILE.

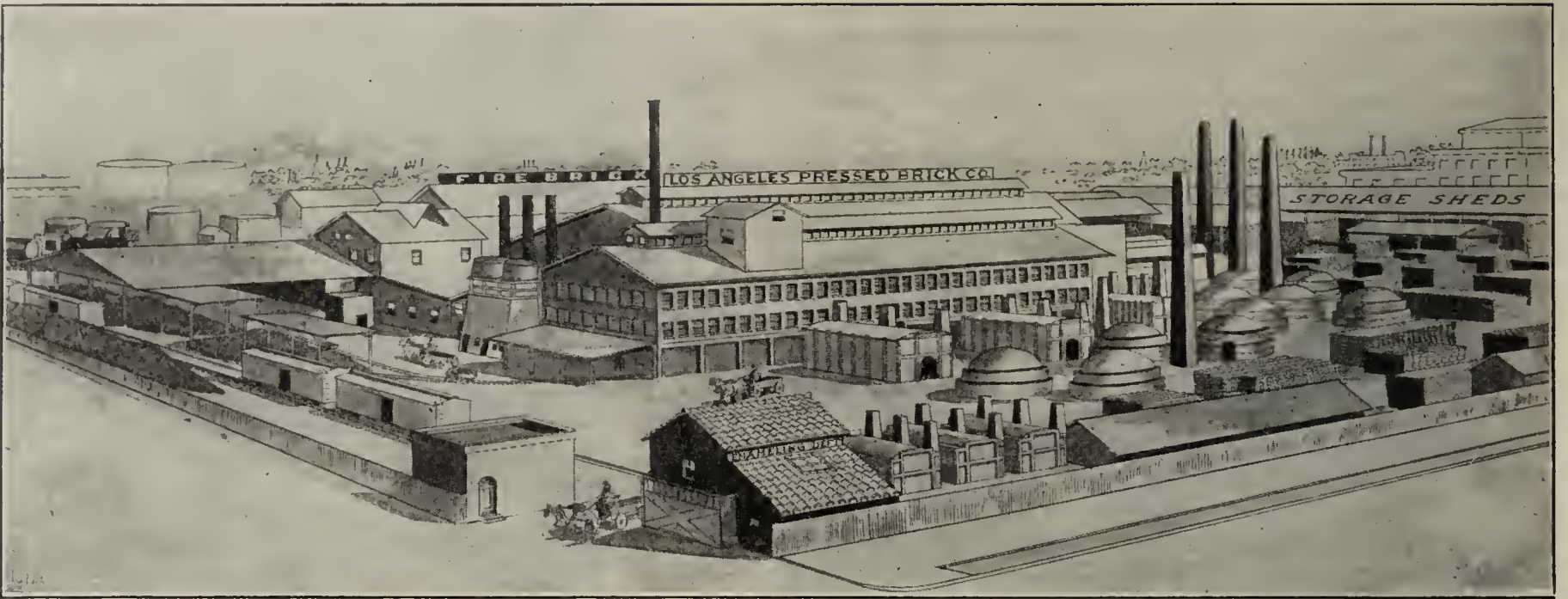
The selection and preparation of the clay is the foundation upon which to build for success in making good drain tile.

In the selection of the clay new beginners should, if possible, secure the aid of an experienced tile manufacturer to determine the probable adaptation of the clay for use in the business, otherwise it would be well to ship two or three barrels of the clay to a tile factory and have it made into drain tile, even if it should be necessary to transport it two or three hundred miles. The cost would be small, taking into account the fact that the characteristics of the clay could, in this way, be very accurately determined in advance of expending quite an amount of money to build a plant, besides

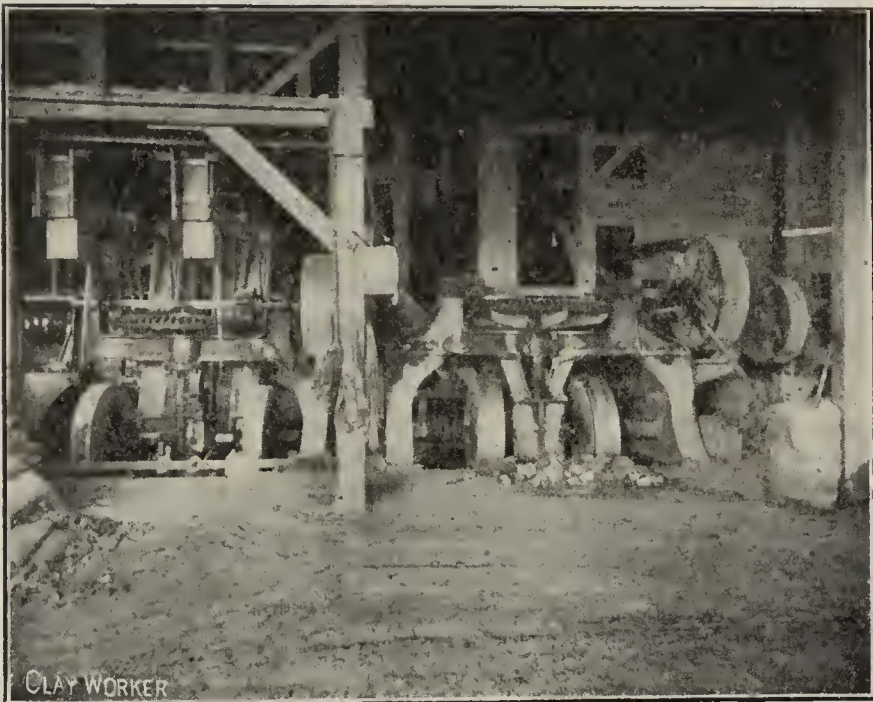


Interior View of Bank from Entrance.

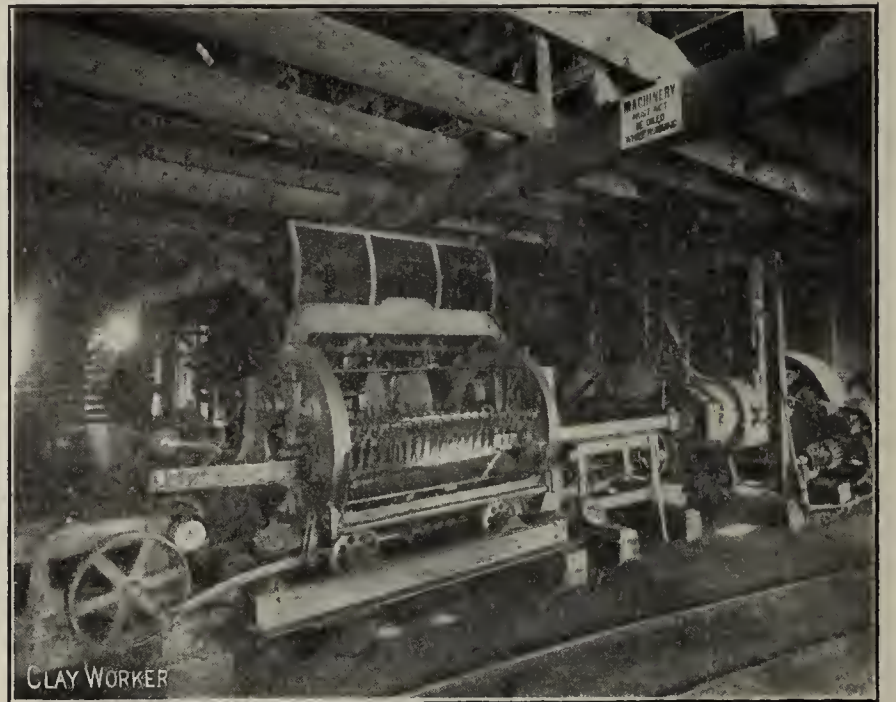
VIEWS OF THE PLANTS OF THE L. A. P. B. CO., THE LARGEST PRODUCERS
OF PAVING BRICK ON THE PACIFIC COAST.



A General View of the Los Angeles Press Brick Company's Plant, Los Angeles, Cal.



The American Dry Pans.



The Machinery Room.



The Santa Monica Plant of the Los Angeles Press Brick Company.

an experienced tile maker could advise as to the best methods of preparing and handling the clay, and thus save much in the cost and results in the future of the business. Clays that look alike do not always work alike. Indeed it is often found that clay in one side of a bank works much better than in another, and again it has been found that a careful mixture of clay from the top to the bottom of the bank will add much to the better homogeneousness of the clay and improve the product, and to some extent prevent cracking in drying and burning the tile. From our observations we conclude that there is much to learn yet in this field, and that there are experienced manufacturers of drain tile that do not know all that needs to be learned in the preparation and mixing of clays to get the best results. In the manufacture of the



Point Richmond Plant of the L. A. P. B. Co.



Operating Wet Pans.

finer clay goods great importance is attached to the uniformity of the clay. While it is not expected that so much care will be taken in the manufacture of drain tile as of brick, and yet every branch of clayworking should receive very careful attention. In tempering the clay, if the clay could be torn into the finest fragments and thrown into a mass like thistle down, it would add very much to the ease of evenly tempering it.

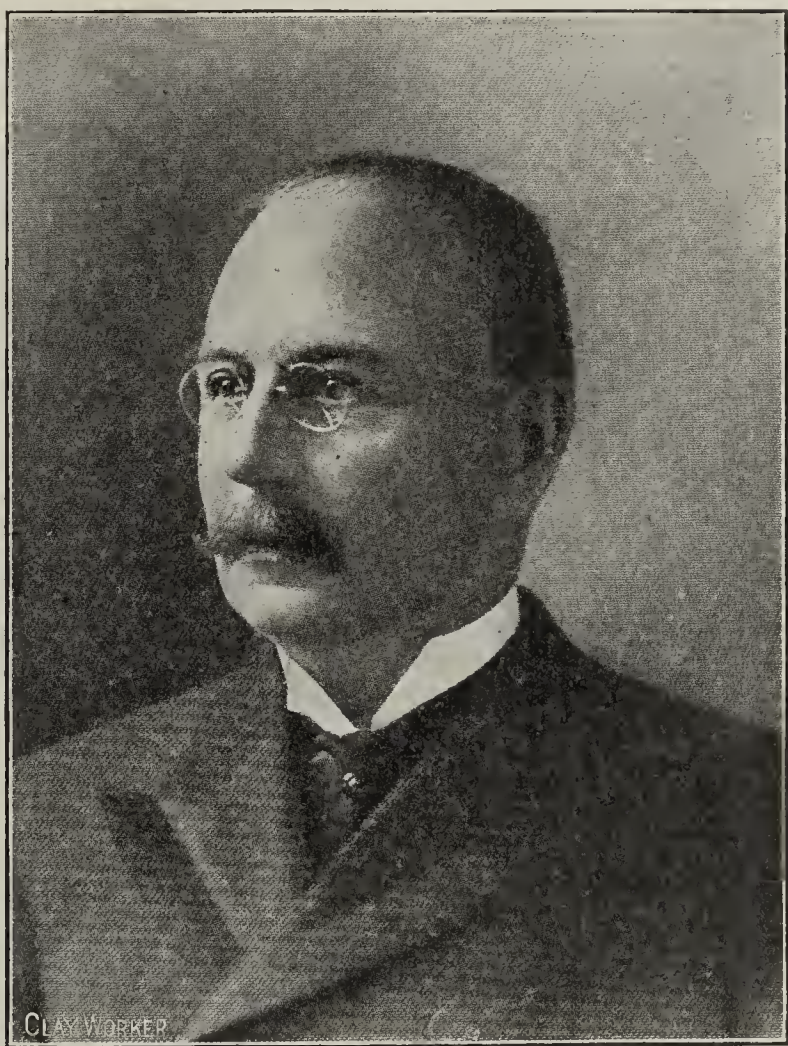
In tempering, do not trust this important part of the work to careless men. The most careful, observing man to be found should have it in charge, one that will note the condition of the tile as they come from the machine; how they handle, dry and burn. Care at this point will save many a dollar's worth of waste that would otherwise be lost in the business, besides make better drain tile.

Written for THE CLAY-WORKER.

A PACIFIC COAST BRICK PLANT.

THE LOS ANGELES Pressed Brick Company was incorporated in 1887, with a capital stock of \$60,000, and later increased to one-half million, the present capitalization. This company operates three of the largest clayworking plant of its kind on the Pacific Coast, and owns valuable clay lands in five counties, including almost inexhaustible mines of the only high-grade refractory flint clay deposits in the West. Upwards of 300 men are employed when the plants are running at full capacity.

The various products manufactured by this company, which has taken medals at the St. Louis and Portland Expositions, as well as first prizes in other fairs and exhibits, are as follows: Standard size pressed brick in all shades, Roman size pressed brick, glazed and enameled brick, roofing tile, mantel tile, floor tile, firebrick, fireblocks for all pur-



C. H. Frost, President Los Angeles Press Brick Co.

poses, fire clay, hollow tile fireproofing, vitrified paving blocks, vitrified sewer brick, and common brick.

Considering the phenomenal growth of Los Angeles, which may be better appreciated by referring to the census, showing a population of 52,000 in 1890, 102,000 in 1900, and a conservative estimate of 300,000 in 1908, it will cause no surprise to learn that the Los Angeles Pressed Brick Company, whose reputation as to quality and good service is second to none in the United States, has furnished the exterior facing and fireproofing material for almost all of the many fine, modern, substantial office buildings, hotels and other business structures, which reflect much credit on not only the manufacturers, but the city as well. The building record for 1907, though below the average, totaled almost \$13,500,000.

The Los Angeles Pressed Brick Company has supplied San Francisco and neighboring Bay cities with hundreds of carloads of pressed brick, enameled brick, and hollow tile fireproofing within the last year. One of their largest con-

tracts in the northern metropolis was the fifteen-story Hewes building, located at Sixth and Market streets, and erected, save only terra cotta trimmings, of the Los Angeles Pressed Brick Company's lightest shade of cream matt glaze brick. It is quite unnecessary to add that this is a revelation in brick work. Among other skyscrapers in which their material was a factor, are the Chronicle, Mechanics Bank and Phelan buildings. Lack of space prevents further enumeration. Besides covering both northern and southern California, their market embraces Oregon, Nevada, Utah, Arizona and Mexico.

At the Los Angeles factory, where they manufacture everything excepting vitrified paving blocks, sewer and common brick, there are in all nineteen down-draft kilns, which, together with buildings, sheds, stock, etc., almost completely cover the ten acres of land. The main building, three stories

in force here, thus insuring as good a quality of vitrified paving block as demanded anywhere in the United States.

The machinery used at the paving brick factory is the Chambers end-cut repressing paving brick machine, easily capable of turning out 80,000 or more blocks per day, besides one Sterling and two horizontal tubular boilers, as well as a Corliss engine. They are using two American dry pans and an American pug mill. They have eleven down-draft kilns at this paving brick factory, with a monthly capacity of between 500,000 and 600,000 blocks. They also manufacture at this plant, vitrified sewer brick and common brick totaling in the neighborhood of 5,000,000 per year.

The Point Richmond factory, which has as its market San Francisco, about ten miles distant by rail and on water, has an annual capacity of approximately 20,000,000 common



Immense Piles of Paving Brick on Yard at the Santa Monica Plant of the L. A. P. B. Co.

in height, is equipped in the latest, most up-to-date manner, having every known labor-saving device to facilitate operations. Spurs from both the Southern Pacific and Santa Fe Railroads run into the factory yard. Mr. C. H. Frost, president of the company, who has had thirty-two years' active experience in the brick business, twenty-two of which has been as president and general manager of the company, is largely responsible for its success.

Paving brick did not come into general use in Los Angeles and surrounding cities until 1906, since which time the demand has been constantly increasing. At present their output is limited to 500,000 blocks (3¼-inch) per month, but this will doubtless be doubled in the near future. A 20 per cent. rattler test, as well as other specifications adopted by the National Paving Brick Manufacturers' Association, are

brick per year. This plant is one of the finest and most modern of its kind in the United States, operated entirely by electrical power.

A Question of Insurance.

One of the large fire insurance companies was recently engaged in a suit with a Michigan farmer over a brick chimney. Lightning had struck the chimney, knocking it down and slightly damaging his house. The farmer asked for damages which the fire insurance company refused, claiming that the chimney could easily be put up again, as the brick were all there and in good shape. The case was argued pro and con, brick taking the principal part in the arguments. The farmer was given judgment for \$150, which the company paid for his brick chimney.

COMMON BUILDING BRICK.



COMMON BRICK makes up by long odds the greatest individual item in the clayworking industry, the total product for 1907 being \$58,785,461. The next closest item to it was fire brick, with a total of \$14,946,045. In other words, the total value of common brick is more than four times that of the next item of value in the classification of clay products. Then, when we consider in this connection that common brick is the cheapest of all clay products, we begin to get some idea of the magnitude of the common brick industry. It is practically double what it was ten years ago in point of quantity, and the price is a little higher, but not much. The average

in the industry, but should have furnished an opening for new industries in various parts of the country.

Is it because this is a common product and comparatively easy to make, and well known and understood by the world at large, that there is no more specific effort at pushing it and talking it up, or what is the trouble? From time to time it has been suggested to brick manufacturers that they should cultivate the retail trade; that is, get in touch with the dealers in building material throughout the country, and stimulate the use of clay products through them. This should include the extended use of common brick, as well as that of front brick and ornamental terra cotta. That's what the cement and concrete machinery people are doing, cultivating industriously the retailers in building material and encouraging them to put in concrete block machinery, and to use cement in various ways, and it has probably been due in some measure to the



Front View of the Los Angeles Press Brick Company's Plant, Los Angeles, Cal.

price per thousand ten years ago was a little more than \$5.00, while the average price last year was a little more than \$6.00. The common brick product showed a steady gain both in quantity and in the value of the product, not necessarily the average price, but in the total value in the past ten years until in 1906, when it dropped off a few thousand dollars in the total value of the product, though the quantity manufactured was in excess of 1905. In 1907 it showed a considerable falling off, and it now seems in order for the makers of common brick to get busy and stimulate the further use of their product. There is no logical reason why it should not continue growing larger, and the reports for 1907 ought to have shown more than 1906. The price of lumber was high, and this should have been in favor of extending the common brick industry, not only in widening the markets for those already

activity in these lines by cement and concrete machinery people and the lethargy on the part of brick people that has caused part of the slump in the common brick trade. Logically the increase in common brick should have gone right along with the increased use of the ornamental brick, and that it has not seems due in some measure to lack of specific pushing on the part of the trade interested most in common brick. If this is a fact, it should be comparatively easy to remedy it. Some of the ways and means to remedy it have been suggested right along. So, now why not let us set about it so that soon the common brick product may be going again at its old rate? There is plenty of room to spread, and plenty of material to make the product out of.

Ambition is an essential element to progress with any man, but to bear good fruit ambition must be carefully pruned and cultivated.

Written for THE CLAY-WORKER.

BRICK PAVEMENTS THE SALVATION OF PANAMA CITY

They Have Made Sanitary and Clean Streets of What Were Formerly Breeding Places for Mosquitos.

GO WHERE YOU WILL in search of substantial brick pavements, either in tropical or temperate zone cities, and I venture the assertion that you will find none better than those in Panama City—a city whose streets were once, and but a short time ago, mud and pools of stagnant water, where the mosquito bred, and where the deadly fever germs housed themselves and waited to sally forth upon their victims. Today Panama City is a city with brick pavements equal to those found anywhere. Having effaced her record of the past for being a city with almost impassable streets—or rather no streets at all—on account of the mud and water therein, she is ready today to step boldly forth and enter a competitive contest with the cities of the world, that she may claim the awarded medal for the

call it, was made and poured among the joints of the brick and well swept into them. Thus they are kept tight.

The pavements are laid in what might be called a half-barrel shape, to use a common expression, that is, they are arched in the center, the gutter being considerably lower, and so the water finds a rapid flow and leaves the street with a rush.

Now when the conditions are considered, we must say that brick are the only material that would give Panama City the pavements she has today. A city where there are drivers of vehicles who have no experience at all, and upon whose streets dozens and dozens of carriages and wagons pass every few minutes; this, coupled with other conditions, makes her boast of her brick streets.

As to the cost of the brick delivered in Panama City, I am not in a position to give an accurate statement, but a gentleman told me he was of the opinion that they cost about 5 cents each, gold. From this the mathematician can compute for price in large lots. My informant had at one time been connected with the work.

All the streets are paved with brick, and those who knew



Intersection of Avenida Central and St. Anna Plaza, Panama City, Paved With American Made Brick.

best brick pavements. In this contest all conditions must be considered.

It is here in Panama City, where, for part of the year, the rain comes down in torrents, and in so doing would almost loosen a Gibraltar, that you find these bricks seemingly deriding the rain as it falls upon them and saying: "We are immovable and are here to stay, because we are American made and also American laid."

Some of these brick streets have been down nearly three years, and there are no ruts in them. The streets were chosen for illustrations that get the hardest wear. The pavements were laid first by placing a 6-inch concrete foundation upon the soil, and rolling it with a street roller. Upon this a layer of sand was placed and the brick then set upon this face to face, that is, the edges were left as the part for traffic use. It is said that when the work was begun the brick were laid with faces up, and that Gov. Magoon put a stop to this and advised the present method. It has proved that keen penetration which is characteristic of the Governor.

After the brick were in place, a "cement wash," as they

the city before she had her brick pavements and who know her today, are astonished in an agreeable manner when they think of the great change and contrast her mud and water streets of the past and substantial brick pavements of today.

Aside from the manner in which the pavement is made, the brick are those of quality. Although the streets get the hardest wear, no repairs have been done and are not likely to be needed for years, from appearance now. Cities and towns contemplating paving would surely adopt brick as the material if they knew the history of Panama City.

One does not have to be much of a prophet to foretell that Panama City will soon become a very popular resort for American tourists. There are many things in this tropical country that appeal to the sightseers, and, now that there is little or no danger from yellow fever and other malarial troubles, those who choose may visit Panama safely. There are many things of interest in this vicinity, and we illustrate one especial point of interest, Gold Hill, which is in the heart of the great Culebra Cut. I presume the name is due to the fact that gold is said to have been found in the hill.



THE HIGHEST SANITARY CONDITION

THE GREATEST COMFORT IN TRAVEL

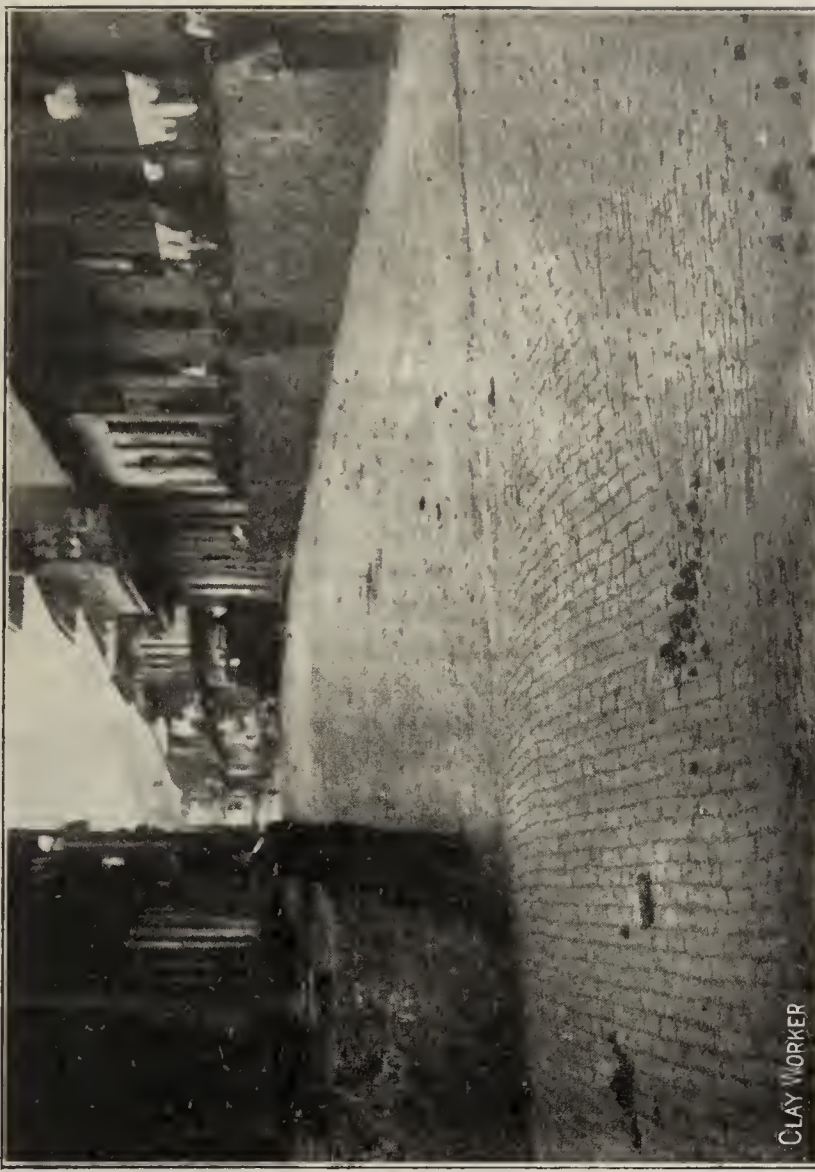
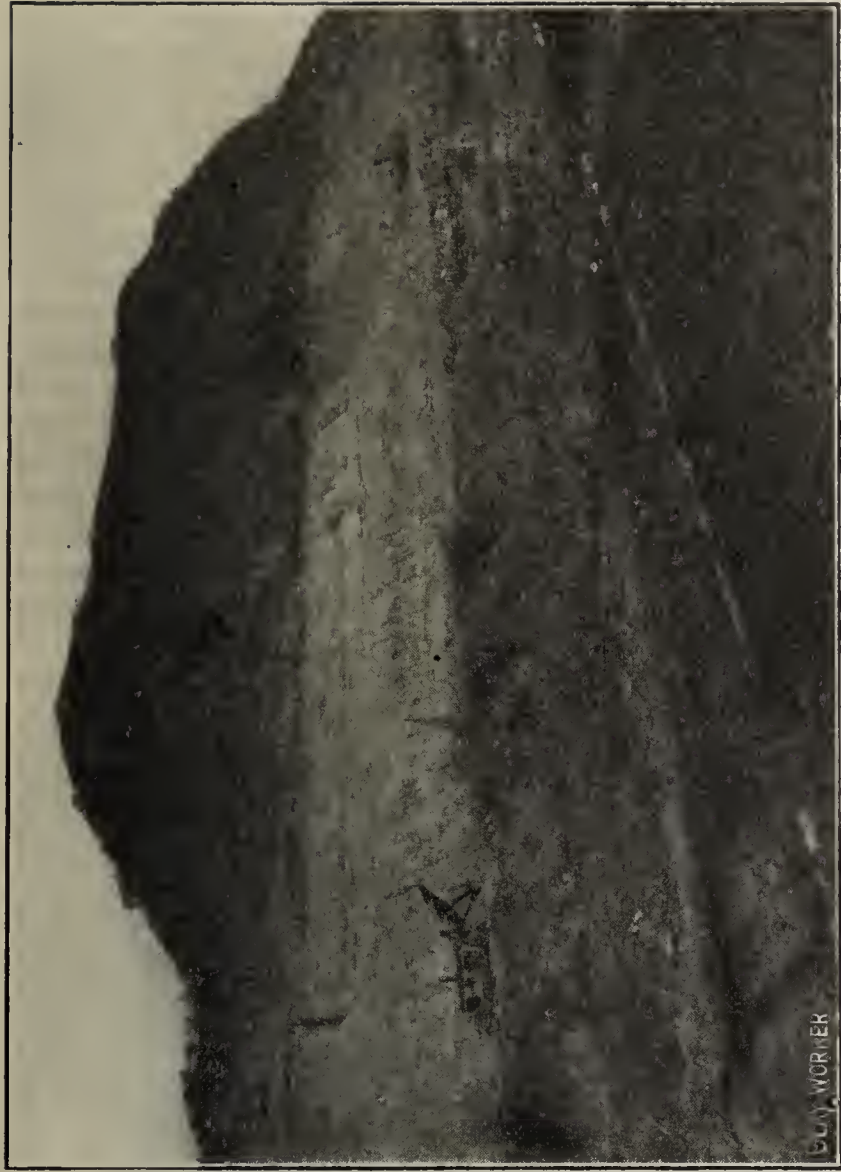
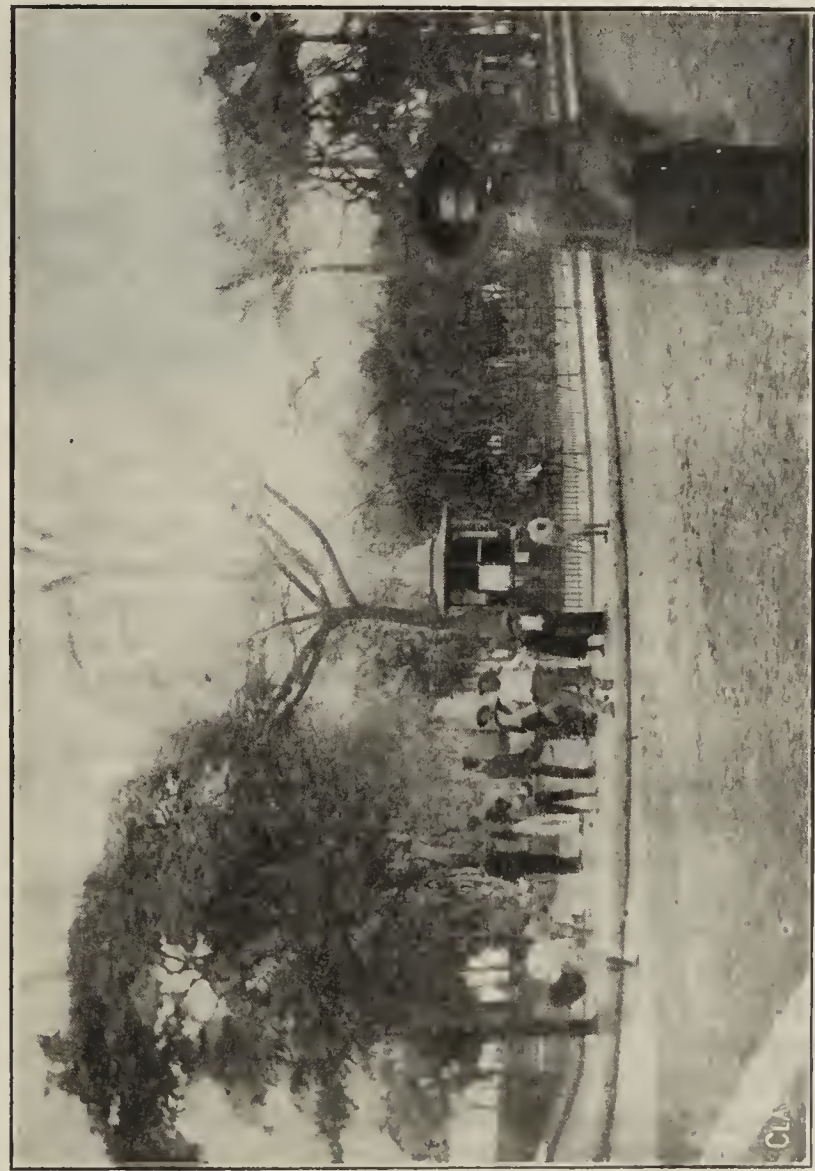
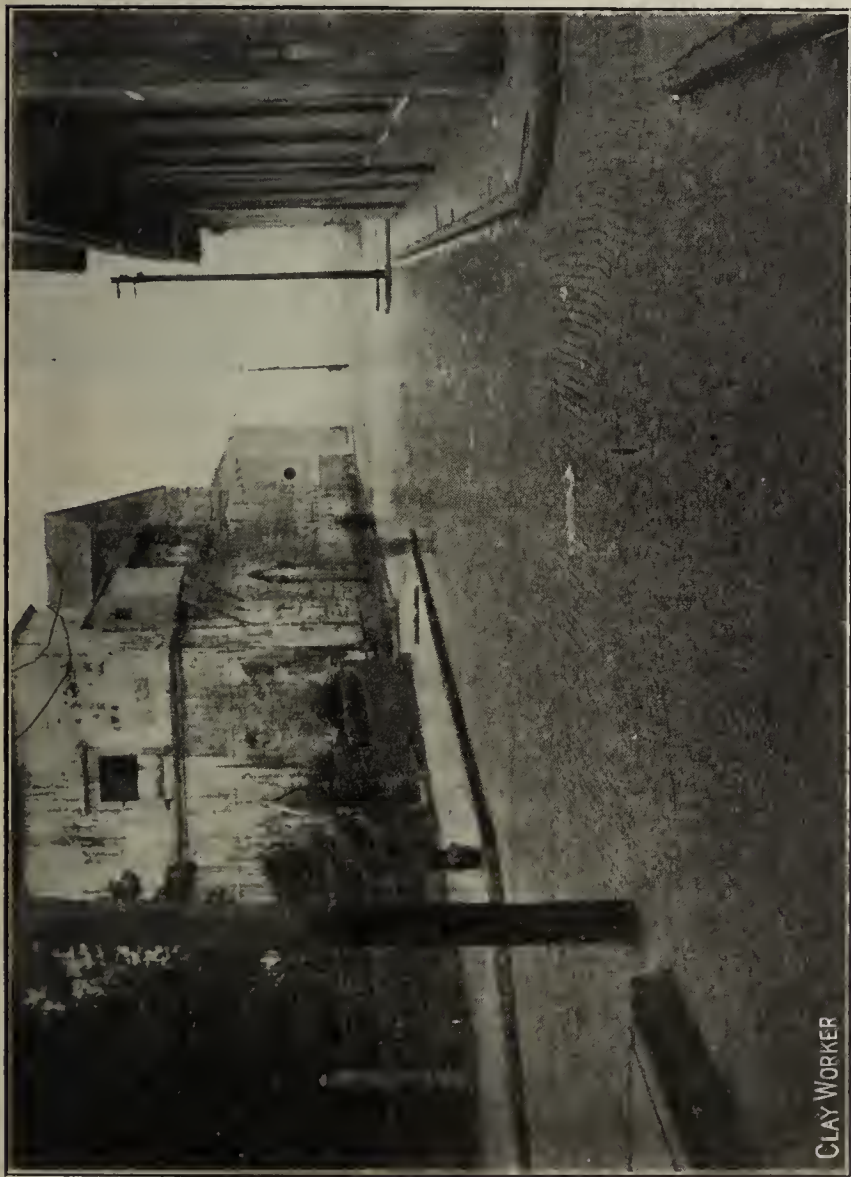
THE LEAST COST OF MAINTENANCE

IS REALIZED IN A PROPERLY CONSTRUCTED
VITRIFIED BRICK STREET

IN A VITRIFIED BRICK HOUSE

SANITATION COMFORT ECONOMY

AND A DELIGHTFUL IDEAL OF THE BEST IN ART
IS EVER PRESENT



INTERESTING SCENES IN AND ABOUT PANAMA CITY.

- (1) Avenida B, Panama Bay in the Distance. (2) Gold Hill, in the Heart of the Culebra Cut, (3) St. Anna Park as it Appears in December. (4) Intersection of Two of the Main Thoroughfares.

In the picture two steam shovels may be seen above and two below. Along the line marking the path of the lower shovels may be seen the steam drill, which bores the holes into which the dynamite is put for blasting. The position of the shovels show how the earth is being cut away in ridges and sections. When the shovels reach the canal bed, the lower level of which is indicated by the pipe line in the picture, they are again elevated and an additional cut made, and so the work goes on until the full width of the canal has been excavated.

There is a legend connected with Gold Hill that is quite amusing. The story goes that while the French were digging the canal, a force of men were working night and day making a tunnel under it for the purpose of blowing up with dynamite that portion through which the canal was to pass. One night during the wee small hours, an apparition appeared, frightening the workmen out of their wits, and, dropping their tools, they fled pell mell and could not be induced thereafter to resume night work. The cross in the picture indicates the boundary of the canal through Gold Hill.

Another interesting view, taken especially for THE CLAY-WORKER, is that of St. Anna Park, in Panama City, as it looks when it is winter in the United States. A tall palm tree may be seen back of the pagoda, near which may be faintly seen the dome of an old church which is nearly 2,000 years old. The foreground of the picture shows a street paved with American made brick.

Another interesting view is that of a native hut situated between Empire and Culebra, cities in the Canal Zone. This is on the line of the great Culebra Cut. These huts are built crudely and thatched with palm leaves, making a waterproof roof, and one which wards off much of the tropical heat. Few of these huts have any floors other than Mother Earth. The thatched roofs are not very durable, but have to be renewed about twice a year.

The street scenes pictured give a faint idea of the quaintness of the town, that of Avenida B, one of the heavy traffic streets of Panama, leads to the capitol, and in the view shown a glimpse of Panama Bay is seen in the distance.

Another of the busy thoroughfares is shown in the view of St. Anna Plaza, which is in the heart of the city. The picture was taken at a time when the street was almost deserted; nevertheless, it is really subject to heavy traffic for a tropical city, but, thanks to brick pavements, it is now a clean and wholesome thoroughfare.

Conduction of Heat in Brick.—In the last annual convention of the Manufacturers of Refractory Materials, Prof. Mehner mentioned the fact that there was no data available regarding the conductivity of heat by brick. Dr. Simonis, of the Royal Testing Station, has recently made experiments in order to determine this point. He found that the rate of conduction of heat through brick is proportioned to the amount of enclosed air in the same, and has no relation as to the materials of which they are made. Three kinds of brick were used in the test, a porous red brick, a fire brick, and a carborundum brick. It was found that the red brick having the greatest porosity had the greatest rate of conducting the heat, while the carborundum brick, having the least porosity, conducted the least amount of heat.—Sprechsaal, No. 40, 1908.

Written for THE CLAY-WORKER.

THE POWER OF THE FUTURE.

Water, Air and Electricity to Supersede Steam.

BY W. R. CUNNINGHAM.

ELECTRIC DRIVEN clayworking machinery is not a thing of the future, it is here and here to stay, until some more economical and better power is evolved to take its place. There is some difference of opinion as to how motors should be attached to clay machinery, whether direct connected by gearing direct to the machine, or by connecting with a belt. In our opinion the latter is a step backward, although a great many electric engineers advocate the belt drive in preference to the gear drive. This is due to either their lack of information as to what is required, or the companies they represent do not build the necessary class of motors required to drive clayworking machinery when direct connected.

When electricity was first applied to drive clayworking

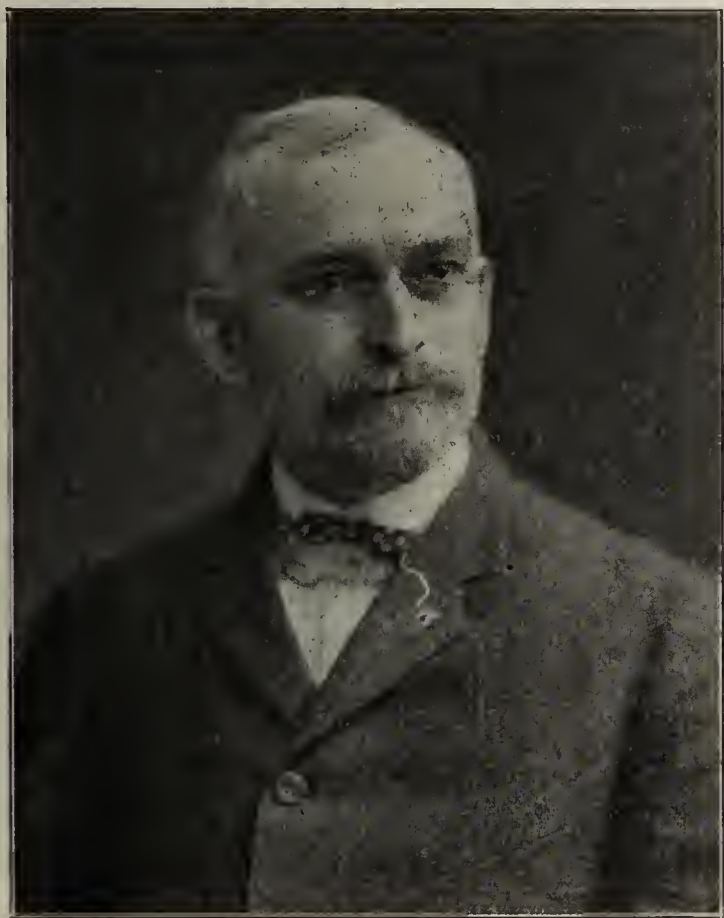


A Native Hut Thatched With Palm Leaves.

machinery, some trouble was experienced in getting motors which would start and drive the individual machines, the electric people claiming that the power required was underestimated. This caused a number of users of motors to install larger motors than were necessary, which added to the cost of installation. In one case a 90 h. p. motor was provided to drive a machine which required 75 h. p., maximum load. The motor furnished did not drive the machine satisfactorily, and the electrician recommended a 200 h. p. motor to do the work. By test made later the actual power required was 55 h. p. As the customer was a layman, he could not see that ample power had been provided and that the motor furnished was not of the proper construction to carry an overload for a short time, and was not built with a sufficiently high starting torque to start the machinery without burning out. Motors installed with American machines are built to carry a high percentage of overload, and have a high starting torque, so that there is no danger of the motors heating or burning out. Some of the motor builders have been so successful that they will advise using smaller horse power motors, though we do not recommend depending on

their percentage of overload carrying capacity to carry the load. The motor should be large enough to carry the load under normal conditions without overloading it, and for clay-working machinery the motors should be designed with one and one-half to two starting torque, and then direct connect them to the machine with gearing.

We often find central power plants with very high voltage using from 20,000 to 120,000 volts, and the amperes and voltage fluctuate greatly. In such cases it has been found necessary to provide motors with high starting torque, and at least 33 per cent. larger motors than is necessary to drive the machine under normal conditions, so as to take care of the quick and high fluctuation. Under these conditions, it is necessary to provide driving gears and pinions made of steel, to stand the sudden shock thrown on them. The motors should be mounted in such a way that they and the machines are self-contained, to keep the gears in perfect alignment, and each machine should be provided with independent starting boxes or rheostat. These can all be located at one place or close to the operator of each individual machine. By the motor being direct connected, all line shaft-



W. R. Cunningham, Bucyrus, Ohio.

ing, pulleys, hangers and belting can be dispensed with, and the machine can be located at the most advantageous point to prevent congestion in the plant, and reduce the standing operating expense of the plant. The cost of the buildings can also be reduced, as the machines can be arranged in smaller space, as no attention need be paid to having them line-up in relation to the line shafting. With the independent motor driven machinery, standing fixed expenses and congestion in plants can be overcome in a great many cases. In many localities heavy expense of excavating to set a plant is avoided, as the plant can be arranged on a very much smaller piece of ground.

We also encounter difference of opinion as to whether the gearing or belt connections should be arranged with friction clutch pulleys or not. We see no serious objection to friction clutch pulleys being used in connecting up motors with belts, but we advise against cut gearing being mounted on the hubs of friction clutches. A gear should be firmly keyed to the driving shaft, so as to hold it rigid. When placed on the hubs of friction clutches, the bushing in the loose part of the friction soon wears, causing the gear to become loose on the shaft, producing noise and excessive wear, and when

gearing is so arranged the operator will not always use proper judgement in starting his machine. Instead of "throwing in" his clutch so as to start the load gradually, he will start the machine suddenly, which places a very high starting torque or overload on the motor, which, when the machine is full of stiff clay, is much higher than the motor is designed for, causing the burning out of a fuse, if not of the motor. This is not so likely to occur when the belt drive is used because there will be, under this excessive starting load, a slippage of the belt or the belt will give sufficiently to compensate for the shock. We do not approve of the belt drive on account of the expense of maintaining the belt and repairs on the friction clutch pulley, and because of the extra space required to get sufficient length of belt. Neither do we approve of the gear being attached to the loose part of the friction clutch for the reasons stated above, but we would recommend that the cut gears be keyed firmly to the shaft. Also, that the motors be provided with rheostats for each individual motor, so that the load can be started gradually, without the danger of overloading the motor to the extent of causing a fuse or the motor to be burned out. Such accidents cause delays in the manufacture, which means lowering of the output and increased cost of production. We will not undertake in this article to set forth the comparative cost of installation and maintenance of electric driven clayworking machinery with other well-known motive power, as there are many local conditions to be taken into consideration which regulate the difference in the cost. No doubt there are those who are running electric driven plants, generating electricity by their own power plant or by receiving their current from trolley lines or centralized power plants, who can make comparison between electricity as a motive power and the cost of same, as compared with other power. We desire to take a few moments' time to outline the method by which electricity will probably be generated in the future, and distributed to the consumer. A great many plants are being driven by electricity generated by individual plants, while many others secure their electric "juice" from large centralized plants. As the cost of installing and maintaining a large number of power plants for generating electricity is greater than one large plant, and as this is an age of centralization in all lines of business, there is a tendency toward centralizing large electric generating plants. These centralized plants should be located where fuel is cheap and water is plenty, so that the fuel bills will be as low as possible, and by being located along streams of water, cross compound condensing engines can be used at no expense for water except the pumping. With the rapid development of internal explosive engines, run by producer gas, the fuel proposition is reduced to a very low point by centralizing the power. The cost of installing an individual power plant and maintaining same would be eliminated, and with modern centralized power plants the power should be furnished at less cost than he can produce it, also save building, space and insurance, as one of the dangers from fire would be removed.

The chief disadvantage in receiving power from a centralized plant is lack of independence, but as most business enterprises are in the business for all there is in it, there should be little or no trouble on this score. Should power from the centralized plant be unsatisfactory in any way, you can produce it by installing and operating an individual generating power plant.

With hydro-electric generating plants the cost to consumer could also be reduced. This type of generator is driven by rapids and artificial dams, the current thus generated being conveyed on feed wires stretching long distances and in any direction.

There are millions of horse power going to waste in the small and large living streams of water which form a perfect

network over the country. These streams of water can be utilized for generating plants, to produce electricity by the hydro-pneumatic system, for driving the machinery in a great many of our cities and towns, as well as for electric trolley lines. As the hydro-pneumatic power is not generally understood, it may be of interest at this time to describe an electric generating plant operated in this manner. A description of a power plant of this kind will show how power is going to waste, which the Supreme Being has provided for our use, and indicates His foresight in looking after our future wants when coal and other fuel is exhausted.

A hydro-pneumatic plant is, as the name indicates, air compressed by water, which is accomplished in the following manner: A round shaft is sunk in the ground, the diameter and depth depending upon the pressure of air required, and the volume of a living stream of water. At the bottom of this shaft and to one side is a room; the roof of this room being higher than the bottom of the shaft. To one side of the room, opposite the vertical shaft, is a passageway leading into an outlet shaft, extending upward. This shaft angles in the direction the surface water flows, and it extends from the level of the floor of the room to the surface

From the underground room is another pipe leading to the surface. The lower end is bell shaped, and is located just below the water line in the room. This pipe is for the purpose of allowing the air to blow off when the pressure raises above the working pressure. With this blow-off arrangement and the regulating inlet valve the plant is automatic, and the pressure of air will not vary one-half of 1 per cent. A raceway is provided leading from the creek or river, commencing up stream far enough to provide sufficient fall between the inlet and outlet shafts to cause the water to flow rapidly down the vertical shaft. This race conducts the water from the stream to the intake shaft, where it flows into the shaft around the funnel, falling to the bottom of the shaft. This creates a rush of water which draws the air through the small tube down through the vertical shaft, carrying it down to the bottom of the shaft. As the water rushes through the underground room from one shaft to the other, the air raises to the upper part of the room. This room becomes an air tank or compressor, and the pressure of air prevents the water from raising above a certain level in the room. From the floor of the room the water flows out of the outlet shaft and the compressed air is piped off to the



A Glimpse of the Brick Plant of the Bessemer Limestone Company.

of the ground. At the top of the vertical shaft is a metal cone or funnel, the opening or rim being below the surface of the stream of water or head race. Surrounding the rim of this cone are a large number of small air pipes leading into the inside of the cone. These small pipes are attached to an annular tube to which are connected large tubes extending above the surface of the water of the head race.

Another metal cone is inserted into the first one, and is operated by a regulating screw which raises and lowers it. This last cone acts as a regulating valve to regulate the intake of air. Leading from the room below to the top of the vertical shaft is a small pipe which conducts the air from a room to a device for raising the first mentioned conoid above the surface of the water in the race when the air pressure becomes too high, thus shutting off the inflow of water down the vertical shaft. From the roof of the underground room is a pipe of sufficient size to remove the air for the capacity of the plant. This pipe is the main air feeder to conduct the air to the power plant, or to be distributed over the city through pipes to different plants, similar to a compressed air plant in our modern factories.

power plant. The cost of a hydro-pneumatic compressor would depend upon conditions, but the writer has in mind one which compresses air sufficient to develop 5,000 h. p. with two 5-foot diameter intake shafts 330 feet deep. The cost of this plant was \$22.00 per horse power, and the cost of the power, including 5 per cent. interest on the investment, is \$2.50 per horse power per year. Think of it, and compare this cost to the fuel bill per horse power to run any other power plant. This compressed air can be led direct to all the steam engines in the city to be used instead of steam, but a better way, on account of the leaking that would take place in the piping and numerous engines, would be to have a large turbine engine driven by compressed air, and in turn driving an electric generator to distribute the electric power. With a layout of this kind you will see that the fuel and labor bills would be reduced to a minimum, and the smoke nuisance in a great many cities would be a thing of the past. It will be noticed that these air compressor plants can be located any place where there is a living stream of water, and a number of them can be located along the same stream, because it does not require a natural

waterfall or rapid to furnish the power in a hydro-electric plant, as the head race can be started far enough up stream to get the proper fall.

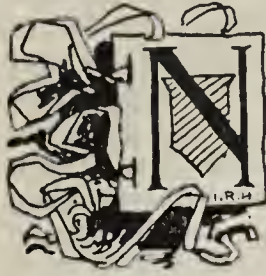
This system of compressing air was invented by Mr. C. H. Taylor, of Montreal, Can., and those wishing to investigate the matter further will find a complete description, with illustrations, in the January 19, 1907, issue of the "Engineering and Mining Journal."

In conclusion, try to picture in your mind a brick plant free from line shafting and the necessary millwright work to support it, or the necessary brick or concrete piers; no line shaft bearings to require proper oiling; no pulleys; no couplings to work loose; no belting to fan the air, break, or get loose and slip; no constant renewals and sewing of same; no danger of employes being maimed by being caught in belts, and such accidents to be followed up by annoying and expensive law suits, and payment of lawyers' fees, court cost and damages. And when the "electric juice" is taken from a centralized plant or trolley line there will be no boilers, no engines, no engineer, no fireman, no water, no coal, no smoke, soot, ashes, or dust. With the machinery properly built, setting on good foundations, driven by direct connected

Written for THE CLAY-WORKER.

THE BRICK PLANT THAT IS MAKING YOUNGSTOWN, OHIO, FAMOUS.

The Largest Continuous Kiln in the World, and Other Equally Remarkable Features.



EVER WAS A BRICK plant placed in operation under more favorable circumstances than the new factory of the Bessemer Limestone Company at Bessemer, Pa., some twelve miles east of Youngstown, Ohio. This firm, originally organized for the production of limestone and its resultant products, some years ago commenced manufacturing brick for the purpose of utilizing an extensive shale deposit which lies as an overburden on the limestone, and must be removed before the stone can be quarried. As a result of this combination, the question of shale for its brick department is merely incidental, as steam shovels with the necessary loco-



The Immense Clay Shed at the New Brick Plant of the Bessemer Limestone Company.

motors, a greater portion of the noise is removed. Then imagine a dryer drying your brick with waste heat drawn from kilns being burned with producer or natural gas, thus eliminating smoked up brick in the dryer, no coal laying around the kilns, no men to handle the coal and ashes from the kiln, no smoke rolling from the kilns. This is not a dream, but the future brickmaker's millenium, which a great many are enjoying today.

THE SCHURS OIL BURNERS IN CALIFORNIA.

The Los Angeles Press Brick Company have just opened up the first kiln of paving brick at their new plant at New Mark, Cal., and are well pleased with the result. They have eight large down-draft kilns at this plant, all equipped with the Schurs oil burners of the No. 1 pattern, which is specially designed for down-draft kilns. The Illinois Supply and Construction Company, of St. Louis, are sales agents for the Schurs oil burner, which is guaranteed to use from 10 to 16 per cent. less oil than other oil burners, and at the same time obtain better results.

motives and cars daily handle enough material to manufacture a million brick, so that under these conditions only the choicest shale is used, the balance being sent to a waste bank.

The original brick plant of this company was successful from the beginning, and the demand for paving block and brick having outgrown the capacity of its No. 1 plant, the erection of a second one, to be known as No. 2, was authorized, and construction began in the spring of 1907.

The general plan and arrangement was designed by Mr. Charles M. Crook, general manager of the company, the engineering details and construction being handled by Mr. F. R. Kanengeiser, general superintendent. Mr. Crook has had large experience in the stone and brick business, having been manager of the Bessemer Company for many years, his administration covering the period of development of its large interests, and during the past four years he has been ably seconded by Mr. F. R. Kanengeiser, a trained mechanical engineer of ability, and a graduate of Case School of Technology. Mr. Kanengeiser has as his assistant Mr. A. J.

Aubrey, a graduate of the Ceramic School of Ohio State University.

The construction work on No. 2 plant was commenced in April, 1907, and the first brick made on November 9th, 1907, which, considering the size of the plant, its substantial construction, and the difficulty experienced in securing sufficient labor, was a very satisfactory record.

The engine room of this plant is a brick building, 30x75 feet, giving ample room. A 500 h. p. Allis-Chalmers Corliss engine furnishes power for the entire plant except the fans and electric lights, the latter being cared for by a Ball engine and a Crocker-Wheeler generator. The main drive from the engine to the main line shaft is of rope, after the English system, but from the line shaft to the various machines canvas belting is used. On a lower level, adjoining the engine room, is the boiler house, containing two Sterling boilers of 300 h. p. each, an 800 h. p. Cochrane feed water heater, and two Fairbanks-Morse pumps. Soft water is obtained from driven wells, and as the water is exceptionally free from chemicals it is well adapted to use in the plant.

The machine room is of brick, 79x110 feet, with a trussed roof construction, of a design which carries the entire roof on the side walls, doing away with the necessity of intermediate supports. The advantage of this clear space must appeal to the experienced manufacturer. This room is de-



Shale Conveyors, Looking Towards the Dry Pans..

signed for two lines of machinery. The line shafts are carried on concrete piers, high enough so that ample head room is gained throughout. One line of machinery is now in operation, and the second in place, all of which was furnished by the Bonnot Company, of Canton, Ohio, and is representative of the latest type of stiff mud outfits, for which the Bonnot Company is noted, and as installed here comprises two 12-foot pug mills, two Canton Special brick machines, an automatic cutting table, and a reel automatic cutter—this last an entirely new design, the first of its type installed by the Bonnot Company.

The above described machinery is designed for an easy production of 200,000 brick per day. In addition to this there are four Bonnot represses. Adjoining and at right angles to the machine room is the shale storage and dry pan room. The shale storage has a capacity of 20,000 yards of raw shale, which is fed the dry pans by conveyors, tunnels for which are placed below the floor level. Each dry pan is fed by an independent belt. The tracks on which the shale is delivered are four in number, carried on "I" beam construction, 30 feet above the floor level. This building is of concrete and brick construction. Four Bonnot dry pans of the heaviest type are installed.

The dry pan setting is a radical departure from the usual practice, in that false bottoms and sweeps are omitted, the

inside walls of the foundation being of sufficient depth and slope, so that the flow of ground material is concentrated to the point of discharge to the elevator. The dry pans are set in pairs, the foundation arrangement permitting two machines to discharge to one elevator and screen. From the pans the ground material is elevated 35 feet, passed over piano wire screens, the rejections returning to the pans for regrinding and the screened material dropped on a conveyor belt, which discharges it into a ground shale bin of



A Glimpse of the Repress, No. 2 Plant.

some 200 yards capacity, built directly over the brick machines in the machine room. From this bin the ground shale is drawn from numerous ports onto a smaller conveyor, which discharges into small regulating hoppers over the back of the pug mills. This bin arrangement allows a considerable margin of independence in running the pans or machines.



Dryer Cooling Tracks, No. 2 Plant.

The shutting down of dry pans or of machines does not interfere with the continuous operation of the balance of the plant, as a considerable amount of ground material is in stock at all times. The working of the dry pans without false bottoms has been very successful so far, and indicates considerable saving in power as compared with the usual design.

The dryer plans are those of the L. E. Rodgers Engineering Company, of Chicago, Ill., and all dryer equipment was

furnished by that concern. It is designed for the utilization of waste heat from the kilns, has twenty-eight tunnels, with a capacity of 392 cars, each car loaded with 500 standard 9-inch brick. At the rear of the dryer a track capacity is given of fifty-six cars, and at the discharge end a cooling track storage of 196 cars, making a total of 322,000 brick capacity for the entire dryer. The waste heat is supplied by a 244-inch fan, and the saturated air removed by two 120-inch disc fans, the main fan and discs being driven by inde-



View in Continuous Kiln Under Construction.

pendent engines. The dryer is of most substantial construction, the flues and walls being of brick, the tracks carried on "I" beams and fastened with Rodgers patent clamp. Reinforced concrete roof and iron tunnel doors at each end of the dryer make it fireproof throughout. The working of the dryer so far indicates a most successful installation. For the initial



Coal Handling System, No. 2 Plant.

operation, 500 double-deck cars of special design were furnished by the Ohio Ceramic Engineering Company, of Cleveland, Ohio.

At this plant the Bessemer Company has departed from its former practice of building rectangular kilns, and first installed a Haigh continuous of the tunnel type. This original kiln was of elliptical form, 408 over all in length, containing sixty-eight chambers; after several months' operation it was found so satisfactory that this year it was increased

to 110 chambers, a distance of 650 feet over all. The burns made by it are surprisingly uniform, both of standard brick and paving block. As is well known by brick manufacturers, the Haigh kiln combines top and side firing, which allows an equal flow of heat, and, as a result, a uniform burn at every point. The entrance to the court is directly opposite the center of the dryer. Dried brick for setting are delivered from double tracks in the kiln court to the different chambers, while the burned brick are drawn from the outside doors of the kiln. Depressed loading tracks are constructed on each side of the kiln. These tracks are at different levels, permitting box cars or gondolas to be used, but giving a practically level wheel for any class of equipment placed for loading.

Coal for the plant is received on an elevated trestle in hopper cars, dumped above and adjacent to a tunnel and conveyor, drawn from the piles and elevated to a coal storage bin, from which it is drawn automatically to cars and distributed by tracks entirely around the top of the kiln. By this arrangement, it is feasible for two men to unload from railroad cars, elevate and distribute coal for the entire kiln.

The draft of this kiln is induced by an L. E. Rodgers engine and 244-inch fan. The draft flue of the kiln is constructed underneath the floor, while by means of a flue around the top of the kiln the waste heat is taken from



View on Top of Continuous Kiln, No. 2 Plant.

the cooling chambers for use in the dryer. In operation it is found that the waste heat fan uses radiated heat only, and in no way interferes with the operation of the draft fan.

The arrangement of tracks through the machine room, dryer and transfers are rectangular, permitting loaded cars in the machine room and through the dryer tunnel to travel on a grade. The kiln tracks are at right angles, and all turn tables are eliminated throughout the plant except one end of the inside court of the kiln, which is circular, and requires delivery of brick for setting at obtuse angles.

The above outlines the No. 2 plant, in which the owners have attempted to work out the best practices in brick manufacturing, yet the No. 1 plant will be found of interest.

At this plant three Bonnot dry pans are in operation, a Bonnot 12-foot pug mill, a Bonnot Dewey brick machine and a Bonnot automatic side-cut table, one Bonnot and two Richardson represses. The dryer is of the waste heat type, at which two American Blower Company's fans are in use, one a 200-inch, for supplying waste heat, and a 160-inch exhaust fan. The dryer contains fourteen tunnels, and has a capacity of approximately 100,000 brick. The kiln equipment consists of eleven Wilson down-draft kilns, each having a capacity of 145,000 brick. Power is obtained from two 150 h. p. Erie boilers and one 250 h. p. Buckeye engine. In

addition to this a Ball engine and a Bullock generator is used for supplying light about the plant and other works of the company. Running full, No. 1 has a capacity of 85,000 to 90,000 brick per day, this rate being regularly maintained throughout the month. At this plant a shale storage plant similar to that at No. 2 is just being completed.

At both plants paving and common brick are made. All shipments are forwarded after very careful inspection at the yards, and, as a result of this, the output of the Bessemer Company has obtained an enviable reputation in any market it has entered. It may give an idea as to the quality of the goods manufactured when it is stated that this company shipped large quantities of brick for use in the construc-

tions per day, and for this production two large crushing plants are in operation, with an outfit of three large steam shovels, air compressors and drills, twelve industrial locomotives, and several hundred cars with miles of track. This company also owns and operates the Arrel Limestone Company, of Lowellville, Ohio, some four miles from Bessemer.

For the upkeep of equipment, a machine shop with all necessary tools is operated. The machinery of the brick department is in charge of Chas. L. Weaver, who has had large experience at Canton, Ohio, and has been with the Bessemer Company since it commenced the manufacture of brick.

The office of the company is at Youngstown, Ohio. The officers are: J. G. Butler, Jr., president; C. C. Blair, secre-



Brick that have Gone Through the Rattler.



A Glimpse of No. 1 Brick Plant.



Loading Pavers from Down-Draft Kilns, No. 1 Plant.



Engine Room, 500 H. P. Engine, No. 2 Plant.

tion of the Pennsylvania Railroad tunnel through North River and New York City. Possibly no engineering work ever undertaken in this country has required more rigid supervision of material than this tunnel job.

As indicated in the commencement of this article, the production of limestone is a large part of the business of the Bessemer Limestone Company. In its property of over 2,000 acres, the firm has an immense deposit of limestone and shale; the latter is partially used in the brick plants, while the limestone, in the shape of furnace flux, macadam, and concreting material and so forth, has a wide market. The production of limestone in normal times is some 4,000

tary; Chas. M. Crook, general manager and treasurer; F. R. Kanengeiser, general superintendent, and A. J. Aubrey, assistant general superintendent. The superintendents in charge of brick plants Nos. 1 and 2 are C. E. Crook and D. A. Cable.

DRYER PHILOSOPHY.

Dryer heat is a little like the cake that we can't eat and still have, but we can eat part and still have some left, or eat all and make more; and, incidentally, there are different ways and times to eat to get the most good and cause the least inconvenience.

Written for THE CLAY-WORKER.

A TILE HOUSE IN NEW JERSEY.

A Model Modern Fireproof Residence, Built of Hollow Terra Cotta Block.



WHILE SOME FORM of clay would seem to be the logical structural material for a house, it is surprising how few persons avail themselves of the comparatively cheap building material. Wood, stone, and more recently concrete, or reinforced concrete, form the bulk of the buildings. Occasionally one builds a dwelling of brick, but not nearly as many as might be expected to do so. Consequently, there is some cause for congratulation when some of the other clay construction is utilized.

Bogota, N. J., is not a large place, but it is growing very rapidly. It has doubled in population several times during the past decade, and within its limits a great many new houses are now in process of erection. Even though brick-yards are close by, surprisingly few have used anything but wood in their building operations. Brick houses are so scarce that they excite comment by their very rarity.

Ernest A. Gibbons, a wealthy manufacturer of Jersey City,



Fireproof Residence of E. A. Gibbons, Bogota, N. J.

became enamored of the beauties of Bogota, and purchased a lot there some months ago. Shortly afterward, he began the erection of a dwelling which is unique in that it is fireproof, being built entirely of tile from the cellar to the attic. Everything is of clay. It couldn't be burned if an attempt was made to destroy it. The owner has insured himself against fire, so far as the destruction of his house is concerned. The contents might burn, but the fire could not communicate from room to room, and would be confined to the room in which it originated without difficulty. It would only be necessary to close the doors.

Mr. Gibbons was born in England, and near his early home was an estate called Walnut Tree Farm. The house on this farm fired Mr. Gibbons' imagination, and he resolved to one day have a home like it. Accordingly, he has reproduced the house on the English estate, varying it only in making it of tile instead of wood, as the English house was built. Squires & Wynkoop were the architects, and they faithfully followed the model of the English house, reproducing it in clay exactly as it was built in wood across the water.

Terra cotta constitutes the body of the building. It is in the form of hollow blocks, and is the same as the terra cotta used in the construction of skyscrapers for floors and for filling steel frames. In the walls of this house the blocks

are laid end to end, so that the hollow spaces form continuous chambers running up and down. Elaborate tests were entered into, and it was found that the hollow tiles were quite as strong as though solid brick. The air spaces are beneficial. They act as non-conductors and keep the building cool in summer and warm in winter. They also prevent the entrance of moisture, and therefore keep it dry all the time.

In the floors the blocks are laid between concrete beams, the only concrete used in the building. These beams extend downward, giving the same appearance as the wooden beams in the old English house. They are covered with fine, smooth cement. All the partitions are of hollow tile, like the outside walls, and the roof is of red tiles.

Not only is the character of the building material used in this house different from most American homes, but architecturally it possesses some departures from the conventional dwelling. The main entrance, for example, instead of facing the street, opens upon a small court yard almost invisible to the passer. On the main street will face a garden of considerable size, which will be enclosed with a picturesque wall. There is a tennis court and other facilities for outdoor games.

The house has three stories and a basement, and contains fourteen rooms. The cost is estimated at \$12,500, which is cheap for a country home so good as that. Instead of letting the work out to a contractor, Mr. Gibbons has superintended the construction himself, buying all his own material and



A Side View of Residence Constructed of Hollow Tile.

employing a working foreman to oversee the men. The owner has given all directions for work and has paid all the bills himself. In other words, he has not only provided for a unique house, but he has gone about it in a unique way, and will have a house entirely different from any other in the United States when it is finished.

The use of hollow tile for dwellings is new in this country. A house was constructed on the Hudson River, above New York City, of tiles two years ago. It attracted a good deal of attention at the time, but was soon forgotten because few cared to follow the example set by the builder.

It is within a few months that the New York Bureau of Buildings received its first request for a permit to build of tiles. These plans were presented by Prof. James E. Lough, of New York University. His were soon followed by Amos L. Schaeffer, Engineer of the Public Service Commission. Both these houses are now finished and occupied, and both stand on University Heights in New York.

It will be well if these examples encourage others to erect similar dwellings. The opportunity for elaborate work in clay in the way of decoration should appeal to some one with means to carry out whatever artistic conception he might have. There are sufficient artistic qualities in clay-working to make it worth while for those who delight in such things to take it up and see what can be done with it. The form of decoration for houses built of wood is necessarily limited. Wood lends itself readily to but few artistic schemes, but clay can be modeled in any form, and then

baked until it is more enduring than the hardest stone. These qualities should appeal to the lover of the artistic in construction, and incite them to consider clay in their list of building materials when new structures are under consideration. The ease with which clay can be modeled, the dignity which attaches to it when it is worked out properly, and the numerous other beneficial and attractive features connected

with it, are all of sufficient importance to receive careful consideration by those builders who can afford to gratify their tastes, no matter if they had all ornamentation carved by hand in stone. A few such dwellings scattered through the country would exert an influence which would assist in turning the tide of popular favor toward clay material for constructive purposes.

Letters from a Young Clayworker to His Younger Brother.

The Use of the Draft Gauge—Letter No. 6.

CLAYBURN, IND.

DEAR JACK:

Yours of the 12th at hand, and I must say that I am somewhat relieved. You were so slow about writing that I was beginning to take it for granted that you were in love, and I fully expected that your next letter would be a real confidential one, with one or two kodak pictures in it, and that it would be necessary for me to spend about two hours in answering that letter, to tell you what I thought of the situation. Well, it didn't take long to correct that impression, once I started in on the letter, and to gather that you have been pretty deeply absorbed in your burning problems, particularly since you have started to using the draft gauge. I am not surprised at that, for I have observed that you are not much inclined to do things half way, and I know that there is much in the line you are starting to work on for anyone who will give it his attention and persevere in it.

I see that you are attacking the problem in a rather more ambitious way than I expected, and that you think there ought to be some way to measure the draft, that would make it possible to get a fairly close comparison between different kilns, even though they be of different forms of construction. I rather expected to hear from you on that point sooner or later, for the same question has occurred to me and undoubtedly has to every man who uses a draft gauge. There are some ways that might be an improvement on the practice of measuring the draft in the flue, but I thought best not to mention them to you before, for the reason that I wanted you to start out in the orthodox way and get established on a working basis before you undertook to try out any new schemes. The plan of measuring in the flue is the only one that I know that is being followed with down-draft kilns, so I naturally recommended that. Later on, after you are sure of your ground and are able to do what can be done by the approved method, it will be time enough to investigate the merits of those which have not been thoroughly tested. It is like a man going into a business venture. If he has little capital, it is better to go into something that will surely pay expenses, even if it doesn't offer possibilities of big returns. Then, with a moderate income assured, he is in a better position to spend time investigating and developing greater possibilities.

Now in the measurement of kiln draft, it seems to me that the most important thing to get at is not how much of a pull there is in the flue where the gases leave the kiln, but how much there is at the fires, where the air enters and does its work. The way the fires burn, the amount of excess air that enters the kiln and the way the kiln behaves in consequence, depend directly on the force with which the air rushes in at the furnace. Draft, in any case, is a difference in pressure. The air pushes in through the fuel bed because the pressure outside the furnace is greater than that inside. Now the pressure inside a kiln furnace is influenced by a number of things which come in between the furnace and the stack damper. One of these things is the resistance which the draft encounters in the small flues of a kiln bottom.

Well, the draft in the furnace is made up of the draft in the stack flue with something subtracted and something added; and the amounts subtracted and added vary with different forms of kilns.

The question naturally arises: Why not measure the draft at the furnace and do away with these varying quantities? It would seem that if this were done it might be found that all the kilns on a yard would respond in the same way to the same amount of draft, and the matter of arriving at the proper amount of draft to use at the various stages of the burn would be very much simplified. This probably would not be the case with kilns that were different from each other in respect to the sort of furnaces and their relative grate areas, so that if the kilns differed from each other greatly in these respects it would still be necessary to study them as individual cases. However, it is desirable to learn how much draft a kiln with a certain relative grate area should have to give best results with a given sort of fuel. Now if we must complicate the matter by measuring the draft where it will be affected by the bottom, the relative height of the grates, etc., we must always go on saying that the amount of draft to use depends on the construction of the kiln. On the other hand, if we measure the draft at the furnace, we ought to be able to say, for example, that with mine run coking coal a kiln with flat grates of a certain relative area works best with a certain draft schedule. Such information would be worth a good deal.

While it would appear on the face that the furnace is the best place to measure the draft, there are also some rather serious disadvantages to be taken into account. It is, in the first place, a most inconvenient place to connect the gauge, inasmuch as the connecting pipe should extend to a point within the furnace, well back from the fire door, and just a little higher than the top of the fuel bed. The end of the pipe can be so located, but it is not at all an easy matter to locate it so and at the same time have it imbedded in the brick work of the furnace, so that it will not be burned out. The easiest way to place it is to drill a hole down through the furnace arch and connect it there. There is some little difference between the draft as measured near the top of a furnace and near the bottom, and you will have to find out how much it is with each furnace and allow for it if it is great enough to be worth considering. With inclined grates, you can strike an average, using your judgment as to the level in such a furnace, corresponding to the level you use in the flat grate furnace.

Another thing to consider is that if you measure the draft for a kiln in one of the furnaces, you are likely to get a reading that is higher or lower than an average of all the furnaces. For example, if the furnace in which you measure happens to have a thin fuel bed, or a hole burned through, the gauge reading will be abnormally low, for the reason that the free influx of air relieves the difference in pressure between the inside and the outside of the furnace. A partly open door or a loose fitting door has the same effect. On the other hand, with a well balanced kiln and careful firing there ought to be no great difficulty experienced in this respect.

A LITTLE Knowledge is a Dangerous Thing, in Clayworking Especially, as Many a Manufacturer has Learned to his Sorrow.

In fact, you may find that the method leads to the discovery of irregularities in the firing which should be corrected.

Possibly the most serious disturbing factor will be the wind. If a strong wind comes against one side of a kiln it adds the wind pressure to the normal atmospheric pressure, and the addition is a considerable one. It will be well for you to pay particular attention to this feature.

(To be continued.)

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

THE LOBBY WAS crowded with a yelling, cheering, excited crowd, and the air vibrated with the shut-in pulsations of a drum corps trying to show appreciation and earn their wage. One foot ball team had beaten another. A long suffering friend had paid his good money

and had patiently tried to explain to me the intricacies of the game, and I had been three hours out in the biting cold and witnessed the contest. The crowd about me was mad, but I kept my temper. I wouldn't even have struck the umpire. To be sure, I was a little disappointed that they didn't kill anyone—at least, none "died on the place."

I fled early from the lobby and into the cafe, so as to be ahead of the crowd, and I was, just a lap. They were all at the bar filling their systems



W. D. Gates.

with strange booze samples, and hurling their money at the bartenders.

Leaving the shouted inquiries of "Who's All Right?" that pervaded the front of the bar, some eight of the young fellows came over and surrounded a table near me. Several of them affected those economical little postage stamp caps that do stick to the back of their heads, though you can't ever understand how. Down at the end was a Jonathan with large feet and ears, wearing back of his large label a retiring forehead and an expression of anxiety. Looking through him I could see an old couple back on the farm with anxiety that matched his as they wondered at the increasing cost of text books. He was game, however, and resolutely again and again swallowing the beer and high balls that were working so rebelliously in and against him, he inserted a large, dangerous-looking cigar in his face, and looked about courting approval.

Next him was the cherished son of wealthy and about-to-be disappointed parents, whose aim in life was to show his worth by demonstrating his ability to scatter his dad's surplus. Never having had occasion to earn a dollar, he had no idea there could be trouble in annexing it. He is now studying division and subtraction in his mathematics. Later on you opine he will have trouble with his addition and multiplication. Two others are mostly out of sight behind the badges and emblems they wear, and might as well be passed anyway, as the fellow who has to fasten labels to himself to remember who he is for, is only good as a placard, anyway. If it's all outside, there's no use and no probability of anything inside.

Frequent yells and "'rah," "'rah's" come over from the

crowd in the beer and in front of the bar. They are so full of the barkeeper's foam and of their own fun and their own superfluous life, that they have taken possession in full. It's their night, and their eleven have vindicated them. It's the old thing over again, eleven do the work and eleven hundred do the yelling.

I can't help but think of the other eleven, though I know I ought not. No one wastes thought on the vanquished, but I can not help but think of the poor fellows they carried off the field; particularly of the poor chap with one eye kicked black and the other all bloody, and who fought to still stay in the scrimmage. He was both bruised and beaten, and his thoughts, if he be conscious, must be anything but happy.

Involuntarily, my mind carries me back to the time I stood at the arena of the old Coliseum in Rome and pictured to myself the fifty thousand that used to populate it and look down on its tragedies, turning thumbs down to see the vanquished die. The times aren't so different. The spirit is much the same. In the quiet of our homes we deplore rough work on the gridiron, but in the arena we in emergency mutter, "kill him."

History repeats itself. I opine that in those old times, after the arena, the old Roman "Charlie Boys" used to gather at the thirst dispensary and throw their surplus at the polite attendant and 'rah, 'rah and ask, "What's the matter with Claudius?" and answer their own question then just as they do now.

GATES.

IN MEMORIAM.

Dr. Max Simonis was born in St. Johann, Germany, July 27, 1882, and completed the course at the Royal Gymnasium, Saarbruecken. His university studies he pursued in Switzerland and at Freiburg, where he studied chemistry under Prof. Gattermann. After serving one year in the army, he returned to the University of Freiburg to complete his work, at the same time serving as lecture assistant to Prof. Willgerodt. On the basis of his thesis, dealing with an organic investigation, he was given the degree of Ph. D., cum laude.

During his vacation, Simonis was employed in the Saarbruecker Steel Works, and in 1904 he entered the technical experimental laboratory of the Royal Porcelain Manufactory, at Berlin, where his work soon attracted attention. His versatility, his sound knowledge of chemistry, physics and mathematics and his ability as an experimenter are clearly shown by his various publications on the use of the electric furnace for high temperature work with silicates, his entectic studies, his study of the viscosity of clay slips as influenced by various reagents, the work on the rearrangement of the Seger Cones, by which he eliminated serious errors, and others.

It was the hope of the American Ceramic Society, of which Dr. Simonis had recently become a member, that he would eventually become identified with American ceramics, but it was not to be. During a vacation trip to Italy, on climbing Monte Cinto, on the island of Corsica, he met with an accident on October 9th which caused his death.

The American Ceramic Society desires to express to the family and associates of Dr. Simonis, the sincere sorrow and sense of loss that they feel in the untimely end of this brilliant and able young scientist, who would surely have achieved still greater things for ceramics had his life been spared and allowed to come to its full fruition.

THE AMERICAN CERAMIC SOCIETY,

By A. V. Bleining, President.

A LOT of Knowledge Leads to Success and the Joy Thereof. Moral: Attend the National Convention, Rochester, Feb. 1-6.

Written for THE CLAY-WORKER.

INTERLOCKING BUILDING TUBES.

An Old Material in a New Form by the Use of Which a Hollow Wall May be Built that will Insure Warmth in Winter and Coolness in Summer.

THE TRITE SAYING that "There is nothing new under the sun," is again refuted, and we illustrate a new building material that presents some very novel features, and it seems may well meet the demand for low cost structures of high sanitary and fireproof value. It is nothing more than a drain tile in general form, but with interlocking features that insures a wall of great strength when once



Building Tubes.



Residence Built of Building Tubes.

constructed, and so pliable, if we may use the term, as to readily lend itself to every form of ordinary architecture.

This new form of hollow building tile is the invention of a Wisconsin clayworker, Mr. Elmer Van Wie, of Kenosha, who has devised a manner of mortising tubular tiles, so that when they are joined together vertically they form an interlocking joint which insures great strength and stability. Of course, Mr. Van Wie met with difficulties in the use of these tile that naturally comes with all new and novel products, but these have been overcome, and he is able to build dwellings, stables, silos and similar structures which, when completed, are pleasing in appearance and offer the advantage of hollow walls, and are thus non-conductors of heat and cold.

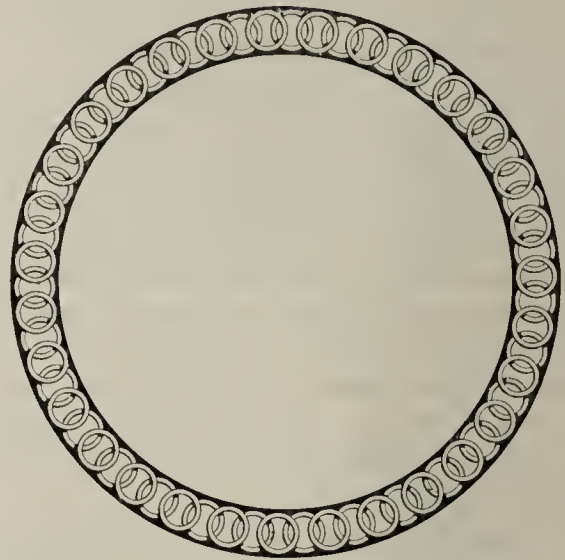
In building the walls, a whole tube and a half tube are placed alternately in the first tier, and the second tier inter-

locks with the first and so on, up to the entire height of the wall. In placing the first tier of tubes, they may either be very close or a little loose, in order to conform to the architect's lines, and the wall can be made either in straight or curved lines. Once the line of the wall is established, the work of building the wall is both easy and rapid. Window frames and door frames may be fitted in with very little trouble. After the wall of tubes is completed, it is coated with cement stucco. A good mixture for the exterior of a building is made of one part of cement and two parts sand. Mr. Van Wie has learned from experience that ordinarily it requires one-half barrel of cement to 100 square feet of wall surface, and a mason can cover about 500 square feet in eight hours on plain surface work.

In a number of cases he has built the fire places, china



Starting Foundation with Building Tubes.



Cross-section of Silo Wall of Building Tubes.

closets and buffets, etc., of these tubes. In short, he has found that they lend themselves readily to all ordinary forms of walls and partitions. Another advantage they afford is that the walls do not need to be furred for interior work, as plaster can be applied directly to the tubes. Experience has demonstrated that houses constructed of these tubes are much warmer in winter and cooler in summer than ordinary structures.

The tubes are made in 1-foot lengths, with four slots cut in each about one-fourth of their length and 90 degrees apart. The slots are cut in alignment and deep enough so that the pipe lines are independent of each other until joined by the cement or plaster. The tiles set squarely upon each other, and do not rest on the shoulders formed by the slots.

The tubes are made after the fashion of 6-inch drain tile, though the shell is an inch in thickness. As the tile come

from the press they are taken to a slotting machine, a comparatively simple device that is easily operated by a man or boy. It weighs about 200 pounds only, so it may be easily moved from one point in the factory to another to suit the convenience of the workmen. The slots are made by piano wires that are spaced apart on wrought iron heads that move together, thus all the slots in a tile are made at the same time. The wires are adjustable, and the whole mechanism is so simple that any ordinary workman can operate it with very little practice.

The tubes are set in the kiln on end and burned like ordinary tile. They are not easily spoiled and there need be little or no waste in their manufacture. In shipping the tubes, 2,000 make a fair carload, though 3,800 have been shipped in one car and were delivered at destination in good shape.

Mr. Van Wie intends to have samples of these building tubes on exhibition at the N. B. M. A. Convention at Rochester. Those interested can see him there and get further particulars, or same can be obtained by correspondence.



The Finishing Touches on a Residence of Building Tubes.



Starting an Addition to a Residence.



Slitting Building Tubes.



A Silo Constructed of Building Tubes.

Written for THE CLAY-WORKER.

AN IMPROVED PAVING BRICK.

Wire-Cut Brick Made Cheaper and Better Than Repressed Brick—By a Very Simple Invention to Be Used in the Manufacture of Paving Brick, All of the Advantages of Repressed Brick Are Embodied in Wire-Cut Brick, and the Objectionable Features of Both the Ordinary Wire-Cut and Repressed Brick Are Eliminated.

A DEVICE WHICH the inventor, Frank B. Dunn, of Conneaut, Ohio, feels confident is going to prove of great value to the paving brick industry, has been perfected and is now offered to manufacturers of high-grade paving brick on a royalty basis. Samples of brick formed by this device will be exhibited at the National Convention at Rochester. The merit of the improvement is so obvious, that it is simply a case of "seeing is believing."

The invention is the result of years of study and experiment in actual brickyard practice. Though yet a young man, Mr. Dunn has had more than eighteen years of actual experience in the clayworking industry; first as workman and then as foreman, and afterwards as superintendent of a fire brick plant. Subsequently as machinist, erecting mechanic, salesman and accountant in a factory where clayworking ma-

succeeded in obtaining bona fide options providing for the possible purchase of plants producing more than 90 per cent. of the total output east of the Mississippi River, including, without exception, all the important plants independent of the asphalt interests. It will be remembered that about that time there was a general slump in the stock market, and as the purchase prices of the properties desired called for about \$10,000,000 capital, the proposition was wisely abandoned. However, during these negotiations prominent men were brought closer together, and, realizing the importance of concerted action to educate the public to the wonderful advantages of brick in general over all other paving materials, the National Association of Paving Brick Manufacturers was soon organized. The good this organization has accomplished for its members, as well as for the public, has been beyond all expectations, although full credit must be given the skillful management of the association and the cordial support of each and every member.

The Dunn Cutting Device.

Mr. Dunn's latest invention consists of guides, either rigid or in the form of rolls, attached to the platen of the cutting table above and below the column of clay, and projecting over the line of travel of each wire as it passes through the clay column, thus deflecting the wire slightly and forming a rib or lug across the face, or rather the side of a side-cut brick. This also makes a corresponding groove in the adjoin-

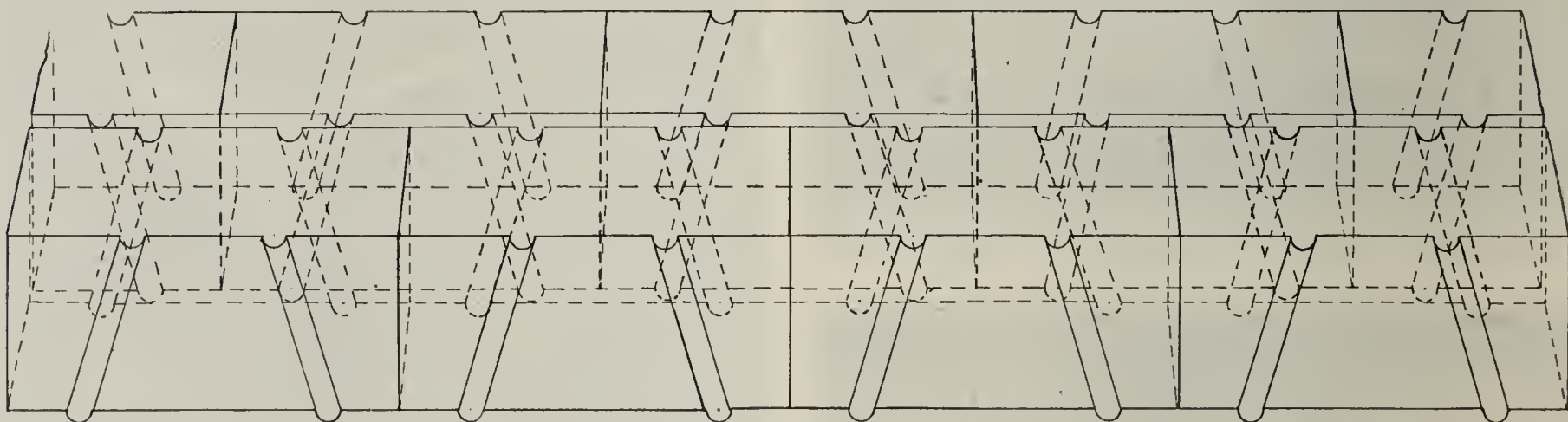


Fig. 1.

chinery was manufactured, and finally for the past seven years as president and general manager of a paving and building brick plant, and, incidentally, a street paving contractor as well, Mr. Dunn has certainly had abundant opportunity of acquiring practical knowledge of every detail of the business, and this new device shows that he has brought his inventive faculties to bear in a very practical way.

It falls to the lot of few men to have such a wide and thorough training in any one line of business, but such an experience enables one to observe the defects and failures, and to devise practical means of overcoming them. This latest invention is not the first upon which Mr. Dunn has been allowed patents, but we believe it is by far the most important. He has always been alert to the possibilities of improvements in the methods of manufacture and use of brick, as well as to the office end of the brick business, he having devised a thorough, practical and concise cost system which he has used to excellent advantage in his own business, and which he has promised to publish for the benefit of his fellow manufacturers in the near future.

We might also mention that in 1903, realizing the untold harm being done the interests of brick as a paving material, by each and every individual manufacturer trying to convince the public that his was the only brick fit for use, Mr. Dunn undertook to organize a company to buy up all the plants capable of manufacturing a No. 1 paving brick, and

ing brick, but the groove can be easily removed by attaching extra wires to cut off sufficient clay, which will immediately return to the auger machine over the waste clay conveyor. The groove, however, is not considered injurious to the brick and may be left on, thus avoiding any waste of clay.

It will readily be seen that the size, shape, position and number of ribs made on each brick is governed by the guides or deflectors, the shape and position and the style of cutting table used, but ribs or lugs may be cut on any cutting table made. The position of lugs cut on a reel cutter depends entirely upon the location of the center of the reel in relation to the clay column. By placing the deflectors on opposite sides of the column, so that the wire will strike them in unison, a rib is formed which is uniform in thickness at both edges of the brick, but usually less towards the center, owing to the fact that the wire is flexible, and, being attached to tension springs, drags back towards the center of the column. Consequently the wire has passed over the deflectors, and has returned to its normal position before it has been deflected the full depth of the rib in the center of the brick.

Removing the springs and making the wire taut would make the rib uniform its entire length, but we believe this should not be, as the thinner lug in the center of the brick will permit filler to pass through at this point and make a better bond.

If ribs of certain thicknesses at one side of the brick and

tapered to naught at opposite edge are desired, one deflector only is adjusted accordingly.

We show herewith several designs which give some idea of the different ribs or lugs that may be made on any wire-cut brick. Fig. 2 shows a brick made on a horizontal cutter, which is a cutter with horizontal movement and vertical wires. These ribs are placed nearer the ends than the middle, in order that when the brick is laid in the pavement with joints broken the ribs will not fit into the grooves in the adjoining brick, but will hold the brick apart as intended. Fig. 4 shows brick made on the same cutter, but with ribs so located midway between the ends and middle of the brick that when laid with joints broken the ribs will fit into the grooves in the adjoining brick, thus making an interlocking brick for use where no filler is desired. This brick is better adapted for sidewalks, private driveways and country roads, where the cost of filler is prohibitive, and, at the same time,

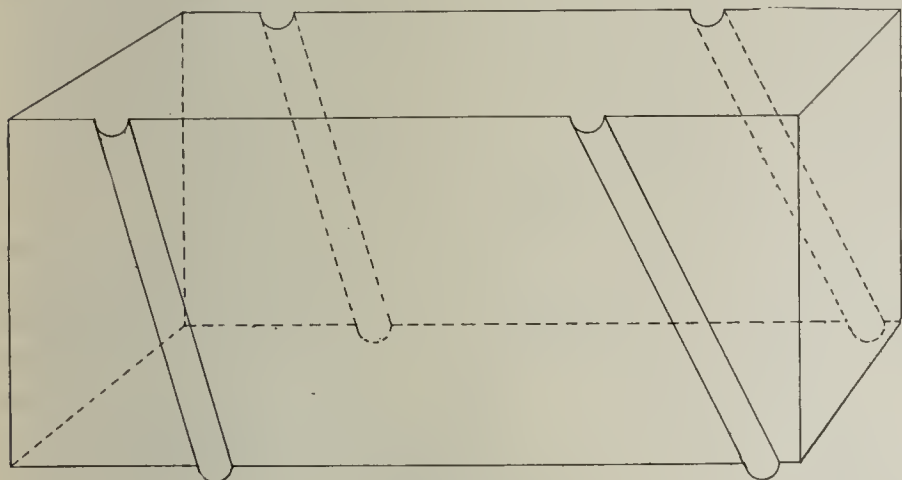


Fig. 2.

a lighter or no curb is required, as the brick, being interlocked, can not spread. Fig. 3 shows brick made on a cutter with the center of the reel directly over the center of the column, thus making the ribs at opposite angles. This will in all probability be preferred, as will be seen by referring

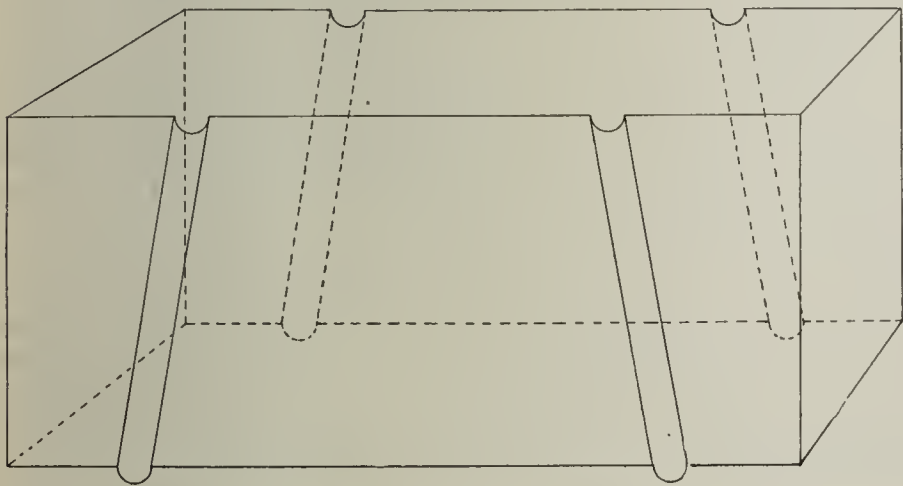


Fig. 3.

to Fig. 1, wherein two rows of these brick are shown as laid in the pavement with joints broken. In this manner the ribs on each brick cross the grooves in the adjoining brick, and as the grooves will naturally fill with cement or other filler the same as the space between the brick, a bond can thus be obtained which it will be impossible to disturb except by breaking the brick.

As stated before, we have in the wire-cut brick with wire-cut lugs all the advantages of the repressed brick, with none of the disadvantages.

In making either wire-cut or repressed brick, the clay or shale is first mixed with water to such a consistency that when it has passed through the auger machine, emerged from the die under such intense pressure as can only be obtained by the auger shaft, which is in reality a screw propeller, and has passed over the measuring belt and been cut into

brick on the cutting table, it can be picked up by the off-bearer without being marred in handling, or in being piled from three to six courses high on cars ready for the dryer. To repress them, they are, in this condition, fed into a two-mold press, the mold boxes of which must be from one-eighth to three-eighths inches longer and wider than the brick to allow the brick to drop in freely, and to provide for any slight variation in size of the wire-cut brick caused by the variation in the consistency of the clay column. The plunger then descends into the mold and presses downward on the broad side of the brick. First, the original formation of the wire-cut brick is no longer maintained, but is broken up and spread sufficiently to fill the mold in length and width. Then, if there is sufficient clay in the brick it will fill up any letters, lugs or other design which the pressure plate bears, whether they are in convex or concave form. If there is not sufficient clay in the mold or the clay is too stiff the letters or lugs will not fill up, and this latter not unusual condition accounts for the non-uniformity in depths of lugs on the average repressed brick.

It is an open question whether there is a repress on the market with sufficient power to make a brick out of clay that has not previously been formed into a brick. It is not therefore to be expected that a repress can disturb the original formation of the wire-cut brick, break it up and remake it into a perfect brick, and especially when the clay is stiff enough to be handled without marring, to say nothing of being piled six courses high.

As evidence of this fact, we all remember of the account



Fig. 4.

published a few months ago in all the daily papers and trade journals, wherein it was stated with authority that a toad had been imbedded in a brick and put through a dry press machine and came out unharmed, and, be it remembered that a dry press is a powerful, massive machine, designed to make a first-class brick out of dry pulverized clay, and has many times more power than has a repress. No one could imagine a toad withstanding the pressure of an auger machine, even though it did not come in contact with the knives or auger.

Round edges, which can only be put on side-cut wire-cut brick by repressing, are of no value whatever except that each manufacturer of repressed brick prefers the largest radius possible on the edges and corners of his brick where it is to be tested for abrasion in competition with other repressed brick. If all repressed brick were of the same size and same square edges, abrasion tests would be of more value in comparing quality.

In a recent conversation with one of the prominent paving brick manufacturers, when he was asked the reason for round-edged pavers, jokingly replied that years ago square-edged brick were used, and that with poor filler or no filler at all the edges were exposed and were soon rounded off by the calks on horses' shoes. Some one suggested repressing the edges round, and every manufacturer has adopted the suggestion. Note the consistency in such philosophy, when we are trying to make the smoothest street possible,

and when we have cement fillers which will protect the edges of the brick.

The CLAY-WORKER in December, 1907, published a signed statement of one of the largest paving brick manufacturers in this country, in which he said that a wire-cut brick put through a repress gained $3\frac{1}{2}$ cubic inches, showing that the clay was not as dense after being repressed as before. He also said that wire-cut brick stood 4 per cent. less loss in an abrasion test than did the repressed brick, and that at least a half dozen other manufacturers of paving brick had agreed with him that they had not made as tough brick since repressing as they did before. If wire-cut brick will stand 4 per cent. less loss in an abrasion test they are one-third better, as a No. 1 repressed block will only lose about 16 per cent. in a standard test.

Furthermore, it is generally known that the manufacturer has a much greater percentage of loss in seconds and culls in repressing brick in addition to the actual cost of operating the press.

Now, therefore, in the wire-cut brick with wire-cut lugs, we have a paving block with square edges, uniform thickness of lugs, a wire-cut surface on the broad sides of the brick, to which filler will adhere more firmly, and, in all, a perfect brick for paving purposes, which means a smooth pavement with brick or blocks uniformly bonded together, and a cheaper, though more durable, pavement than has been possible heretofore.

Mr. Dunn has made a quantity of these brick, and his statements are therefore not based on theory, but upon actual results. He now proposes to enter into contracts with manufacturers who have suitable material for making a No. 1 paving brick, and license them to manufacture these brick on a royalty basis.

His is not only protected by patents on the method of deflecting the wires on the cutting table, but also upon the finished brick, and is fully protected on any brick having a wire-cut lug or rib.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



CONSIDERABLE SATISFACTION is felt in Cleveland at the record made by this city in building during the past year. Cleveland, with its great steel and ore industries, felt the effects of the panic very keenly, but, notwithstanding that fact, a fine building record for the year was shown. It does not equal 1907 or 1906, which were regarded as abnormal years, but it exceeds 1905, which itself was a great record-breaker.

The total for the year was \$9,898,869, which was \$119,724 greater than in 1905. Here are the records for the past nine years:

Year.	Permits.	Total Cost.
1908	6,674	\$9,896,869
1907	8,174	15,888,400
1906	7,553	12,927,974
1905	4,976	9,777,145
1904	3,911	6,562,590
1903	3,226	6,259,931
1902	3,172	6,559,545
1901	3,036	6,232,882
1900	2,692	3,945,833

An analysis of the permits show that most of the larger ones were for fireproof structures. It is apparent that more and more this type of building is being selected as the most economical in the end.

To be entirely fair to the city, it should be pointed out that at least \$3,000,000 was expended on projects for which permits were secured during 1907. On the Court House alone over \$1,200,000 was spent, for which no credit was given. When it is shown that over 17,000,000 shale brick alone were used in the foundations and walls, it will be seen that the job is no small one. There were a number of other buildings in the same class.

The outlook for the coming year is excellent. Builders

say that there are projects requiring an expenditure of fully \$10,000,000 which are already under way, and which are sure of being financed. It is confidently believed that 1909 will break all records in building in Cleveland.

More big building projects were launched during the past month, one of the largest being a building for the Cleveland Athletic Club, which will be six stories high. The building itself will cost about \$300,000 and will be of brick, with interior of steel and concrete. A large plunge bath in white tile, and an auditorium seating 1,500 persons will be features of the building.

Some interesting statistics on the pavements of Cleveland have been compiled by the City Engineer. During the past year the city paved 29.70 miles, mostly of brick, at a total cost of \$922,425. Despite the business depression, this almost broke the previous year's record, when about thirty miles were laid. Cleveland now has 660 miles of streets, 360 miles of which are paved. Of these, 181 miles have been paved in the past eight years. The city plans to spend \$250,000 on pavements during the coming year. This amount, with what property owners will pay, will pave another big batch of streets this season. Bids are being asked for already, so that the work may be started early.

The County of Cuyahoga, of which Cleveland is the county seat, is planning for extensive paving operations this year, as usual. The county is preparing to spend \$2,705,000 this year. This will make many county roads now impassable for miles like city streets when completed. The roads to be paved west of the river this year are: Bradley, 6 miles; Center Ridge, 9; Clague, 3.5; Wooster, 1.2; Columbia, 6.5; Dutch, 7; Sprague, 1; Settlement, 6; Ridge Shunpike, 2.5; State, 5.2; Broadview, 5, and River, 2.3. East of the river: Harvard, 1.5 miles; Independence, 3; Canal, 4.6; Dunham, 5.2; Northfield, 1.2; Pettibone, 3; Miles, 5.5; North Miles, 6; North Woodland, 7; South Woodland, 4; Mayfield, 7; Center, 5; Lake Shore boulevard, 3.5; Lake, 3.5; Gardner, 1, and Warner, 1.3.

Several hundred thousand dollars will be spent this year on the great intercepting sewer for Cleveland, which is being built of shale brick, and which is 14 feet in diameter.

Clevelanders were shocked to learn, on December 30, of the death at Lakeside Hospital of Byron W. Robinson, of Akron, the well-known capitalist and manufacturer of clay products. He was brought to Cleveland a few days before suffering from arterial sclerosis, and was scarcely expected to live. His unusual energy and attention to business led to the brain trouble which ended in his death.

Incendiaries did considerable damage about the plant of the Portage County Sand and Brick Company, at Warren, Ohio, a few nights ago, when they burned three barns and started an engine at the gravel pit of the company and ran the engine off the dump. The company offered a reward of \$500 for the capture of the culprits, but they were not apprehended.

Unusual honor has been conferred upon Robert L. Queisser, sales manager for the Cleveland Hydraulic Press Brick Company, who has been appointed an aide-de-camp on the staff of the new Governor of Ohio, Judson A. Harmon. Mr. Queisser was appointed a lieutenant on the staff of Col. Zimmerman of the Fifth Regiment a few months ago, but has been associated with the National Guard for years at Springfield and Zanesville, Ohio. He is also a well-known Mason, and is captain-general of a new commandery of Knights Templars formed a few months ago.

W. H. Hunt, general manager of the Cleveland Hydraulic Pressed Brick Company, has gone on a trip to Peru, South America, where he will cross the Andes. While enroute, Mr. Hunt will visit Panama and satisfy himself as to the progress of the canal, and also familiarize himself with the work in general. He is accompanied by his sister, Miss Mary Hunt. He will be gone several weeks.

Cleveland will send a good-sized delegation to the National Convention at Rochester next month. Already the men interested in the clay industry are planning to attend the function.

BUCKEYE.

Written for THE CLAY-WORKER.

THE POTTERY INDUSTRY.

Interesting Facts and Figures Gleaned from Our Chief Pottery Center.

THERE ARE NOW fifty-six potteries in operation in and about Trenton making high-grade chinaware of all sorts and kinds, from beautiful vases that as works of art charm the eye, to ordinary chinaware from which the humblest citizen may eat his daily rations. There are twelve firms handling potters' materials. Trenton is a city of 150,000 souls, and to the casual visitor it would seem that the dust of her clayworking plants are upon them all. It is claimed here that Trenton is the greatest pottery center

plant, having succeeded the firm of Morris & Wilmore, and are now making Belleek and Royal vitreous china, high potential electric porcelains and vitreous floor tiles. They are also making a variety of fancy goods, such as vases, urns, tea, coffee and lemonade sets, decorated porcelain clock cases, etc. The product of this plant is claimed to be equal to the finest imported ware.

Slowly but surely American potters are competing successfully in the production of high-grade pottery. The quality of the ware produced of late years shows a distinct advance, and the output is growing steadily. That there is plenty of room for further growth is evidenced by the record of our exports and imports. Government statistics show that the value of the pottery used in the United States in 1907 amounted to nearly \$45,000,000. Of this nearly \$15,000,000 was imported, most of it coming from England and France, though Germany, Holland, Belgium and Japan furnished a considerable portion of it. Baltimore is the main port of entry for these importations, with New York, Boston, Portland, Me., Philadelphia and New Orleans following in the order named. In the same period, we exported a little over \$1,000,000 worth of pottery. American manufacturers imported that year \$1,500,000 of kaolin and ball clay from England. Considerable quantities of high-grade clays are shipped to Trenton from Florida, Kentucky and Pennsylvania, and bring from \$10 to \$20 per ton.

Most of the ware turned out is made by hand; but little machinery is used. Perhaps this is the reason why it is difficult for American manufacturers to compete with foreign-made ware, though the tariff on pottery is supposed to equal the difference in wages paid. The wages paid in the Trenton potteries range from \$4.50 to \$10 per week for girls and boys, to \$12 and \$15 per week for ordinary workmen. Skilled workmen get from \$20 to \$30 per week, and in some departments as high as \$50 per week is paid for experts.

The sanitary pottery manufacturers at Trenton and their operators had a little trouble about wages toward the close of 1908, and it was thought for a time strike might result, but they finally got together and a two years' agreement was entered into. The schedule of wages agreed upon was about the same as prevailed before.

The tariff question is one of the main topics of the day, and it is of special importance to the manufacturers of pottery, and, as a result, representative manufacturers have been doing considerable hustling, getting data on which to base their demands for an increase in the tariff. If that can not be obtained, they hope at least to maintain the present tariff rate. Hearings were held in Washington before the Ways and Means Committee in November, and the manufacturers of Trenton, East Liverpool, Wheeling and other pottery centers were much in evidence. The present duty on undecorated pottery ware is an ad valorem schedule of 55 per cent., and 60 per cent. on decorated ware. A higher duty is prayed for, as is also a strict interpretation of goods imported.

The question will be settled and settled right no doubt, and, firm in this belief, the manufacturers of Trenton are anticipating busy and prosperous times during President Taft's incumbency. The quality of their products certainly justifies the hope that in time American pottery will be used exclusively in this country.



Group of Beautiful Hand-Painted Pottery.

in the new world. The statement may be challenged by Ohioans, but there is no gainsaying the fact that Trenton is one of the great pottery centers of the world. Some idea of the magnitude of the pottery industries may be obtained from the statement that the total value of our potteries in the United States during 1907 amounted to \$30,143,474.

Art pottery appeals to us all, rich and poor, so I am sure the accompanying illustration will please every reader of THE CLAY-WORKER, for as specimens of the highest class of ceramic products, the ware is of more than ordinary interest. They are the product of the Morris China Company, Trenton, and the vases are decorated with fac-simile reproductions of famous oil paintings, hand painted. The subject to the left is "The Echo," that in the center is "The Gleaner," and the other one is "The Flower Girl."

F. W. Morris & Son are the present proprietors of the



PANORAMIC VIEW OF GENESEE RIVER IN THE HEART OF ROCHESTER,

THE N. B. M. A. CONVENTION CITY.

Rochester The City Beautiful—Its Many Attractions
and Great Commercial Importance.

THE MECCA TOWARD which the eyes of the clay-workers of the land are now turned is Rochester, N. Y., a city of beautiful commercial structures, handsome residences, massive factory buildings, attractive park systems, and wide, well-paved, shaded residence streets. This center of centers, as the statisticians in the Empire State are wont to call it, is an ideal convention city, possessing finely appointed hotels, a large convention hall, excellent places of amusement, and many attractive points of interest, as those who gather there February 1-6 to attend the Twenty-third Annual Convention of the N. B. M. A. will learn.

Col. Nathaniel Rochester, a representative pioneer of the Genesee country, founded Rochester in 1802. Before that time the Indians had pitched their wigwams here by the beautiful falls of the Genesee, and had made it a place of rendezvous. Even in 1813 the tribe of the Senecas encamped on the site of Rochester and performed pagan rites, ridding themselves of their sins by sacrificing dogs and in various ways observing their barbarous ceremonies. In those days it was an ideal meeting place, so we are not surprised to find in modern times it has become a great convention city.

The greatness of Rochester really had its beginning in 1817; this was the year in which the construction of the Erie Canal was begun. With the completion of this connecting

link between the Hudson River and the Great Lakes, Rochester became a milling center, due to its fine location, being the center of the garden spot of New York State, with splendid water power furnished by the Genesee Falls and the excellent transportation facilities. Naturally, the flour mills were the first manufactories to be built here.

The growth of Rochester has been gradual and substantial, the total population today being 250,000. Over fifteen large flour mills are located within the city limits, and although these are important, they are dwarfed by the other factories of almost every description, which have sprung up in late years. The production of flour has given Rochester the name of the Flour City, but it could be styled the Electric City or be given a number of other names just as appropriate, as it has so many fine industries that no special one could be called the most important.

From a manufacturing viewpoint, Rochester is in a class by itself, possessing a greater variety of successful manufactories than any other city in the United States. It ranks first in the production of photographic supplies, output of seeds and nursery stock, soda fountain requisites, mail chutes and optical instruments, and has within its boundaries the largest lubricating oil plant, as well as the largest thermometer, enameled tank, canned goods, button, office filing devices, paper box machinery and wooden box factories in



BIRDSEYE VIEW OF COMMERCIAL ROCHESTER, LOOKING WEST FROM CHAM-



LINED ON BOTH BANKS WITH IMMENSE FACTORY BUILDINGS

the country. Rochester also produces an enormous quantity of clothing, shoes, astronomical apparatus, woodworking machinery, machinists' tools, office furniture, lanterns, tinware, planing mill products, lithographic printing, glass-lined tanks, saws, telephones, carriages and buggies, distilled and malt liquors, preserved goods, nursery stock, car wheels, trunks, leather goods, sheet metals, stoves, ranges, refined oil, laundry machinery, railroad signals, chairs, candy, pianos, and, last but not least, clay products.

Rochester has the advantage of unexcelled transportation facilities, ten distinct railway systems passing through the city and connecting it with distant points. All the great east and west trunk lines either pass through Rochester or are connected with it by lines running direct from the city. Every important point east of the Mississippi River can be reached direct or with but one connection. One hundred and eighty-six trains arrive and depart from the city daily, the passengers who come and go from day to day numbering over 10,000 or a total for the year of nearly 4,000,000.

The city is built on a limestone rock foundation, making the foundation sure and drainage perfect. Within the city limits the Genesee River has a fall of 260 feet, there being two falls, known as the upper and lower falls. The upper falls are in the center of the city, being a perpendicular cataract 96 feet in height. At the lower falls, which are a mile and a half below the upper falls, there are two cataracts, one 84 feet and the other 25 feet. The river runs through the city in a deep gorge. This river affords the city water power of 50,000 horse power, thus giving material aid to the factories, furnishing most of the power required.

The supply of coal for power is shipped in direct from the greatest coal fields in the world. Three railroads enter the city direct from the coal fields, the Buffalo, Rochester and

Pittsburg Railroad and the Pennsylvania from the bituminous coal fields, and the Lehigh Valley from the anthracite fields, thus giving Rochester not only a low price, but a good quality of coal.

The water supply for drinking and culinary purposes is obtained from Hemlock Lake, twenty-six miles southwest of Rochester. The industries in and about the city consume over 22,000,000 gallons daily.

As a user of electricity for power, no city in the United States can compare with Rochester. In proportion to her production she uses fully twice as much electric power as any city in the country. Eighty per cent. of the factories of the city employ it more or less, nearly 2,600 motors being connected, furnishing daily over 14,800 h. p. Besides the power generated by the railway and lighting company, Rochester can draw 50,000 h. p. electric power supply from Niagara Falls.

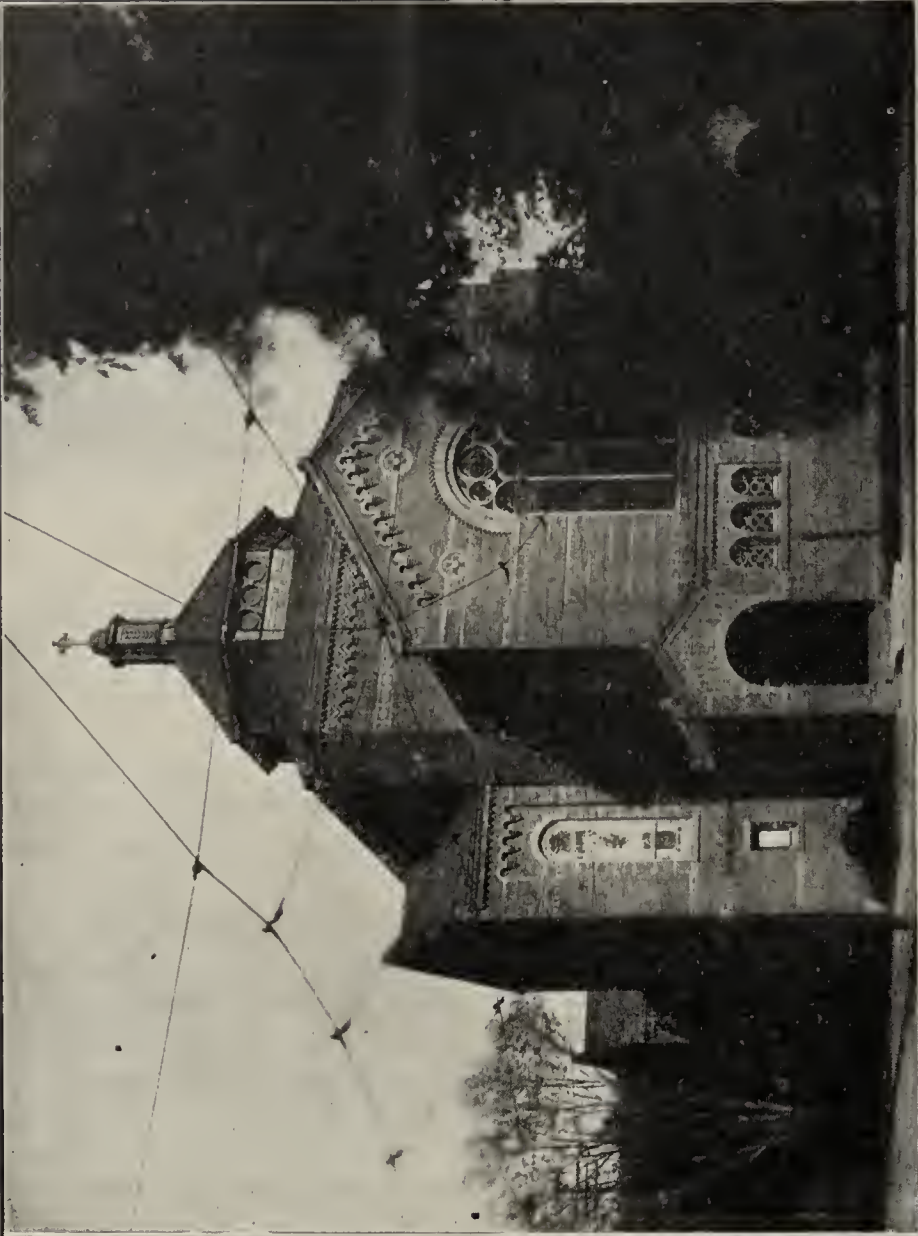
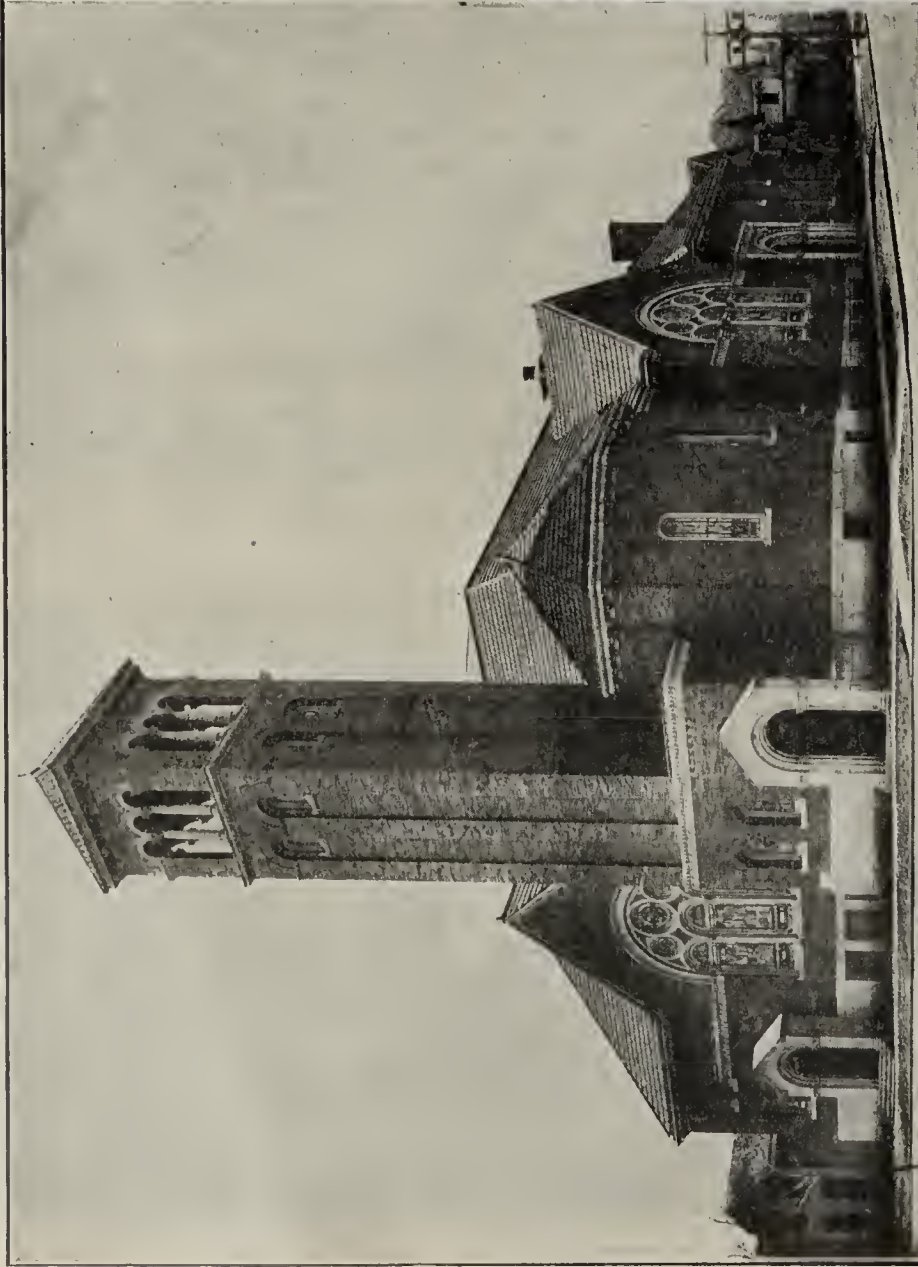
The city affords unusually fine educational facilities, there being thirty-two public schools, nineteen parochial schools, two new high schools, a university and theological seminary, and the Mechanics Institute, which has an attendance of over 3,500 students. There are 130 churches, sixteen bank and trust buildings, six libraries, six theatres, forty-five hotels, seven hospitals, and twenty-seven fire departments. There are 1,200 manufacturing plants in Rochester, including fifty-four boot and shoe factories, and the largest fur tanning establishment in the United States.

The total area of Rochester is 12,490 acres, 988 acres of which is devoted to park systems. There are four large and fourteen small parks, the largest park, Lake Park, being 512 acres in area. Rochester is within easy reach of splendid

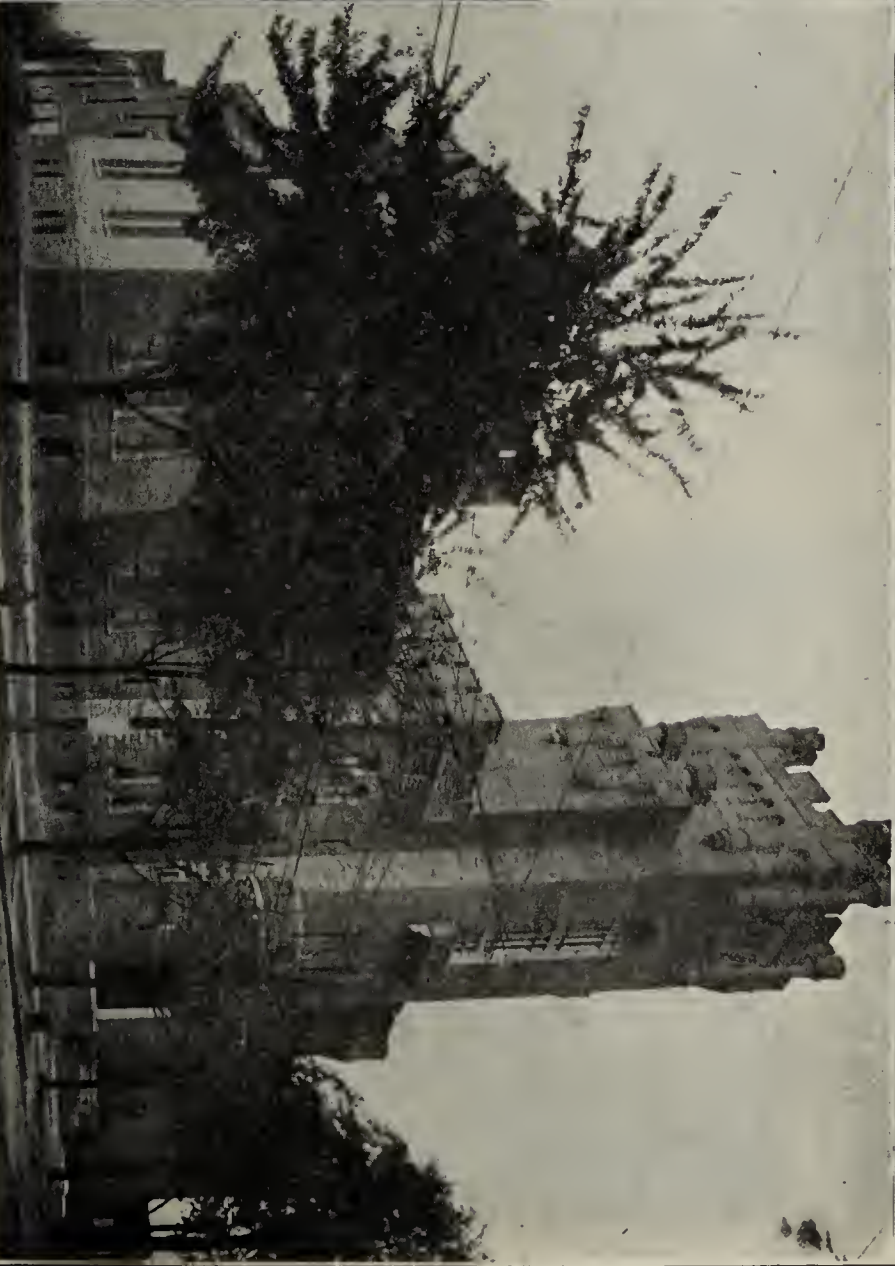
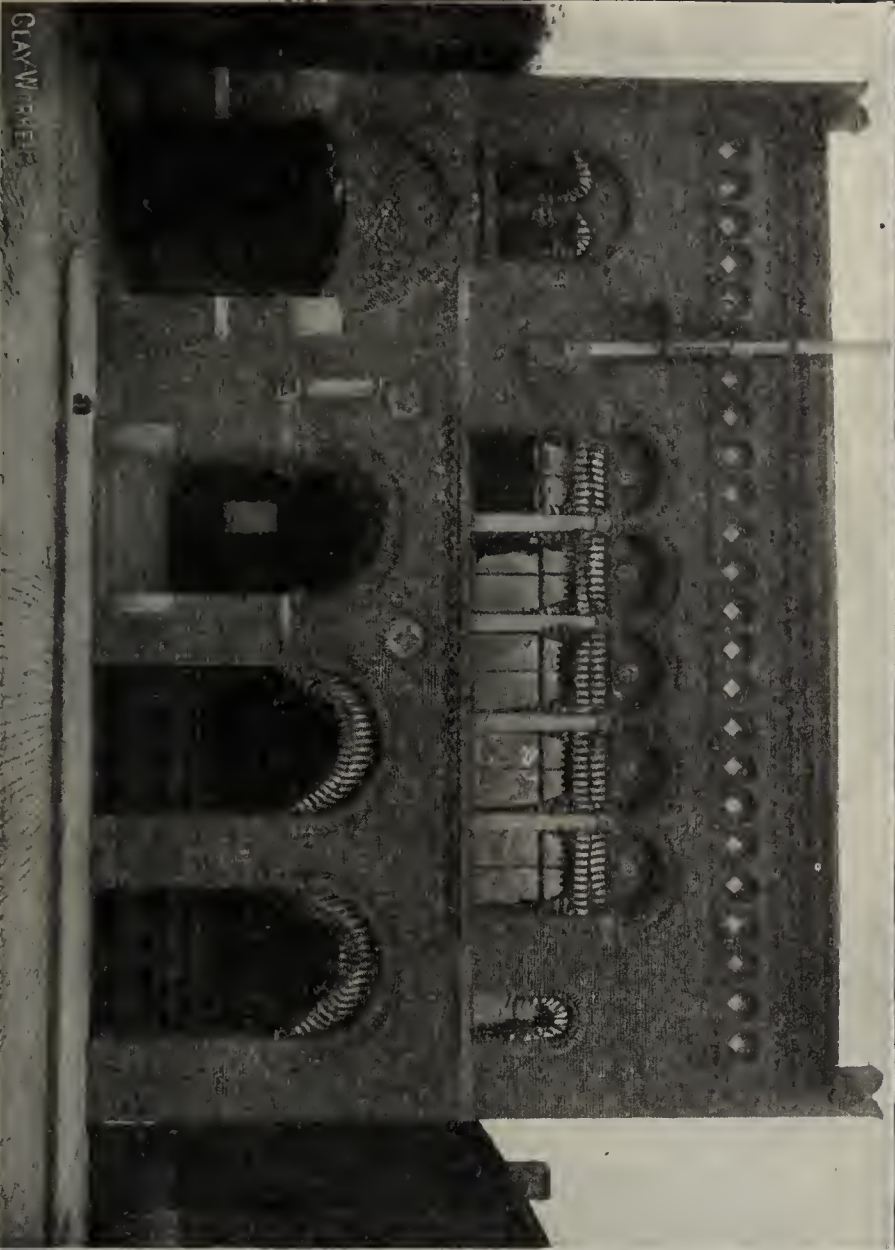
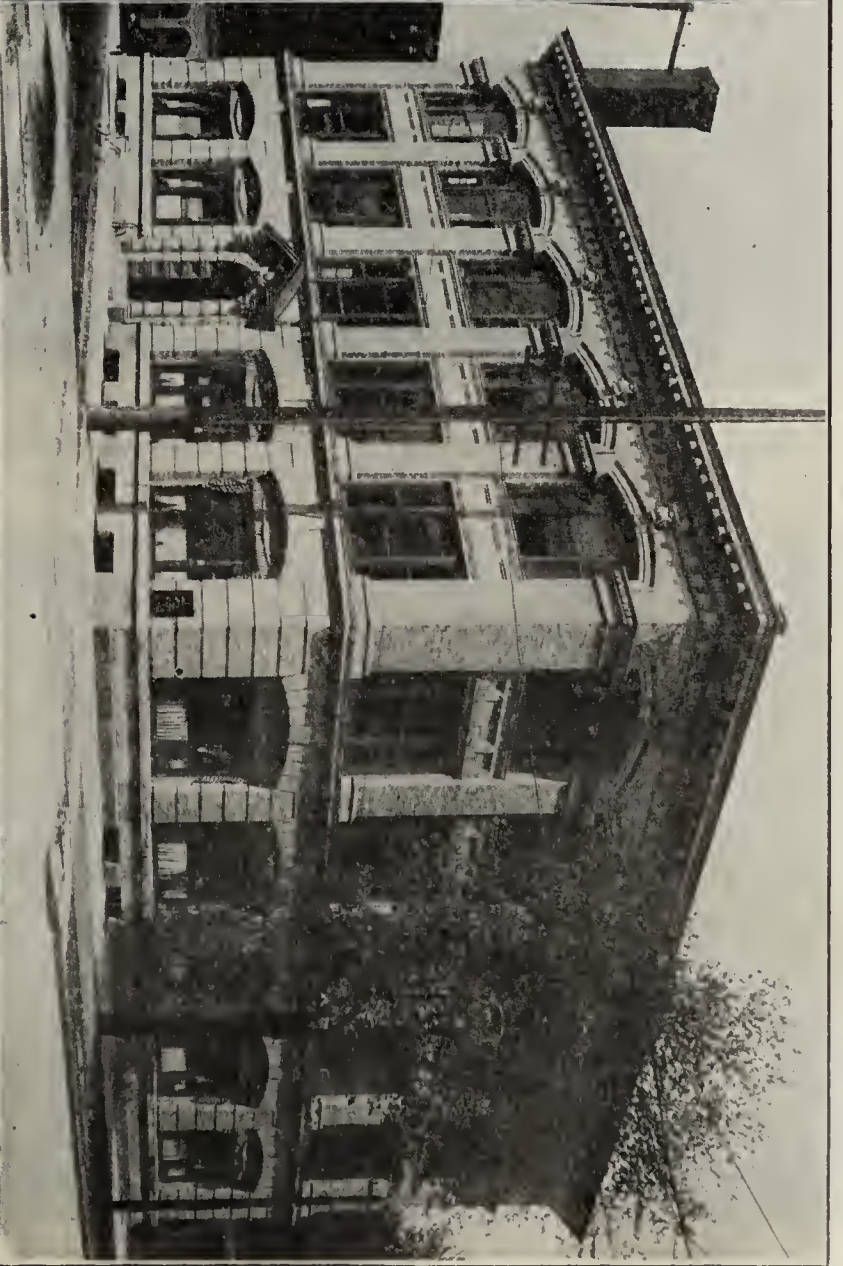
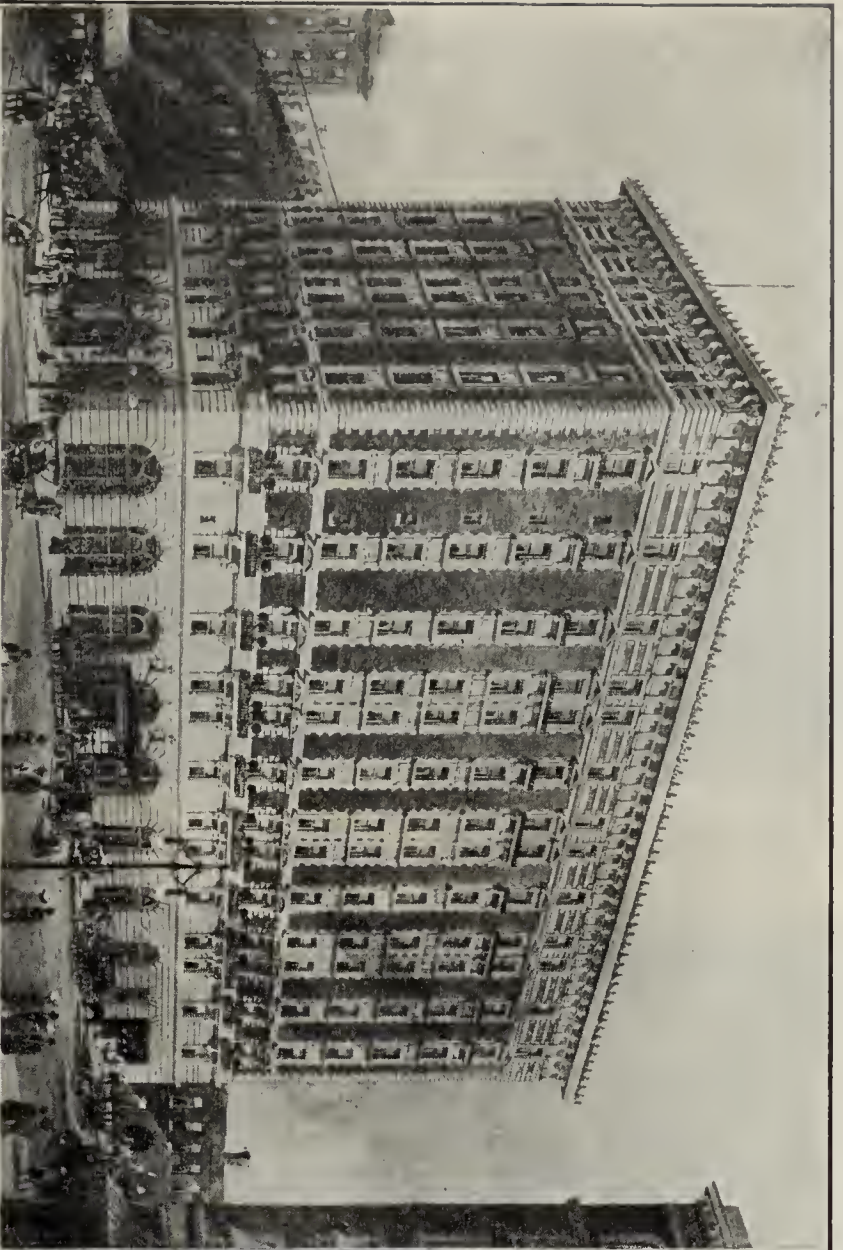
(Continued on page 61.)



BER OF COMMERCE BUILDING, AND SOUTHEAST FROM POWERS BUILDING.



1. Grace M. E. Church, Crandall & Stroble, Architects. 2. First Universalist Church, Claude F. Bragdon, Architect. 3. East High School and 4. West High School, J. F. Warner, Architect.—The brick for these buildings and those illustrated on following pages furnished by the New York Press Brick Company.



1. Hotel Rochester, Crandall & Strobel, Architects. 2. New York and Kentucky Company Office Building, Crandall & Strobel, Architects. 3. Rochester Telephone Company Building, J. Foster Warner, Architect. 4. New York State Armory, George L. Heine, Architect.



Edward G. Miner Residence. Claude F. Bragdon, Architect.



The Winsted Apartment. Walker & Nichols, Architects.



Erickson Perkins Residence. R. S. Byers, Architect.



Vassar Apartment. Foote & Headley, Architects.



W. D. Ellwanger Residence. R. S. Byers, Architect.



W. E. Sloan Residence. Claude F. Bragdon, Architect.



E. J. Burke Residence. J. Foster Warner, Architect.



Charles P. Barry Residence. Walker & Nichols, Architects.



Carl F. Lomb Residence. Leon Stern, Architect.



N. M. Collins Residence. J. Foster Warner, Architect.



Charles F. Crandall Residence. Crandall & Strobel, Architects.



W. H. Gorsline House. J. Foster Warner, Architect.



Edward Bausch Residence. Leon Stern, Architect.



Henry A. Strong Residence. J. Foster Warner, Architect.



George Eastman Residence. J. Foster Warner, Architect.



George Koch Residence. Walker & Nichols, Architects.



Sibley Block. Gordon & Madden, Architects.



George C. Buell Residence. Claude F. Bragdon, Architect.

summer resorts, there being a ten-mile stretch of summer resorts along Lake Ontario and Irondequoit Bay.

Rochester a Brick City

There is no city in the country ranking with Rochester in population that can boast of finer, more attractive fireproof commercial structures, churches, municipal buildings, etc. There are scores of excellently constructed buildings in this busy industrial center, built for the most part of press brick with terra cotta trimmings. The Hotel Seneca, which is to be the headquarters for the N. B. M. A. Convention, exemplifies the beauty that can be obtained by the employment of attractive clay products, for here we find a very artistic and absolutely fireproof building, the outer walls constructed of fine buff colored pressed

brick and terra cotta trimmings to match. The terra cotta was furnished by the Brick, Tile and Terra Cotta Company, Corning, N. Y., of which Mr. M. E. Gregory, the president of the National Association, is proprietor. The main lobby and the floors of the various ground floor departments of this finely appointed hostelry are laid with unusually attractive mosaic tile, making it most sanitary and inviting. There are many such structures in Rochester which, while built of different styles and utilizing different shades of press brick and terra cotta, are for the most part erected of the one excellent essential material for fireproofing, beauty and sanitation, i. e., burnt clay. We need not enumerate the various attractive structures to be seen in Rochester. Suffice it to refer the reader to the many views of Rochester build-

ings shown in this issue, taken from photographs kindly furnished us by Mr. E. J. Burke, president of the New York Press Brick Company, who has done much towards making Rochester the Rochester beautiful. The brick for all of the buildings illustrated were furnished by the N. Y. P. B. Co. The office of the company is a fitting illustration of the artistic effect that can be obtained by the use of press brick, even in small buildings. As the reader may see by the accompanying illustration, the N. Y. P. B. Co. not only put up a "good front," but the interior fitting of the office is exceptionally attractive, the displays of press brick being such as to challenge the admiration of every visitor, be he architect or builder. Such displays certainly tend to educate the building public, and better homes and commercial buildings result.

Rochester's Brick Streets.

The use of clay products as building materials is not only gratifying to the clay manufacturer, but, in the long run, to the taxpayers as well. And this applies fully as much to brick streets as to buildings. We are only sorry to say that in the matter of construction, brick paving has not been considered as thoroughly as it should. Nevertheless, Rochester has more than forty miles of brick-paved thoroughfares, some of which have been laid nearly twenty years, and are today in almost as good condition as when they were first put down. City Engineer C. E. Fisher will tell something of these pavements in an address to the convention, and suggest better methods of construction, which will enable the city at little or no additional expense to obtain even more satisfactory

streets; and Rochester's brick streets as they are, are certainly satisfactory from the taxpayers' viewpoint. We present a view of Cornell street, the oldest stretch of brick pavement in the city. The pavement is today in excellent condition, showing little or no wear, though having been laid more than twenty-five years ago, and subject to moderately heavy traffic during all that time. This street was put down by Mr. Sibley, a public spirited citizen, who bore the entire expense himself for the purpose of affording his neighbors a fine example of an excellent paved street, and in that way materially promote the use of brick for the paving of streets. This stretch of pavement is 550 feet long, located about a mile from the Seneca Hotel, off Monroe avenue. The brick were laid according to the old Bloomington (Ill.) method, being a two-course



The Attractive Office Building of the New York Press Brick Company.

pavement, that is, one course of brick on the flat on a 6-inch sand cushion, the top course being laid on edge on a 2-inch sand cushion in the ordinary manner. It is an object lesson in the durability of brick streets, for which the citizens of Rochester ought to be very grateful to Mr. Sibley's memory.

A Trip to Rochester's Brick Plants.

In company with one of Rochester's pioneer brick manufacturers—we are tempted to say her patriarch brickmaker—Mr. W. H. W. Rogers, to whom we are indebted for many kindly courtesies, we visited the building brick plants which are located in the outskirts of the city, and, as a rule, are easily reached by trolley. They are all of the same general type, soft mud yards, using surface clay. The first plant

visited was that of the Rochester Brick and Tile Manufacturing Company, which was established in 1853, and so can safely be counted one of the oldest brickyards in Western New York. It is located at Brighton, a suburb of Rochester. The clay land comprises 190 acres, and, notwithstanding the age of the plant, there is still plenty of material to keep the plant going for many years to come.

The Rochester Brick and Tile Manufacturing Company's Plant.

The clay is an alluvial clay running on the average from 4 to 10 feet in depth, with here and there spots of loam and sandy soil. A good mixture of this clay, loam and sandy soil is used in the manufacture of the ware. Stripping is unnecessary. The ground is broken by means of plow and harrow, and then shoveled into side dump cars each holding

2 yards of clay. A dummy engine takes a train of ten cars to the plant, which is about a half a mile from the clay field proper. Eleven trips a day, or 220 yards of clay, is sufficient for a day's run.

At the plant the raw material is dumped upon a platform, from which it passes through three Martin crushers, and is then carried by belt conveyors to the three Martin pug mills. Three complete lines of Martin soft mud machinery are installed at this plant, forming three distinct departments. From the pug mills the prepared clay enters the Martin machine. The pallet system is used here with a Potts sander. The green ware (common building brick) made on these three machines is taken from the machines on pallets and placed on trucks and carted to the racks. All of the ware is dried in the open, the plant running only during the



Interior of the City Office of the New York Press Brick Company, Rochester.



Masonic Temple. J. Mills Platt, Architect.



Hotel Seneca. Eisenwein & Johnson, Architects.



Eastman Kodak Company Office Building. Crandall & Strobel, Architects.

summer months. Three acres of land are devoted entirely to rack space.

In the manufacture of the hollow ware, drain tile, hollow block and general fireproofing material, the clay is dumped from a trestle leading to a 250x100 two-story shed, in which the hollow ware is made. Here the clay is thrown into a conveyor, from which it is dumped into a four-roll crusher. From the crusher the raw material passes to a pug mill and finally drops into the hollow ware machine. The machinery in this department is of the American Clay Machinery Company's make. Different sizes of drain tile are made as desired, but the general run is on 4-inch tile. Nearly all

is not easily figured, there being a varying demand for this product and a wide range in the sizes of the ware.

The power of the plant is furnished by means of a 250 h. p. Corliss engine, and two boilers of 100 h. p. each.

The water supply is obtained from drilled wells, the water being pumped by a triple X valve pump.

There is a blacksmith shop where needed minor repairs are made for the machinery, etc., and a wagon shop where the wagons, trucks, etc., used on the plant are made. One of the proud possessions which Mr. Rogers enjoys showing the visitors is the large stable located diagonally across the road from the plant. Here are housed forty fine horses, one



Brick Street Leading to Brooks-Avenue Brick Plant.



The Oldest Brick Pavement in Rochester.



Down-Draft Kiln, R. B. and T. M. Co.'s Plant.



Clay Field of the R. B. and T. M. Co.

sizes of hollow ware and fireproofing material are made to suit the demand.

There are in all on this plant nine kilns, six up-draft, two round down-draft, and one large continuous sixteen-chamber kiln. The watersmoking is done with wood and hard coal, while the main burning is accomplished with soft coal. The up-draft kilns are fired by means of ten furnaces, and have a capacity of 500,000 brick each. The round down-draft kilns are 28 feet in diameter and hold about 40,000 brick. The run is generally on brick, the daily output being in the neighborhood of 110,000. The output of hollow ware

of which is shown in an illustration of this article. Twenty-five houses have been built for the benefit of their employees, who pay a nominal rent.

The general market for the company's product is Rochester and vicinity. Recently the company furnished for one building alone in Syracuse, N. Y., sixteen boatloads and fifty carloads of common brick.

The company has an office in the Powers building. The officers are: Mr. W. H. H. Rogers, president and treasurer; Mr. Raymond Otis, vice-president, and Mr. E. J. Rich, secretary. The company was incorporated in 1853. Mr. Rogers



The Kiln Yard at the Rochester Brick and Tile Mfg. Co.'s Plant, Showing Large Continuous Kiln.



A Birdseye View of Rack Yard at the Rochester Brick and Tile Mfg. Co.'s Plant.



The Rochester Brick and Tile Mfg. Co.'s Trestle Used for Delivering Clay Directly From Field to Crushers.



The Clay Field at the Genesee Street Plant of the Rochester German Brick and Tile Co.

has been at the head of the firm for thirty-seven years, and is a very enthusiastic member of the National Brick Manufacturers' Association.

The Rochester German Brick and Tile Company.

Without doubt one of the largest producers of common building brick, hollow ware and drain tile in Rochester is the above-named company, organized in 1877, which operates two plants, one known as the Genesee street plant, and the second as the Brooks avenue plant. At the head of this company is Mr. V. F. Whitmore.

The Brooks avenue plant is located on the Buffalo, Rochester and Pittsburg Railroad, three miles to the southwest of the city. This plant has a supply of raw material sufficient

in the Martin dryer. Exhaust and live steam are used in the drying of the brick. The brick are burned in four stationary, rectangular up-draft kilns, having a total capacity of 2,000,000 brick, and a sixteen-chamber Wilford continuous kiln. The continuous kiln is burned entirely with slack coal, while in the firing of the other kilns wood and hard coal are used in watersmoking, and soft coal for the higher burning.

A complete line of C. & A. Potts machinery is used here, including rolls, disintegrator, and two brick machines. The two brick machines turn out daily on the average of 40,000 brick each, making the daily output of the plant in common brick 80,000. A Giant tile machine of the American Clay Machinery Company's make, with Potts rolls and disintegrator, is used in the manufacture of the tile and hollow



The Stockyard of the R. B. and T. M. Co.



The R. B. and T. M. Co.'s Splendid Stables.



A Load of Excellent Tile. Mr. Rogers in Foreground.



The Birdseye View of the R. B. and T. M. Co.'s Plant.

to run it for many years to come. The clay used here is a surface clay running from 3 to 10 feet in depth. There are forty acres of clay land here. Stripping is unnecessary. The clay is mined by means of a Thew steam shovel, which requires but two men in its operation. The clay is dumped from the bucket of the steam shovel into 2-yard dump cars, which stand on a narrow gauge track close by the shovel. A ten-ton locomotive takes a train of four cars to the plant, where the clay is dumped and the empties taken back to the clay field to be refilled. The clay passes through a disintegrator and thence through two sets of rolls. The green brick are taken from the machine, placed on steel pallets and put on an endless chain, which carries them to different points

ware. The green ware from the tile machine is dried on the racks in the open. The tile and hollow ware are burned in a down-draft kiln, which has a capacity equal to 100,000 brick. The power of the plant consists of a 250 h. p. Corliss C. & G. Cooper Co. engine, with three boilers.

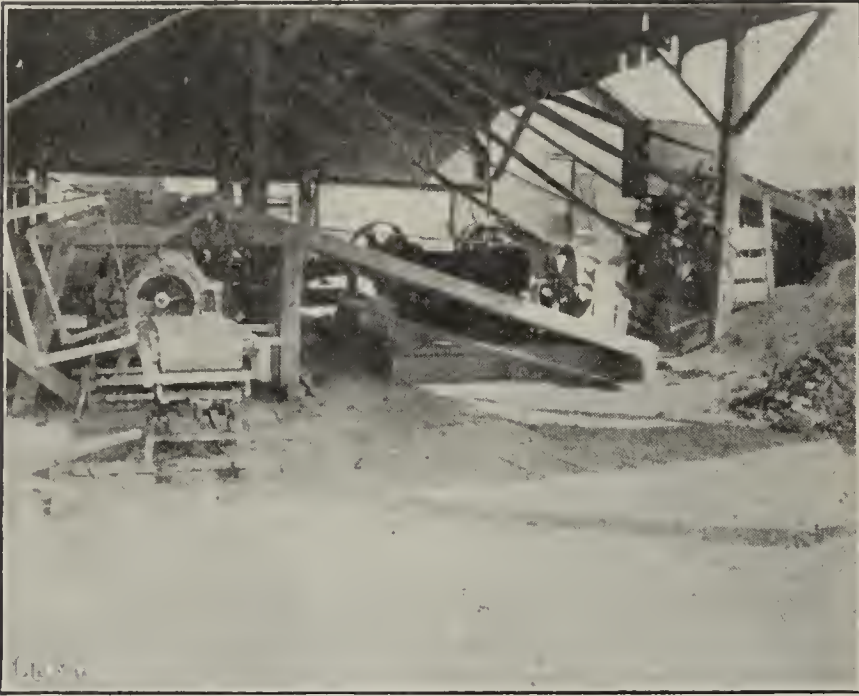
The Genesee street plant, which was purchased by the company several years ago, is much smaller than the Brooks avenue plant, manufacturing simply common building brick. There are twenty acres of clay land here of about the same nature as at the other plant. A steam shovel is employed for digging the clay. The machinery equipment here is the C. & A. Potts make, consisting of rolls, disintegrator, brick machine and sander. The capacity of the machine is 40,000 brick daily. The brick are dried in a Standard dryer, and burned in four

Swift kilns, which have a capacity of 550,000 brick each. The officers of the company are: Mr. V. F. Whitmore, president; John Weis, vice-president; W. H. Vicinus, treasurer, and L. S. Whitmore, secretary.

The Maplewood Plant.

At Bealsburg, a suburb of Rochester, six miles from the heart of the city, we find the Maplewood plant, which has

a number of interesting features. Here we find them using a yellow surface clay averaging 3 feet in depth. There are seventy-five acres of this clay land, the clay field proper being located a quarter of a mile from the plant. The clay is dug by hand and shoveled into flat wooden dump cars. The cars are drawn for a short distance by a horse to a point where the cars are coupled onto a 20 h. p. locomotive and conveyed to the soak pits at the plant. The clay is dumped



Machinery Shed at Brooks-Avenue Plant.



Drying Thousands of Hollow Brick.



General View of Brooks Avenue Plant of the Rochester German Brick and Tile Company.



A View of Brooks-Avenue Plant Kiln Yard.



Immense Pile of Hollow Ware.

into the pits, where it is properly tempered and then shoveled into a short belt conveyer which elevates the prepared clay to the top of a Martin soft mud brick machine which is located at the edge of the pit. The brick are placed on pallets which are piled in racks on the rack yard, where the brick are allowed to dry in the open. The racks cover over an acre of ground. The dried brick are wheeled to the kilns on wheelbarrows. The ware is burned in a large

sixteen-chamber Wilford continuous kiln which requires two cars of pea coal for fuel per month, turning out 30,000 brick daily. Manager B. F. Gay declares this kiln is superior in every way to the ordinary kilns, giving burns far ahead of any other type of kiln and being more economical. This plant is closed down during the winter months. The general market for their brick is Rochester and vicinity. The plant is owned by the Hiram Sibley Estate.



Clay Field of Genesee-Street Plant.



Machinery Room.



View of Genesee Plant of the Rochester German Brick and Tile Company.



On the Rack Yard at Maplewood Plant.



Soak Pit at Maplewood Plant.

In and About the Maplewood Brick Plant.



Loaded Cars of Clay in Maplewood Clay Field.



Martin Brick Machine.



Dummy Engine, with Train of Cars.



Preparing Clay in Soak Pit.



Approach to the Soak Pit.



Continuous Kiln at Maplewood Plant.

There are two sewer pipe plants in Rochester, located in the northwestern part of the city, and within a stone's throw of each other. The older of the two is the

The Rochester Sewer Pipe Company's Plant.

This factory is located in the northwestern part of the city, about two miles from the center. It was built about 1870, and has experienced a most successful business for almost forty years. It originally was under the firm name of Otis & Gorsline, but about ten years ago was incorporated

ture, two of them being local glacial clays, shipped to the plant by rail from a distance of about ten miles; the third is a New Jersey spotted fire clay, shipped by the Erie Canal. The boats containing the latter are unloaded at the docks in the rear of the factory by means of a Hunt automatic railway, which works as follows: There are two buckets, one of which is being loaded in the boat while the other has been elevated to a tower, where it is dumped in a car which holds three buckets, amounting to one ton. When the car is filled it is released and runs down a trestle. During its



Dumping Clay Automatically.



Unloading Clay from Canal Boat.



Four-Wheeled Combination Pan.



Stock Piles Beside the Erie Canal.

as the Rochester Sewer Pipe Company. The officers are: President, Mr. R. H. Gorsline; vice-president, Mr. Richard Gorsline; treasurer, Mr. Geo. L. Swan, and secretary-manager, Mr. Wm. H. Gorsline. They manufacture an unusually superior line of sewer pipe, flue lining, wall coping and conduits. The plant has unusually good shipping facilities, being bounded on one side by the Erie Canal, and on the other by the New York Central Railroad tracks.

This company uses three clays in their sewer pipe mix-

trip down the trestle it picks up a weight which, after the car is automatically dumped, gives the empty car sufficient impulse to return to the starting position. It is possible to arrange to dump the car at any point along the trestle desired. This arrangement permits of unloading up to twenty-five tons an hour with six men shoveling, one man hooking on the buckets, one man discharging the buckets, and one man operating the power. The three clays are received during the summer months in sufficient quantities to keep the

plant going throughout the year. During the year this company puts in about 12,000 tons of clay.

The raw material is ground in three Taplin & Rice four-wheeled, 9-foot combination pans, each of which requires from 40 to 50 h. p. After being discharged from the pans it is elevated to the top story of the building and is then dropped into a chute, from which the clay is fed to the two presses on the second floor as needed by means of conveying and feeding belts. These belts can be regulated to supply the amount of material required at the presses under any conditions. There are two Turner, Vaughn & Taylor presses of the vertical steam type. On one press is made pipe from 3-inch up to and including 6-inch, while on the other is made pipe from 8-inch up to and including 30-inch.

It might be interesting to note the daily output (ten hours) on runs of different sizes of pipe: 4,500 3-inch pipe, 4,500 4-inch pipe, 4,000 5-inch pipe, 3,500 6-inch pipe, 2,500 8-inch pipe, 2,200 9-inch pipe, 2,400 10-inch pipe, 2,200 12-inch pipe, 2,000 15-inch pipe, 1,250 18-inch pipe, 1,000 20-inch pipe, and 800 24-inch pipe. This production would be larger in some cases were the pan equipment greater.

The main building has four drying floors, one of which is principally used for storing dried pipe ready for the kilns. The drying is accomplished in from two to ten days, according to the cross section of the ware. The drying floors are



A Good Supply of Jersey Clay.

slotted, and heat for drying is supplied during the day entirely by exhaust steam and at night by live steam. Two elevators are used for taking pipe from the presses to the kilns. On the first floor is a section set apart for the manufacture of special shapes and chimney tops. Traps from 8 inches up to and including 12 inches are molded, as are many chimney tops and ware of like character. Three, 4, 5 and 6-inch traps are made at the press by means of a specially constructed trap die operated by slides.

The ware is burned in ten rectangular down-draft kilns, developed by Mr. W. H. Gorsline, the deceased father of the present secretary and manager. There are three to four fire boxes on either end of each kiln. These kilns are set with 3-foot tile two high, or 2-foot tile four high.

The burning is accomplished with Pittsburg coal. All modern conveniences are installed, such as cones and draft gauges, and for calculating temperatures, electric pyrometers.

From the kilns the pipe are taken to the yard, sorted and piled near the New York Central tracks ready for shipment.

The power of the plant consists of a 300 h. p. Hamilton Corliss engine, and two 200 h. p. water tube boilers. There is installed a chemical purifying system and hot water heater of the Cochrane type, and automatic steam jet smoke con-

sumers. The company ships from five to eight carloads of pipe daily. The product has a good reputation for quality, and has been shipped to many distant points. In this connection it may be interesting to state that a recent number of the Engineering Record describes a series of tests made by the engineering department of the Borough of Brooklyn, New York City, in which the 18-inch double strength pipe manufactured by this company showed, by the impact test,

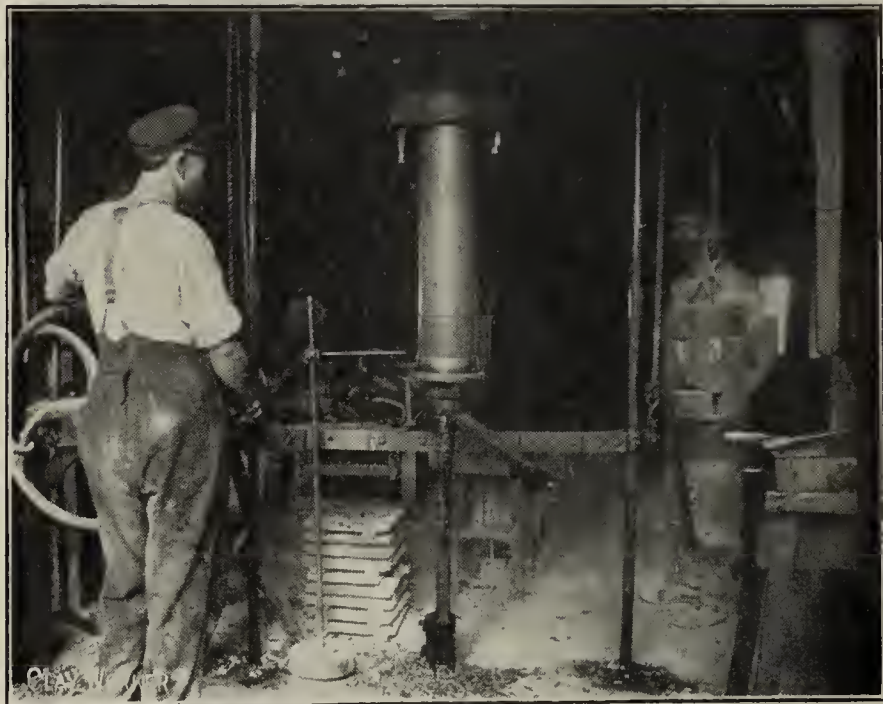


A Carload of Rings.

the greatest strength of any pipe tested. The high standing of this department and their well-known care in testing pipe lends much significance to the result of this test, and this speaks highly for the character of the pipe manufactured by the Rochester Sewer Pipe Company.

The Standard Sewer Pipe Plant.

A short walk from the Rochester Sewer Pipe plant brings us to the Standard factory, which covers ten acres, being just outside of the city limits on Lexington avenue. Here we



Sewer Pipe Press at Standard Plant.

find a modern, up-to-date plant turning out an enormous amount of sewer pipe, conduits, etc. This plant has the same shipping facilities as the Rochester plant, plus the B., R. & P. Ry. and its connections, and employs the same kind of clays in the manufacture of the ware. They own extensive clay lands in Chili, N. Y., comprising in all seventy acres. The native clays consist of yellow and red clays, while the foreign material is the New Jersey fire clay.

The clay land at Chili has 8 inches of soil, which is stripped with shovels. Beneath this soil is a 2 to 5-foot vein of the plastic clay.

The red and yellow clays average about the same depth, but are found at two different points, the red being located a mile distant from the yellow clay.

The raw material is dug by hand, being shoveled into twenty-ton three-board gondola cars. The clay is shipped



Drying Floor at the Standard Plant.

by car lots. Four cars of clay are shipped to the plant daily during the summer, supplying the factory with a superfluous amount, which is stored for winter usage.

The New Jersey fire clay is added to a mixture of red and yellow to permit of high temperature in burning. The clays are brought into the yard of the plant on a high trestle and dumped on either side, the cars being hopper-bottom dump cars.

The raw materials are ground in three dry pans, which are supplied as needed from the piles of clay by wheel-



Setting Sewer Pipe in Kiln.

barrows. From the pans the raw material is elevated to the third floor of the factory and thence by chute and flying belts into two presses, one a 48-inch press, while the other is 42 inches.

On the 48-inch press sizes of pipe from 8 to 24 inches are made, while on the other, 3, 4, 5 and 6 and small bends.

The large sized pipe are dried on the third floor, while

the smaller sizes are dried on the second and first floors. There are four dryer floors in all, the basement of the factory being employed when necessary. The drying is accomplished by means of exhaust steam during the day and live steam at night. Here the ware is allowed to stand for three weeks before taken to the kilns. Two elevators and platform trucks are used for transferring the green ware.

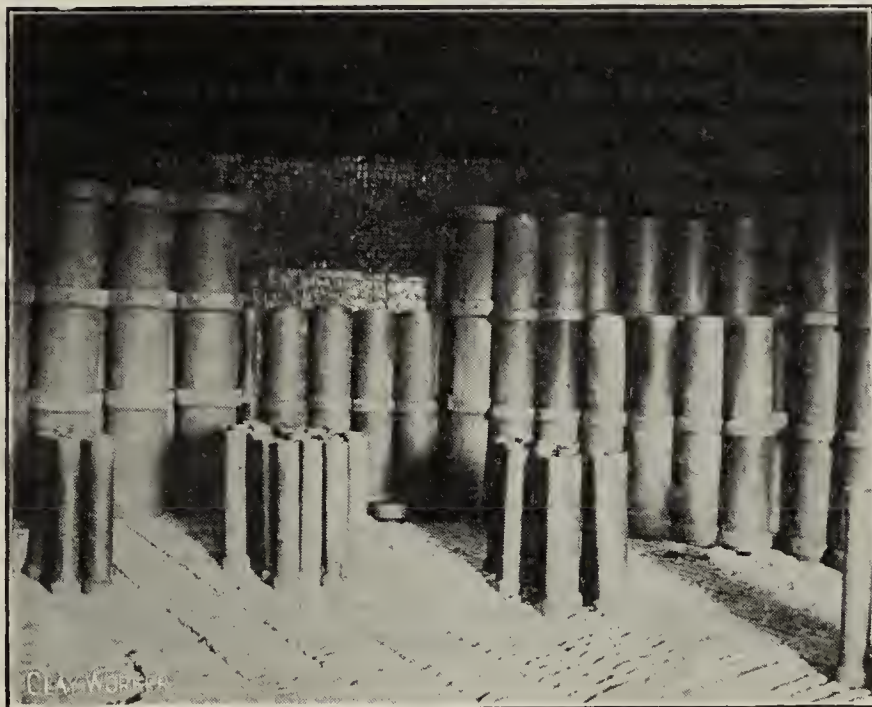
There is a special department for the making of traps and odd shapes. Dies are used on the press for small traps, but the larger ones are made in plaster paris molds. These larger sizes run in 8, 9, 10 and 12-inch pipes.

The burning is done in six 30-foot diameter round down-draft kilns and one rectangular down-draft kiln. The firing is done with Pittsburg lump coal.

The power of the plant is furnished by a 125 h. p. Woodbury engine and three boilers, two of 80 h. p. each, while the third is of 150 h. p. The plant is lighted with electricity furnished by a 15 h. p. small generator, run with an American Blower engine.

The company experienced a disastrous fire in May, which resulted in the destruction of one building and several kilns. New kilns were built at once and several improvements were made, so that the plant is being operated to a larger capacity than a year ago. The ware is shipped throughout the Middle and Eastern States.

The officers of the company are: President, Mr. Mathias



Emptying Kiln of Sewer Pipe.

Kondolf; vice-president and treasurer, Mr. E. W. Peck, and secretary, Mr. Fred G. Sweet.

New York Press Brick Company.

Twenty years is not a long time in which to develop a manufacturing business connected with the building industry, but few of our brick users know that less than twenty years ago it was more or less difficult to secure light-colored brick at a reasonable price in the Eastern cities.

The business of the New York Press Brick Company has been developed through the establishment of a small dry clay plant known as the Empire Pressed Brick Company in Canandaigua, a small town near Rochester, N. Y., in 1892. This plant served its purpose in interesting the Hydraulic Press Brick Company in the property in 1894, and the present organization has succeeded to the business developed in the interval.

There are very few places in New York State where facing brick may be manufactured, and fewer still in light colors. Near Canandaigua, however, there exists thick beds of clay similar to the material that made the Milwaukee buff brick famous in earlier facing brick days. The plant has the usual hydraulic equipment of hydraulic presses, and also uses a



New York Press Brick Company's Plant, Canandaigua, N. Y.

large Freese stiff clay machine in the manufacture of hollow tiles for partition use and backing-up purposes in connection with its facing brick business. During the last five years they have worked a semi-fire clay from their property located near Wellsboro, Tioga County, Pa., for the manufacture of their iron spotted brick.

The products of the New York Press Brick Company have been used in nearly all the numerous New York State cities and towns, and the volume of trade in brick now approaches 1,000,000 monthly. This output, however, is augmented by other well-known brick, for which the company acts as distributing agents. These associated companies include the New York Architectural Terra Cotta Company, of New York; Harbison-Walker Refractories Co., of Pittsburg and New York; Melvin & Peterson, Bradford, Pa.; DuBois & Butler Brick Co., DuBois, Pa.; Beaver Clay Manufacturing Company, New Galilee, Pa.; Center Brick and Clay Company, Orvis, Pa.; Sayre & Fisher, New York; Ohio Mining and Manufacturing Company, Shawnee, Ohio; Spiers-Fish Brick Co., Boston, Mass., and other Pennsylvania plants whose products find market in this territory.

Aside from its operations in building brick, the product of the Pennsylvania Fireproofing Company, St. Marys, Pa., is also put out in the larger portion of its orders, and in joining brick and hollow tiles the company has achieved a volume of business second to none in the East.

While it is generally understood that New York State

is a less attractive field than surrounding territory for the manufacturer, the establishment of the Canandaigua plant created such home interest as has resulted in developing a very large distributing business, and its favorable office location at Rochester also provides a distributing point for the best brick and tile manufactured in the territory lying between Ohio and the New England-Harvard brick region. It has been the policy of the company to bring the best of the various lines to the user under such conditions as could be depended upon to develop the larger use of burned clay products, and, with the growing field in the Eastern cities, the opportunity for a very large volume of trade has been created.

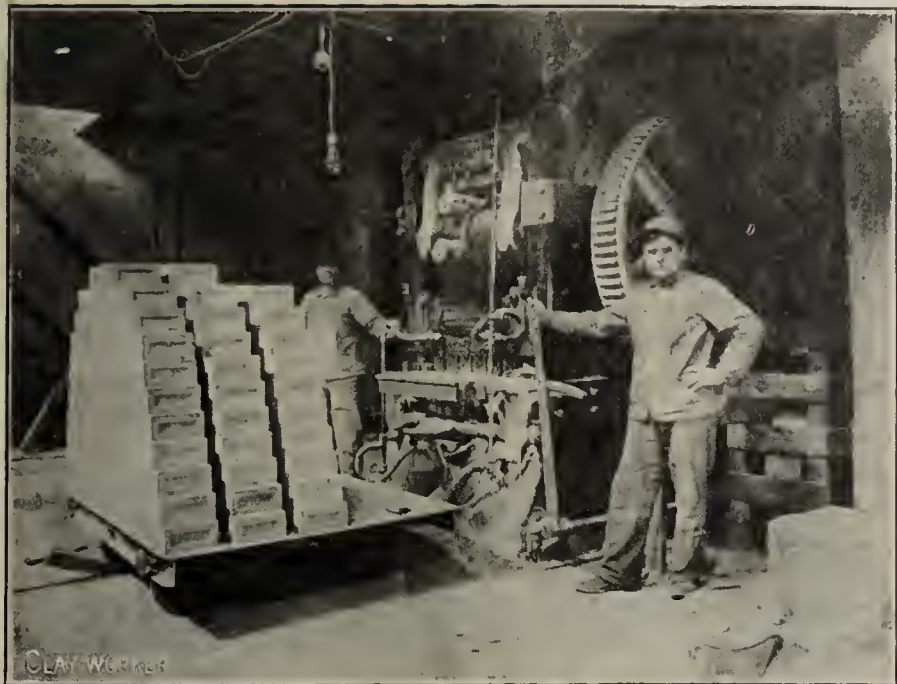
Mr. E. J. Burke, president, Mr. T. H. Swan, vice-president, Mr. J. F. Burke, secretary, and Thacher Jones, salesman, join in a Rochester "welcome" to brother clayworkers in the approaching convention.

Rochester's Sand-Lime Brick Plant.

In 1904 the Rochester Composite Brick Company was incorporated, with an authorized capital of \$100,000, and what was intended to be a model sand-lime brick plant was erected in the town of Brighton, some three miles from the Seneca Hotel, and a short distance from the terminus of the Park-avenue trolley line. The company met with the usual vicissitudes of such ventures, and in 1906 the management was



Clay Deposits Owned by New York Press Brick Company.



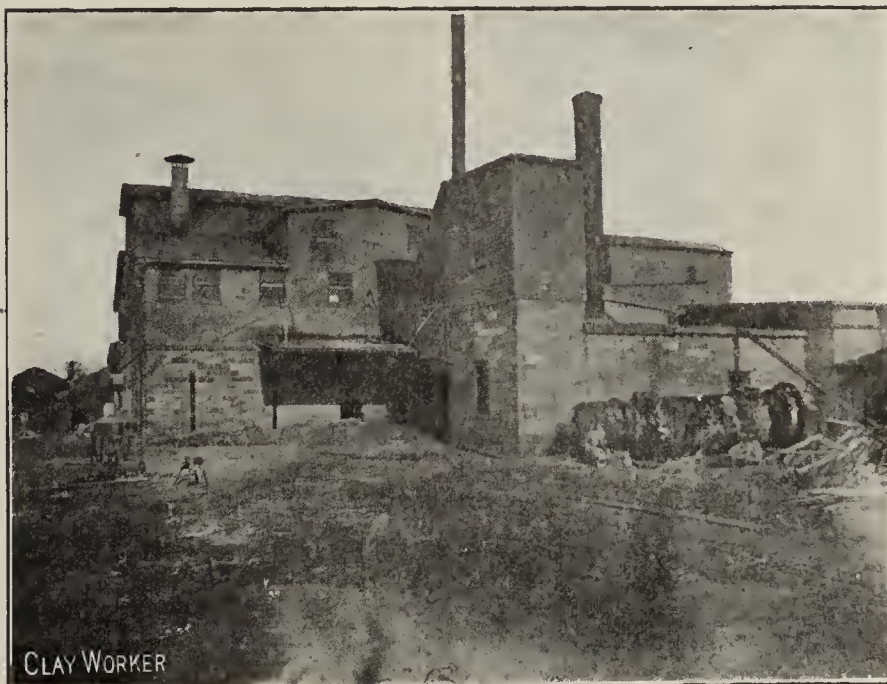
Making Sand-Lime Brick on a National Press.



Brick On the Way to the Stock Piles.



The Curing Cylinders.



A Portion of the Plant of the Rochester Composite Brick Co.



Dove's Kiln Sheds with Smoke Shields.



Mr. Dove's Country Brickyard.

changed, the company was recapitalized at \$125,000 and a fresh start taken, important improvements being made in the mechanical features of the plant, with the intent of increasing the daily capacity to 50,000 brick. At the present time, Mr. Homer Knapp, president, and R. W. Holden, secretary and treasurer, are waging an aggressive campaign. At the time of our visit, but one press was running and the stock sheds were fairly well filled. The plant is located near the Erie Canal and also has railroad connections, a siding running into the plant. Mr. Holden is a member of the N. B. M. A., and we take it will be very glad to have any of the delegates to the convention who may care to do so, visit and inspect the plant. His city office is at 62 Clinton avenue. Perhaps Mr. P. L. Simpson, or other representatives of the National Brick Machinery Company, will also be pleased to escort visitors to the plant, as they furnished the mechanical equipment, which includes two six-mold Simpson brick presses, of which they are properly quite proud.

W. G. Dove's Plant at Geneva.

Some two hours' ride from Rochester, either by train or trolley, is the beautiful city of Geneva, an ancient town, as American towns go, on the shores of a beautiful body of water which, we were told, is bottomless. At any rate,



W. G. Dove and His Favorite Roadster.

it is so deep that the bottom has never been found, and in a few instances the bodies of people drowned in the lake have never been recovered. Mr. W. G. Dove, an old-time member of the N. B. M. A., is a native of Geneva, and is operating a plant which his father established before him. So Mr. Dove can be classed as a born and bred brick-maker. He is also a contractor and builder, and the writer suspects that he is a capitalist, but Mr. Dove denies the soft impeachment, as it were.

At the time of our visit, the plant was closed down for the winter, but in the orderly disposition of brickyard appurtenances, it was evident that it is an orderly, well-managed plant. The reader may wonder at the billboard-like framework that extends above the level of the kiln tops, as shown in the accompanying views. It is a smoke shield, built up for the purpose of preventing the smoke from the kilns being blown into the adjoining fields of a neighbor's farm. The latter has claimed damages, and it is a question as to whether Mr. Dove will be seriously interfered with on that score.

Geneva is a beautiful as well as an ancient city, and among its buildings, both private and public, are many monuments of an enduring character to the skill of Mr. Dove as a manufacturer and a builder, monuments in brick and mortar, as enduring as the hills upon which they are builded.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NEWS.



HERE HAS BEEN a falling off reported in some branches of the brick business since our letter from this district last month, but we are glad to be able to say that this loss is comparatively small, and that general conditions are still considered very good, as compared with some other branches of the manufacturing industry. The weather, with the exception of possibly a week, has been rather mild for this time of the year, and this condition has permitted many building



Bridge Spanning the Erie Canal.



A Picturesque Lock on the Erie Canal.

operations that are under way to go forward without interruption or inconvenience.

The demand for vitrified paving brick has probably fallen off more than any other line, but this is natural at this time of the year and was expected. On account of the condition of the roads, it is, of course, almost impossible to do much in the way of road construction. But manufacturers of this class of brick have not been forced to curtail production by any means, as all stocks have been very low for the past year, and all are stocking up the sheds and yards in anticipation of the looked for rush and heavy demand as soon as the weather permits grading and paving to go ahead in the spring.

Both pressed and common red building brick have also

fallen off in demand, closely following the decline of vitrified brick, but the conditions at the works are practically the same as with the latter material, stocks being low, and the demand promising to be good in the spring.

The demand for sewer pipe has continued to fall off so far as orders from this part of the country are concerned, but there is still a large demand from the entire South, and local companies are making some large shipments to that part of the United States, as well as to some of our island possessions, several excellent shipments having been made to the latter during the past month, most of which were the smaller sizes.

Clay fireproofing plants are still operating steadily, and the outlook is such that they will generally continue to do so all during the winter.

The starting up of many additional blast furnaces and steel manufacturing plants has created an excellent demand for all classes of high-grade refractory material, and manufacturers in these lines are busier this winter than they were all summer. It is customary for the large steel companies to carry extra linings for the blast furnaces and stoves on hand in case of emergency, should a lining fall in, and as repairs and new linings were installed wherever necessary during the business depression, extra linings are not now on hand. Orders are being placed regularly now, and as each furnace requires several hundred thousand brick, refractory manufacturers are being kept busy turning out these orders.

The United Fire Brick Company, Arrott building, reports that the capacity of all three plants, located at Fairhope, Fairchance and Dunbar, Pa., has been increased during the past month, and that all are now being operated to capacity, with excellent prospects ahead. The company has succeeded in booking a number of excellent contracts recently, so that the steady operation of the plants is assured for some months, at least, to come.

The Queen's Run Fire Brick Company, Lock Haven, Pa., in order to provide additional and better ventilation at the clay mines, which are located near that city, has started the construction of a new air shaft over these mines. The new shaft will be 6 feet square, and about 50 feet in depth. When this shaft is completed, the company will be able to increase the capacity of the clay mines, as it will be possible for a larger number of men to work.

After having been idle for about a year during the recent financial depression, the plant of the Oak Hill Fire Brick Company, at Portsmouth, Ohio, has been placed in full operation, with a considerable amount of advance business for delivery in the spring of this year on hand. While the plant has been closed down, a number of important and need improvements were made.

The Scioto Fire Brick Company has also resumed operations at the plant at Hamden Junction, Ohio, and this plant, which has been idle for the past four months, will now be operated to its capacity.

The Phillips & McLaren Co., Pittsburg, has been awarded the contract for furnishing two dry pans and one wet pan for the fine new brick plant that is being erected at Brickton, Ill., for the Chicago Retort and Fire Brick Company, of Chicago. The building of the plant was started in December, and it is the intention of the owners to have it completed and ready to place in operation early in the coming spring. When completed, it will cost in the neighborhood of \$35,000, and will be one of the most complete and modern plants of the kind in that vicinity.

The contract for the brick that will be used in the construction of the new \$100,000 Pittsburg City Home at Marshalsea, Pa., has been awarded to the C. P. Mayer Company, Park building, Pittsburg. The brick will all be manufactured at the company's plant at Bridgeville, Pa., a short distance below Pittsburg. The company reports that the plant is very busy and has been for some months.

The Harbison-Walker Refractories Co., Pittsburg, has re-

ceived the award of the contract for furnishing the brick that will be required for the construction of the new No. 4 furnace and hot blast stoves at the plant of the Illinois Steel Company, at Joliet, Ill. The construction of the new blast furnace and stoves will require upwards of 2,000,000 high-grade refractory brick, so it will be seen that the contract is one of considerable size and importance. The Harbison-Walker Refractories Co. has also been awarded the contract for the entire requirements of refractory brick, clay, etc., for the Badger Malleable Iron Company, of Milwaukee, Wis., for the current year. As this concern is a large user of this class of material, it is a contract of considerable importance, calling only for the highest grade material.

The National Fireproofing Company, Pittsburg, has been awarded the contract for furnishing the fireproofing for the new building that is being built at Fifth avenue and Wood street, this city, for the First National Bank. Hollow block fireproofing will be used throughout the entire structure. The same company has also been awarded the contract for furnishing the conduit material for the same structure.

The National Fireproofing Company has also received the contract for the fireproofing for the new twenty-five-story Oliver building that will occupy an entire city block on Smithfield street, between Sixth and Oliver avenues.

The S. Barnes Brick Company, located at Bolesville, near New Brighton, Pa., has increased the output of the works during the past month, and reports having booked a number of excellent orders for winter delivery.

The Savage Fire Brick Company has appointed William Rees superintendent in charge of the Williams clay mines of the company near the plant at Hyndman, Pa. Mr. Rees succeeds J. H. Noel, who died several months ago, and who was in charge of the mines for many years.

The plant of the Douglas-Whistler Brick Co. at Eastville, Pa., which was closed temporarily during the latter part of last month, in order that a number of needed repairs and improvements might be made, was placed in full operation after the first of this year, and the company advises that there are enough orders booked ahead to insure its steady operation for the remainder of the winter at least.

An involuntary petition in bankruptcy was filed the middle of last month against the Beaver Valley Roofing Tile, Brick and Terra Cotta Company, of Beaver, Pa., by several creditors of the concern. Their claims amounted to slightly over \$6,000. The plant is not in operation, having been closed down on account of the financial depression several months ago, and will be sold at public sale at the direction of the United States District Court. It is modern and well-equipped, and in excellent shape to place in operation as soon as a few minor repairs are made. The poor demand is given as the cause of the failure.

The Butler Brick Company, Butler, Pa., has been given the order for the brick that will be required in the erection of the large new plant that is being built for the Standard Plate Glass Company at Butler. The building will require over a million building brick, practically all of which will be furnished by the above concern. This order will keep the entire plant in steady operation for several months to come.

The Windsor Brick Company, Akron, Ohio, has been awarded the contract for furnishing all the building brick required for the construction of the large new addition to the factory of the Diamond Match Company, at Barberton, Ohio, requiring about 1,000,000 brick.

The Washington Brick Company, Washington, Pa., has received a number of large orders for building brick during the past month, including one for 300,000 brick, which will keep several kiln busy all winter.

Mrs. Sarah Jane Oiler Shephard, wife of Andrew Shephard, Sr., a well-known building brick manufacturer of Swissvale, Pa., died at her home in that borough last month, aged sixty-five years. Her husband survives her. A. SMOKER.

If the beauties of red clay roofing tile were more persistently talked about in an advertising way by those interested in this product the use of it might be thereby encouraged to make more rapid progress. It has the quality; all it needs is the push.

THE STATE CONVENTIONS.

Summaries of the Proceedings of the Iowa, Canadian and Illinois Meetings.

REPORT OF THE TWENTY-SEVENTH ANNUAL CONVENTION OF THE IOWA BRICK AND TILE ASSOCIATION.

THE TWENTY-SEVENTH Annual Convention of the Iowa Brick and Tile Association, held the second week of January at Mason City, Iowa, was one of the most successful in the history of the association. The delegates began to arrive early Monday evening, and by Tuesday noon the fact was known that the record-breaking attendance of the 1908 convention had been exceeded. The complete registration showed a total of 154, beating the former record by fourteen.

The Hotel Wilson was the convention headquarters, while the sessions were held in the convention hall in the Court House. It was a most enthusiastic convention; every session was well attended, many latecomers being unable to get seats. The delegates enjoyed the reading of several excellent papers, and entered into the discussions which followed with much enthusiasm; especially was this so of the discussion on organization, and the question of proper methods of promoting the clay drain tile interests in Iowa.

There were over forty machinery men present, who advertised their lines in various ways, many presenting attractive souvenirs, and all "button-holing" the delegates and explaining the many good qualities of their special lines.

The fore part of Tuesday morning was given over to registration and the usual renewing of old friendships and the forming of new acquaintances. The convention proper was called to order at 10:30 by President C. L. Smith, of Mason City, Iowa, who introduced to the convention the mayor of Mason City, the Hon. J. H. McConlogue.

In the mayor's address of welcome, he spoke of the pleasure it afforded him to welcome the delegates to Mason City, and mentioned briefly the beauties and grandeur of the city, the wonderful natural resources, i. e., the stone, clay and sand deposits, the unexcelled railroad facilities, the high standard of citizenship, and the broad, liberal and business-like way in which the churches, schools, libraries and various business enterprises were conducted. In conclusion, he said: "You will perhaps visit our factories and see what has been done in the way of utilizing the products of the earth for the good of the country at large. Iowa's lands are becoming valuable, and it is most essential that all of it be made to give the best returns possible. This is best accomplished, as you know, by tiling our wet lands and draining the soil, and to this end the enterprise you are interested in has a great future. Again, gentlemen, I bid you welcome. Ten thousand welcomes to our city. Come to our homes and enjoy the hospitality you find there, and when you return to your homes I trust that you will have fully realized the promises of the mayor and citizens of Mason City."

The response to the mayor's address of welcome was made by Mr. O. C. Pixley, of Des Moines, who, in behalf of the association, thanked the mayor for his hearty welcome, and assured him that it gave the members much pleasure to visit the people of Mason City.

President C. L. Smith then delivered the President's Annual Address, declaring that it was a great pleasure to him to see so many present with becoming smiles and earnest expressions on their faces, which made him feel that they had come to Mason City for a good time, as well as to aid in making the twenty-seventh meeting the most profitable in the history of the association. He spoke of the bountiful harvests of the past six months and the pleasing resumption of the building operations, comparing the conditions of the present with those of a year ago, and assuring the members of the great prosperity in store for them if they but work for closer organization from an educational and financial standpoint, to bring about the most economical results.

He spoke briefly of the early development of the clay industries in Mason City, and referred to the ups and downs of the association in its twenty-seven years of existence, urging the members to seize the opportunities before them for reaching out to broader and higher things.

In conclusion, he stated: "We have the new drainage laws that in some instances need alteration; and many other matters which require expenditures of money. We could, with profit, have valuable literature sent at least to each of the members of the Board of County Supervisors, calling their attention to the superior merits of well-burned tile over all other material for drainage purposes."

The president then called upon Mr. J. B. McHose, of Boone, Iowa, who read a paper on the subject, "The History of the Association," in which he told of the first meeting in 1882 and the subsequent conventions, showing the gradual growth from a small organization to the strongest State clay manufacturers' association in the country.

At the afternoon session the president called for a report from the legislative committee, which offered several amendments to the by-laws, chief of which was the amendment dividing the membership into two classes, to be known as the members and the associate members. The former class includes all those directly interested in the clay industries in the Hawkeye State, while the latter includes those only indirectly interested in the trade. This amendment was offered in order that the dues might be raised to a sufficient amount to carry on the campaign against the improper use of cement and for use in the association's needs.

Secretary Platt read a paper by Mr. G. A. Wrightman, of Des Moines, on the subject, "Organization," which was followed by a long discussion of this topic, the consensus of opinion being that the association should form a closer organization with substantial financial backing to educate the people to the superiority of burnt clay products over cement, and to do away with price-cutting, which has hindered the drain tile manufacturers of Iowa so much during late years.

The Banquet.

At 6:30 sharp Wednesday evening, the delegates sat down to a most enjoyable banquet, served in the Odd Fellows' Hall by the Rebekah Lodge. The tables were tastily decorated with carnations and ferns. Judge J. L. Stevens, of Boone, Iowa, acted as toastmaster. The toast list included responses by Prof. S. W. Beyer, of Ames, Iowa; Hon. J. H. McConlogue, mayor of Mason City; James E. Randall, of Indianapolis, Ind.; J. A. Wilson, of Dows, Iowa; Charles Burridge, of Tecumseh, Mich.; J. B. McHose, of Boone, Iowa; C. W. Lansing, of Chicago, Ill.; G. G. Wheat, of Emmetsburg, Iowa; H. Smith, of Omaha, Neb.; C. M. Carter, of Mexico, Mo., and O. T. Dennison, of Mason City, Iowa.

The first paper on the program Thursday morning was by Paul Beer, C. E., of Des Moines, on the subject, "Pavements, Their Object and Desirability," and was one of the finest papers presented at the convention. He compared the different kinds of street paving, giving each the credit due for its good qualities, and pointing out the bad qualities in a clear and interesting manner. Brick paving was compared with other first-class paving materials, and was shown to be the best all-around pavement for durability, sanitation and economy. This paper will be printed in full in a subsequent issue.

Following Mr. Beer's paper, Mr. E. A. Lof, of Chicago, Ill., a representative of the Western Electric Company, read a paper on the subject, "Economy of Electric Drives as Applied to Brick and Tile Production," in which he pointed out the advantages in the utilization of electric drives over steam power.

An interesting stereopticon talk on the subject, "Dollars and Sense in Drying, Burning and Handling Brick," was de-

livered by Mr. E. H. Vitalius, a representative of the American Blower Company, of Detroit, Mich. The talk was illustrated with a series of slides setting forth the Scott system of drying, burning and handling of brick on various clay plants.

The last paper on the morning's program was by G. G. and A. J. Wheat, two experts who have been making an exhaustive study of the disintegration of cement products. The title of the paper was, "The Life of Portland Cement." In this the Messrs. Wheat showed that cement is soluble in water, and that cement products are acted upon readily by carbonic acid, changing the calcium silicates to carbonates, thus destroying the bond of cement products and making disintegration only a matter of time. This paper was illustrated with numerous interesting lantern slides.

The final session of the convention was called to order at 1:30 p. m. by Judge J. L. Stevens, who appointed Mr. C. B. Platt, of Van Meter, Mr. O. T. Dennison, of Mason City, and H. Rawson, of Des Moines, as a committee of three to look after raising appropriate funds for the association's use in running a publicity bureau, and thus promoting the interests of the Iowa clayworkers by educating the people of the Hawkeye State in the matter of superiority of burned clay over cement products. It is proposed that every drain tile manufacturer belonging to the Iowa Association pay into the publicity fund 10 cents on every car of tile shipped, thus giving the committee financial strength to work out the plans of the association.

The last paper on the program was by Mr. A. O. Anderson, C. E., of Lake City, Iowa, on the subject, "The Development of Iowa Drainage Engineering."

The treasurer's report showed a balance of \$553.03 in the treasury.

The election of officers resulted as follows: President, Judge J. L. Stevens, Boone, Iowa; vice-president, Paul Beer, Des Moines, Iowa; treasurer, F. A. Stephenson, Mason City, Iowa, and secretary, C. B. Platt, Van Meter, Iowa.

The question of selection of the next meeting place was left to the executive council. Invitations from Council Bluffs and Des Moines were read. While it has not been definitely decided, it is the opinion of many that Des Moines will be the choice. The papers and discussions will be published in full in a subsequent issue of THE CLAY-WORKER.

THE SEVENTH ANNUAL CONVENTION OF THE CANADIAN CLAY PRODUCTS MANUFACTURERS.

THE SEVENTH ANNUAL MEETING of the Canadian Clay Products Manufacturers took place at Brantford, Ont., on January 12th, 13th and 14th, 1909. The choice of the meeting place was made rather late, so that the announcements of the meeting were only sent out during the three weeks preceding the convention. Nevertheless, the attendance was about the same in clayworking numerical strength as that at Ottawa, and the program showed a distinct improvement in grade.

Brantford has about 20,000 inhabitants and a large number of important industries, chief among which are three clayworking plants and two sand-lime plants. The former plants are of the soft mud variety, and are owned and operated by S. Allen, Jas. Workman and the Brantford Brick Company. The first two plants have open air dryers, and the latter is equipped with a Bechtel soft mud artificial dryer.

The morning of January 12th witnessed the arrival of the early contingent of the conventioners. At 1:30 p. m. an executive meeting was held for the perfecting of the arrangements and all the necessary details for the making of the convention a success. The work of registration and reception went on until 3:30 p. m., when, under the presidency of Mr. J. S. McCannell, Milton, Ont., the actual work of the convention commenced, and the clayworkers were welcomed to Brantford by Mayor Wood. In his remarks he spoke eloquently of the advantages of Brantford as a convention city, its importance as a manufacturing center, and welcomed the clayworkers most cordially.

Mayor Wood was followed by the ex-mayor of the city, Mr. C. H. Waterous, the head of the Waterous Engine Works. Mr. Waterous invited the clayworkers present to visit his factory and the other factories of the town, and stated that

Brantford had 6,000 people in its factories, involving a daily pay roll of from \$12,000 to \$15,000.

Mr. W. H. Freeborn, the only representative of the clayworkers in Brantford, then extended a cordial invitation to the conventioners to visit the clayworking plants of the city. He eulogized the work of the association, of which he had been a member for some years.

A discussion on "Tile Making" was led by the vice-president, Mr. H. Janes, Delaware, Ont. Mr. Janes' remarks, summarized, presented these essentials for successful tile making: A clay suitable for the manufacture of tile, a properly equipped plant, the heart interest of the proprietor in his work, the knowledge of machinery and its proper care, and a proper burning staff.

A discussion on this matter then took place, the following gentlemen contributing to its interest and its value: Messrs. J. W. Moody, Highgate, Ont.; Albert Neal, Seeley's Bay; W. McCredie, Lyons; J. S. McCannell, Milton, and Geo. Crain, Beamsville. The meeting then adjourned until Wednesday morning, January 13th.

On Wednesday morning at 9:00 o'clock a tour through the industries of Brantford was made, much interest being taken in the splendid equipment of the Waterous Engine Works. The three clayworking plants above mentioned were visited in their turn, and the convention returned with good appetites for lunch. The afternoon session opened with the president's address. Mr. McCannell stated that the recent financial stringency had been productive of this much good: That men during this time had been looking for leaks on their plants, and had had an opportunity of rectifying defective portions of their equipment. He called attention to the necessity of careful cost-keeping, which would enable vigilant manufacturers to make cheaper and better products. He referred to the benefits of the association generally, and the urgent necessity of technical education for members of the clayworking industry.

"Preparation of Red Burning Clays" was the subject dealt with by Prof. A. V. Bleininger, the ceramic chemist of the United States Geological Survey. Mr. Bleininger has been placed in charge of the immense laboratory in Pittsburg, which is devoting no small part of its energy to the investigation of ceramic problems. This paper was without doubt the most interesting one yet presented to the Canadian Clay Products Manufacturers since its organization. Mr. Bleininger passed the clay through the various stages of analysis with the object of ascertaining what the clay contains, what part each substance played in the evolution of the finished product, and how the excess of any one of these substances affected the finished product. He described the apparatus used for this purpose, and then dealt with each substance of clay in detail, explaining the respective values of quartz, feldspar, mica, carbonate of lime, magnesia and gypsum. Remedies counteracting the evil influence of excess of any one of these were then described. A most interesting discussion followed this paper.

Mr. J. B. Millar, of the Don Valley Brick Works, Toronto, then read a paper on "How to Get Rid of Limestone Scum in Brick." The tenor of the paper was that careful preparation of the clay, the weathering of the clay, and fine grinding of the particles of lime and careful operation were essentials in preventing this efflorescence. A lengthy discussion then took place on the lime question, in which Messrs. B. E. Bechtel, A. V. Bleininger, Geo. Crain, W. McCredie, Geo. Close and others took part.

Mr. A. M. Wickens then addressed the meeting on "Steam." Mr. Wickens stated that clayworkers were addicted to installing too cheap power plants. No machinery was too good for the brickmaker, and a proper equipment was a money-saver.

A discussion then took place upon the advisability of the standardization of the size of the brick, and revision of clay products' nomenclature. A committee was suggested for the purpose of taking up an investigation on this subject. The meeting then adjourned until next morning.

In the evening of January 13th, the annual banquet of the Canadian Clay Products Manufacturers was held, about seventy-five being present. Among the speakers were: Messrs. W. M. Cockshutt, Brewster, McCannell, McCormick, Fox, Waterous, Freeborn, Millar, Evans, Bleininger, Richardson, Crain, McKinnon and DeJoannis. A most enjoyable evening was terminated at 1:00 a. m.

On Friday, January 14th, the morning session opened with the election of officers and executive committee. The following elections then took place: President, H. Janes, Delaware, Ont.; first vice-president, Jas. Cornhill, Chatham, Ont.; second vice-president, T. Mulligan, Ottawa, Ont.; third vice-

president, W. H. Freeborn, Brantford, Ont., and secretary-treasurer, D. O. McKinnon, Toronto, Ont.

The new executive committee consists of Messrs. Geo. Close, J. B. Millar, Geo. Crain, O. Baird, S. J. Fox, W. McCredie, D. Martin, Jas. Irwin, J. W. Ball, John Wardle and M. C. Odell.

A resolution was then passed to review and revise the by-laws of the association at the earliest possible opportunity.

A committee on technical education was then appointed as follows: W. McCredie, S. J. Fox, C. H. Bechtel, Geo. Crain, T. Mulligan, W. McCormick, Geo. Close, J. S. McCannell, Anton Berg, Geo. Moody and H. DeJoannis.

After some discussion, Chatham was selected as the next place of meeting, to take place on such date in January as would be deemed most advisable by the executive committee. The officers were then duly installed and the convention adjourned until 1:30 p. m.

A very concise and valuable paper was the first contribution to the last session, entitled, "Suitable Kilns for the Manufacture of High-Grade Brick," and presented by J. W. Ball, Toronto. Mr. Ball described the advantages and disadvantages of the up-draft, down-draft, muffle, continuous and semi-continuous kilns. He did not deal with any specific make, but confined himself to a discussion of the types. The conclusion reached was that for all general purposes the round down-draft kiln was the most satisfactory type to use.

The secretary-treasurer, D. O. McKinnon, Toronto, then presented his annual report to the meeting. The work accomplished by the various committees was set forth, and he announced that the association had a definite balance in the bank and was on a better footing than at any previous time in the history of the organization.

W. E. Trout, of Toronto, then gave an excellent address on the "Method of Estimating Costs." He showed the advantages of careful cost-keeping, and explained how such systems could be adapted to the needs of either the large or the small clayworking establishments.

The next paper was practically on the same subject, and was given by W. D. Richardson, Columbus, Ohio. This dealt with "The Cost of Production in Clayworking Establishments." The method of presentment was, however, not similar. Mr. Richardson illustrated clearly the advantages of a cost system by showing a series of cost cards enlarged on eleven large charts, and every step of cost accounting was carefully followed out from the clay bank to the railroad car.

Both these papers were much appreciated by the conventioners, and an interesting discussion was the result. Several clayworkers testified to the advantages they had derived by the adoption of such systems as shown. The meeting then terminated and the convention adjourned sine die.

The machinery and supply interests of the convention were represented as follows:

The American Clay Machinery Company, Bucyrus, Ohio, represented by Mr. Dow; The Anderson Steam Trap Company, Cleveland, Ohio; A. Mentz, Wallkill, N. Y.; The Massachusetts Steel Fan Company, Boston, Mass.; Baird & Son, Parkhill, Ont.; Berg Brick Machinery Company, Toronto; J. Ollman, Hamilton; The Hammant Steel Car Works, Hamilton, Ont.; The Dominion Belting Company, Hamilton, Ont.; Twin City Oil and Supply Company, Berlin, Ont., and Bechtels Limited, Waterloo, Ont.

THE THIRTY-FIRST ANNUAL MEETING OF THE ILLINOIS CLAY MANUFACTURERS' ASSOCIATION.

THE THIRTY-FIRST Annual Convention of the Illinois Clay Manufacturers' Association, which was held at Champaign, January 19, 20 and 21, was a success in every way. The attendance was much larger than that of last year, and while it did not exceed the record-breaking attendance at the association's first meeting in Champaign, four years ago, the ninety-six delegates present enjoyed a crowded three days of convention week, lobby talks and social intercourse.

The convention headquarters were located at the Beardsley Hotel, while the sessions were held in the Elks' Hall, next door to the hotel. Tables in the rear of the convention hall were used for exhibition purposes, there being several displays of building and press brick, raw clays, kaolin and shales, and two exhibits of clay cars, one by the Arthur Koppel Company, who displayed miniature dump cars, and the other a large dryer car made by C. H. Johnston, of Rogers Park, Ill. The machinery men distributed their catalogs and advertising literature, a number presenting attractive souvenirs.

The first session of the convention was called to order

at 2:30 Tuesday afternoon by President Wm. Hammerschmidt, of Lombard, Ill., who introduced Mr. B. F. Harris, president of the Chamber of Commerce, Champaign, Ill., who delivered a cordial address of welcome, assuring the delegates that Champaign was entirely theirs during the week of convention activities. In conclusion, he remarked, "We have gotten so used to having you here, that we will be greatly disappointed if you fail to continue this as your meeting place. John Stipes is one of our standbys, and if there is anything you want that you don't see—provided it isn't too wet—or anything we can do for you, tell John, and we will help him get it for you. Again, I bid you a warm welcome."

Mr. D. O. Loy, of Sheffield, Ill., responded to the address, thanking Mr. Harris for the kind welcome and reviewing briefly the history of the association, giving the credit for the success of the organization to Mr. J. J. W. Billingsley, who he said is the father of the association. Mr. Loy spoke of the growth and what the association had accomplished for the public in bringing the clayworkers' art to its present standard.

Mr. Hammerschmidt then read the President's Annual Address, in which he spoke of the fine work of the Illinois Ceramic School, and the opportunities offered the clay manufacturers through its yearly institute programs. He told of the advantages gained by clayworkers attending the conventions, and showed the progress made since the first meeting he attended, in 1880.

The first paper on the program was by Prof. Rolfe, head of the Illinois Ceramic School, on the subject, "Some Thoughts for Illinois Clayworkers." He reviewed the work of the ceramic school during the past year, and showed the need for a larger appropriation to carry on the work of building up the ceramic school, urging the members to do all in their power to gain the needed support from the Illinois Legislature.

Mr. John C. Boss, of Elkhart, Ind., known as the inventor of the Boss system of burning, read an entertaining paper on "Comparative Ideas On the Burning of Clay Wares by Means of Air Under-Pressure." This paper was heartily received. We will publish it in full in a subsequent issue.

Following Mr. Boss's paper, there was a long discussion on the whitewashing of brick, after which the convention adjourned for supper.

The Wednesday morning session was opened at 9:30. Mr. Martin W. Lauer, of Chicago, Ill., read a very able paper on "Drumming an Effective Sales Department; Its Necessity to Produce Dividends," which was followed by a paper on "The Gas Producer," by Frederick Von Oven, of Aurora, Ill., who dealt at length with the gas producer's application and requirements. This was followed by a long discussion, as was also Mr. Elmer C. Pepper's paper on "Concrete Construction on Brick Plants," which was read by Peter B. Gibson, of the United States Engineering Company, St. Louis, Mo.

Prior to adjournment, there was a short discussion on "Daily Operating Reports for a Clay Works." A number of daily report sheets were placed on exhibition.

At the afternoon's session, C. W. Lansing, of Chicago, Ill., read a paper on "The Cement Craze." This was illustrated with lantern slides, showing a number of collapsed concrete structures which had resulted through fire or faulty building methods. His paper dealt at considerable length on the grave conditions in the employment of faulty concrete as a building material, and methods by which these conditions can be altered.

Mr. G. G. Wheat, of Emmetsburg, Iowa, then read a paper on "The Life of Portland Cement Up to Date," which was finely illustrated by stereopticon.

Mr. J. M. Knote, of the Illinois Ceramic School, then read a paper on the "Manufacture and Use of Pyrometer Cones." He handled the subject in a clear, entertaining manner, telling of the materials used in the manufacture of the cones, their usefulness, and why the cones should be employed instead of pyrometers for the burning of clay wares to obtain accurate results.

Mr. A. V. Bleininger, former instructor of the Illinois Ceramic School, and now of the United States Geological Survey laboratory, at Pittsburg, Pa., closed the afternoon session with an excellently written and delivered paper on "The Outlook of Illinois Clay Industries." In this he told in a very optimistic way of the many uses to which the Illinois clays could be put, and encouraged the Illinois manufacturers by stating that during the next few years there should grow up in the Sucker State a large variety of ceramic industries that should make Illinois equally as import-

ant as Ohio in the clay line. This paper will be published in full in a subsequent issue.

Wednesday evening the delegates enjoyed a largely attended banquet, served at the Hotel Beardsley. The tables were beautifully decorated with carnations; tuneful music was furnished by an orchestra.

Dr. A. L. Converse, of Springfield, Ill., acted as toastmaster. The toast list consisted of speeches from I. O. Baker, Champaign, Ill.; Peter B. Gibson, St. Louis, Mo.; Dean Kinley, Champaign, Ill.; Martin Lauer, Chicago, Ill.; J. W. Robb, Clinton, Ind.; President E. J. James, Champaign, Ill.; C. M. Carter, Mexico, Mo.; Father Beardsley, Champaign, Ill., and D. O. Loy, Sheffield, Ill.

The final session of the convention was called to order at 10 o'clock Thursday morning. Mr. W. P. Blair, of Indianapolis, made a short speech, urging the members of the Illinois Association to attend the N. B. M. A. Convention at Rochester, and also spoke of the urgent need of every member giving his support to Mr. Bleininger in his excellent work on the United States Geological Survey. He offered the following resolution, which was adopted by the convention and incorporated in the report of the resolution committee:

Whereas, The Illinois Clay Manufacturers' Association regards the work of the United States Geological Survey as the greatest matter of importance undertaken by the Government affecting the conservation of our national resources, therefore, be it

Resolved, That we, as an association and as individual citizens, shall urge upon our Senators and Representatives in Congress their active support and zealous effort to secure the appropriation of the sum of \$150,000, included in the Sundry Civil Appropriation Bill, which sum is absolutely required by the Geological Survey to successfully carry on this important and beneficial work undertaken.

Mr. J. J. Koch, B. M. A., of St. Louis, Mo., read a carefully prepared paper on the subject, "A Problem in Air," dealing primarily with the importance of sufficient air in obtaining oxidizing conditions in the burning of clay wares. "Some Points in the Manufacture of Paving Brick" was the title of the last paper on the program. This was by R. R. Smith, of Chicago, Ill., student in the ceramic school at Illinois University. He mentioned some of the cost-saving devices and methods that can be used in paving brick plants to improve the quality of the ware.

The secretary read a communication of encouragement from Mr. F. W. Fitzpatrick, of Washington, after which the president called on Prof. Bleininger for a talk on the work of the Pittsburg laboratories. This was most interesting, the many undertakings of the past year being reviewed, the general equipment of the laboratories being described, and the experimental work planned out for the future to help the clay manufacturers in their fields, being mentioned in Prof. Bleininger's characteristic manner.

The reports of committees were then read, the secretary's and treasurer's reports showing a balance in the treasury of \$10.51.

The election of officers resulted as follows: President, Wm. Hammerschmidt, Lombard, Ill.; vice-president, Geo. J. Walters, Chatsworth, Ill.; secretary, Geo. Hartwell, Chicago, Ill., and treasurer, J. M. Mamer, Campus, Ill.

The installation of officers was followed by a few discussions of minor importance, after which the convention adjourned sine die. An invitation to hold the next convention in Chicago was extended by secretary Hartwell just before adjournment.

A large number of delegates remained over to attend the Illinois Institute and enjoyed the two days of lecture work given by Prof. Stull and Knote, of the ceramic school, and Prof. Bleininger. The institute was held in the Natural History building at the Illinois University.

IMPORTANT TO TILEMAKERS.

The Anderson Foundry and Machine Works, of Anderson, Ind., has within the last eighteen months been making, among other improvements, what they term their "1908 Model New Departure tile machine". This machine has long held the front rank as an auger tile machine for making both large and small tile. They now have several of the 1908 Model machines in operation, turning out all sizes of tile from 3-inch to 18-inch, with about 60 per cent. less power than formerly required, and with an increased output of from 40 to 60 per cent. The mill has also been greatly improved in appearance and convenience. Note their ad on page 177 of this issue.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



WILE THE ACTUAL MOVEMENT of building brick is extremely slow, the prospects for future business are the best they have been for a long time, and it now seems probable that all the local yards will find themselves busy during the coming season. That there is an unusually heavy volume of building business brewing can not be doubted, as all the architects give the same reports, and while they are as usual somewhat reticent in many cases as to the exact character of the plans, all admit that they are of an important character, and that if they should mature the consumption of building brick in this vicinity will exceed that for many years. Among others which have been announced, and for which plans are now well under way in Toledo proper, is a \$50,000 terrace for Aaron Cheesbrough. The building will be of gray pressed brick, with stone trimmings, and Gothic architecture. The Shaw-Kilduff Co. will erect a four-story building on Jefferson street, and Doyles & Lewis will put up a six-story structure for the use of the Feilbach wholesale grocery. A business block will be erected for William Hardee on Jefferson street, and T. B. Allen will erect a costly terrace on Superior street. These, with two expensive high school buildings, the new Post Office, and several other public structures, are already in sight, while dozens of lesser structures are assured, and numerous important projects are still in an embryonic state, have caused the building brick men to take on new hope, after the disastrous conditions which have prevailed for a long time.

While paving brick and sewer pipe concerns have fared better during the past year than the building brick dealers, they are looking forward to a heavy increase of business during the coming summer, and are making their preparations accordingly. Much municipal work was held up last season because of inability to satisfactorily place bonds, and this work will all come through this year, now that the financial situation has cleared up. There is an immense quantity of legislation now under way in the smaller cities of this section, especially, all of which will mean business a little later on, and paving block concerns are planning their business with this in view. Prices are holding up well, and there promises to be no overstock of material along this line, which in itself assures fair prices for the increased volume of work. Taken altogether, conditions present a pleasant prospect, and while there are still some who are skeptical as to the future, they are in the minority, the consensus of opinion being that the next season will witness one of the most prosperous years in the history of the clayworking trades.

The Toledo Hollow Brick and Tile Company is one concern which has enjoyed a successful year, despite the depressed condition generally. The concern, whose plant is located at Curtice, Ohio, recently declared a 15 per cent. dividend on its \$10,000 capital stock, most of which is owned by Toledoans. Much of its success since its organization last March has been due to the excellent quality of its clay. More than 300,000 feet of tile were manufactured during the year, most of which went to supply the needs of farmers. The present officers of the company are: President and superintendent, Herman Bunte, Toledo; vice-president, W. P. Ackerman, Curtice; secretary, Charles Yost, Curtice; treasurer, Charles Dunn, Curtice; directors, James Leggett, William Webber, Herman Bunte, all of Toledo.

Charles E. Russell, of the Russell & Jennison Paving Contracting Co., and a member of the real estate firm of Wright, Russell & Bay, died recently at St. Vincent's Hospital, Toledo, following an operation for an affection of the stomach. He had not been in good health for some time, and failed to rally from the shock of the operation. He was forty-six years old, and leaves a wife and five children.

The discovery has been made that the new concrete sewer recently put in at an expense of \$21,000 at Delphos, Ohio, is being eaten out by the acid in the refuse from the plant of the Delphos Manufacturing plant. The State Board of Health has ordered the company to clarify the refuse before turning it into the sewer.

T. O. D.



OFFICIAL ANNOUNCEMENT.

THE TWENTY-THIRD NATIONAL CONVENTION TO
BE HELD AT ROCHESTER, N. Y.,
FEBRUARY 1-6, 1909.

American Ceramic Society and National Paving Brick Manufacturers' Ass'n Hold Separate Sessions Feb. 1 and 2.

THE TWENTY-THIRD annual convention of the National Brick Manufacturers' Association will be held at Rochester, N. Y., February 1 to 6, 1909, and it is anticipated that the attendance will be equal to if not greater even than that of any previous meeting. Rochester being nearly midway between New York and Chicago, is the center of the best train service on the continent. For that reason and owing to the fact that it is central to such a wide and rich field of commercial life, it is coming to be known as the "Eye of the Continent." The splendid train service will enable delegates either from the East or the West to reach Rochester quickly, safely and comfortably regardless of winter weather.

The Seneca Hotel Headquarters.

Solid comfort awaits the visitor after arrival, for Rochester now boasts the best hotel accommodations of any commercial city in the world. Hotel Seneca, the newest and largest hotel in the city, is a fire-proof structure, splendid in every appointment and will afford ample quarters for the N. B. M. A. and all of the auxiliary associations. The Seneca is exclusively European and offers a rate of \$1.50 per day and up, according to the character and location of room and number occupying same. Members desiring reservations should write to the hotel direct, stating number in party, date of intended arrival and the character of accommodations desired. The dining rooms and cafes of the Seneca afford most excellent service at reasonable prices.

Rochester's Exhibition and Convention Hall.

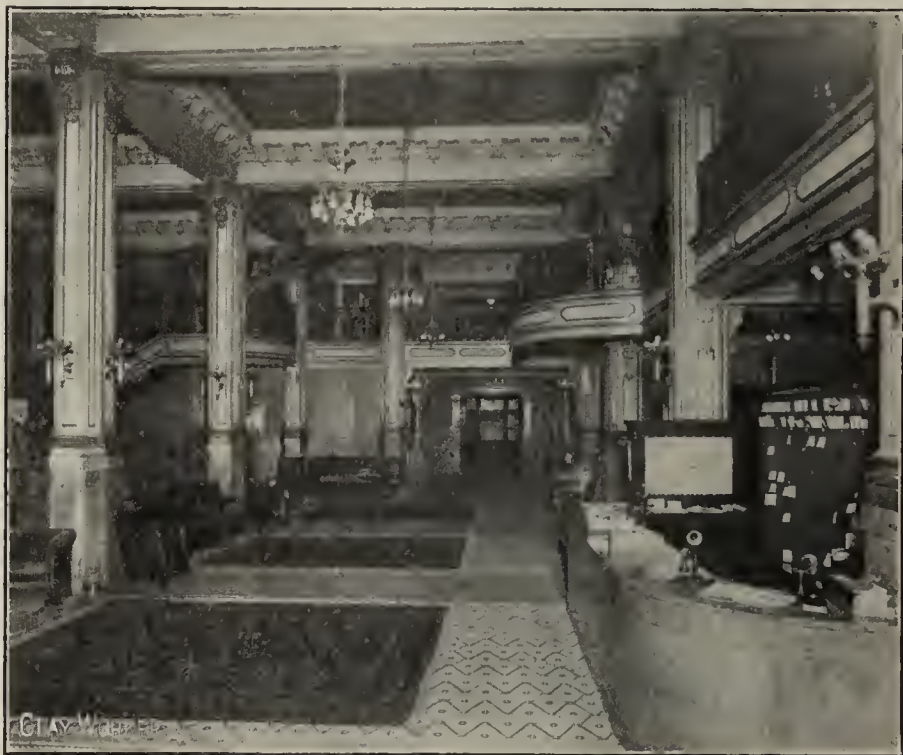
All sessions of the N. B. M. A. will be held in the City Convention Hall, which is a little more than a block south of the Seneca Hotel. Here too will be afforded the best of facilities for exhibiting specimens of clay ware, brickmaking appliances, etc., etc. It is anticipated that this feature of the convention will be particularly interesting, for never have we had such ample space and facilities for making effective display. Members are requested to send samples of their products, taking care to label each sample with their name and address. Same should be expressed in name of shipper to the N. B. M. A., Convention Hall, Rochester. If sent by freight, ship in care of the Rochester Cartage Company, and send them a duplicate bill of lading and they will deliver shipment to the convention hall, charging only the usual transfer fees. If special space is desired for the display of machinery, etc., request should be made to W. N. Durbin, secretary National Clay Machinery Association, Anderson, Ind., stating the character of exhibit intended and the amount of floor space desired. Electric power can be had for operating machines or models. A direct current of 117 voltage is used for lighting the building; for power services it is double

that voltage. Shipments should be made in time to insure delivery on or before February 1.

Reduced Railroad Rates.

Notwithstanding the fact that two-cent rates now prevail in most States, the Trunk Line Association has granted a three-fifths rate on the certificate plan, in which action the Central Traffic Association, the New England Passenger Association, the Eastern Canadian Passenger Association, and the Southeastern Passenger Association, have concurred, thus affording this reduced rate from all sections of the country east of the Mississippi River. Members from points west of the Mississippi can avail themselves of these rates by using their local mileage to gateway points such as Chicago, Peoria and St. Louis, and there purchasing tickets through to Rochester.

To obtain the reduced rate, delegates and those accompanying them must pay full fare for the going trip and take a proper certificate for same from the ticket agent. This certificate, when properly vised, will entitle the purchaser to a return ticket at three-fifths the fare paid, making a four-fifths rate for the round trip. Those starting from small towns should make inquiry of local ticket agent a few days in advance to insure the receipt of proper certificate. If certifi-



A Portion of the Seneca Hotel's Beautiful Lobby.

cates are not taken, the reduced rates cannot be secured. As it takes some little time to make out the certificates, delegates should present themselves at the ticket office at least thirty minutes before the departure of trains. If through tickets cannot be procured at the starting point, local tickets should be purchased to the nearest point where such through ticket can be obtained, and there purchase through to Rochester, and a certificate from the ticket agent at the place where each purchase is made should be requested. The latter feature is imperative. No refund of fare can be expected because of failure of delegates to obtain certificates. Should any ticket agent be unable to furnish a certificate on the regular printed form, delegates should take a written receipt, setting forth the fact that certificate was asked for and could not be furnished, and stating the amount of fare paid, the name of the station where purchased and the names of the railroads over which purchaser is ticketed. Such receipt, bearing the agent's official stamp, will enable delegates to obtain a proper refund. Return tickets will be good until midnight of Wednesday, the 10th. Tickets good going from January 28th to February 3d.

Convention Sessions.

As in former years, the week will be divided by the National Association and affiliated bodies, as follows:

The sessions of the N. B. M. A. will be held in the Convention Hall, beginning Wednesday, February 3 at 2:30 p. m., and continuing Thursday and Friday.

The American Ceramic Society will meet and rendezvous at the Powers Hotel at the corner of Main and Fitzhugh streets, seven blocks west of the Seneca. Their first session will be held Monday, February 1, at 10 A. M. A complete program of their sessions, which will continue through Tuesday and Wednesday forenoon, can be had on written request to the secretary, Prof. Edward Orton, Columbus, O.

The National Paving Brick Manufacturers' Association will meet in one of the assembly rooms at the Seneca Hotel, Tuesday, February 2, at 10 A. M. A program of their sessions can be had on application to the secretary, Will P. Blair, Chamber of Commerce Building, Indianapolis, Ind.

The National Clay Machinery Manufacturers will meet in a parlor at the Seneca Hotel, Tuesday, February 4, at 10 A. M. Those desiring information in regard to same should correspond with the secretary, W. N. Durbin, Anderson, Ind.

The Souvenir Badge and Number Button.

The distribution of number buttons for identification that has proven so popular at previous conventions will be continued, and members are requested to call at the secretary's

returning from Rochester up to midnight of Wednesday, February 10. Those going on the special excursion to Niagara Falls and thence to New York City will be given a ten days' stop-over, so they may remain in the metropolis a week or more if they desire.

The Annual Banquet.

The associational dinner will be served Thursday evening at 8:00 P. M. in the Hotel Seneca. Its beautiful banquet hall will accommodate our entire membership. The function will be given and under the directions of the brick manufacturers of Rochester. The ladies will grace the occasion and full evening dress will be in order, though not by any means necessary.

There will be other entertainment provided for the visitors, including a theater party, shopping tours, etc., for the ladies. These functions will be under the auspices of a committee of Rochester ladies.

N. B. M. A. PROGRAM.

First Session—Wednesday, 2:30 P. M.,
February 3, 1909.

Prayer by Rev. Charles C. Albertson, Rochester, N. Y.



Magnificent Cafe, Seneca Hotel.

headquarters on arrival and register on the numerical roster, when they will be presented with a number button and souvenir badge. The latter, a handsome and appropriate souvenir of the occasion, will be the gift of the local committee.

Side Trip to Niagara Falls and New York City.

Arrangements have been made for very low railroad rates for a side trip to Niagara Falls and New York City, thus affording those who desire, an opportunity of seeing Niagara Falls icebound. A grand sight always, Niagara Falls is a most magnificent sight in midwinter. Those desiring may stop there either on the going or return trip, by asking the train conductor for stop-over check. It is thought that the trip will be most enjoyed made as a party, and so an excursion will be made Saturday, leaving Rochester early in the forenoon. By this course, a ten days' stop-over privilege at Niagara Falls will be granted, and those who wish to stop a week or more in New York City may do so. Under the above plan, those coming from Eastern points will be afforded an opportunity of joining the excursion to the Falls. Those desiring to visit New York City for two or three days only, may go direct from Rochester, as the return tickets are good



Gentleman's Breakfast Room, Seneca Hotel. The Columns are of Pressed Brick.

Welcome to Rochester by his Honor, Mayor Hiram H. Edgerton.
Response by Charles A. Bloomfield, Metuchen, N. J.
President's Annual Address, M. E. Gregory, Corning, N. Y.
Report of Treasurer, John W. Sibley, Birmingham, Ala.
Election and Installation of Officers and Members of Standing Committees.
Report of Committee on Publicity, J. Parker B. Fiske, Chairman, Boston, Mass.

Rules of Procedure.

All formal resolutions shall be presented in writing.
At the close of each essay or address an opportunity will be afforded for the full discussion of the subject under consideration.
No papers or essays not included in the regular program will be heard unless previously submitted to and approved by the Executive Committee.

Wednesday Evening, 7:30.

"A Trip to the Brick Plants of Rochester and Vicinity," illustrated by stereopticon views, James E. Randall, Indianapolis, to be followed by a social session with the usual accompaniments.

Second Session—Thursday, 9:30 A. M.

"Reinforced Concrete and Brick Construction for Moderate Cost Structures," George B. Waite, New York, N. Y.

"Points of Perfection in Brick Pavements," C. E. Fisher, City Engineer, Rochester, N. Y.

Discussion led by—

"Handling Clay from Bank to Machinery," F. R. Kanengeiser, Bessemer, Pa.

Discussion led by—

"A System of Costs in the Manufacture of Brick," Ellis D. Gates, Seattle, Wash. Illustrated.

Discussion led by—

"The School for Bricklayers," W. C. Smith, General Director Winoona Technical Institute, and O. C. Pierson, Director Department Bricklaying, Indianapolis, Ind. Illustrated.

Discussion led by—

QUESTIONS FOR GENERAL DISCUSSION.

What Form of Organization Would Best Serve the Interests of the Hudson River Brick Manufacturers?

What Is the Future of the Down-draft Kiln as Compared with the Efficiency and Cost of the Present Continuous Kiln?

When and Where Were the First Brick Made by Machinery?

What Is the Future of the Brick Business in Sections Where Natural Gas Is Used, When the Supply of Same Gives Out?

What Is the Probable Scope and Utility of the Continuous Kiln? When Gas-Fired and When Direct-Fired?

At What Stage of Burning of a Round Down-Draft Kiln Should the Dampers Be Used?

What Is the Best Form of Kiln for Calcining Fire Clay?

Third Session—Thursday, 2:30 P. M.

"What General Advertising Could Do for the Brick Manufacturer," Hubert S. Houston, New York, N. Y.

Discussion led by—

"Relation of the Architect and Manufacturer," F. W. Fitzpatrick, Washington, D. C.

Discussion led by—

"Transportation Problems of Importance to Brick Manufacturers," John F. Lent, Pittsburg, Pa.

Discussion led by—

"The Clay Products Laboratory of the Technological Branch of the U. S. Geological Survey," Prof. A. V. Bleininger, Pittsburg, Pa.

Discussion led by—

"Power and Fuel for Clayworking Plants," Lemon Parker, St. Louis, Mo.

Discussion led by—

QUESTIONS FOR GENERAL DISCUSSION.

What Can Be Accomplished in Annealing Brick, and at What Stage of the Cooling Can This Best Be Done?

What Are the Relative Advantages of Steam vs. Air for the Spraying of Oil for Burning Brick?

Is the Vertical Drive for Wet and Dry Pans Superior to the Ordinary Drive?

What Advantages Has Forced Draft for the Burning of Down-Draft Kilns?

What Is the Best Speed for Dry and Wet Pans? Does a Slower Speed than that Recommended by Pan-makers Produce a Greater Efficiency?

Is It Possible to Make a Speckled Brick from a Clay Burning Light by Reason of the High Content of Lime? If so, What Is the Minimum Temperature at Which This Can Be Done?

Fourth Session—Friday, 9:30 A. M.

"Innovations in the Clay Field: Do They Tend to the Material Benefit of the Manufacturer?" W. S. Ravenscroft, Ridgway, Pa.

Discussion led by—

"Strength of Brick," Lieut. J. A. Howard, Watertown, Mass.

Discussion led by—

"Relation of Setting to Burning in Down-draft Kilns," Julius J. Koch, Warrior, Ala.

Discussion led by—

"Setting Brick by Machinery: A Report of Progress," Illustrated, W. G. Buckles, Coffeyville, Kans.

Discussion led by—

QUESTIONS FOR GENERAL DISCUSSION.

Is It Commercially Feasible to Make a Brick with a Green Face from a Limey Clay or a Mixture of Limey Clay and a Red Burning Clay?

How Should Barium Be Introduced into the Clay to Get the Best Results in Overcoming Scum?

What Are the Requisites of a High-Grade Quarry Tile?

Should Not the Clay Industry, as well as Every Other Industry, Establish an Insurance Association to Provide for Employees Who May Be Injured or Disabled, for the Families of Those Who May Be Killed, for Sickness During Service, etc., as Is Done in Some European Countries?

Fifth Session—Friday, 2:30 P. M.

"Advantages of Electricity as a Motive Power in the Brick Business," G. A. Guignard, Columbia, S. C.

Discussion led by—

"Economy and Influence of Waste Heat Dryers," C. E. Fuller, Buffalo, Kans.

Discussion led by—

"Burned Clay, the Best Medium for the Expression of Art in Architecture," W. D. Gates, Chicago, Ill. Illustrated by stereopticon views.

Discussion led by—

Report of Committee on Technical Investigation, Prof. Edward Orton, Columbus, O.

Report of Committee on Resolution.

Miscellaneous Business.

All sessions of the National convention are open to the public. Those who are interested directly or indirectly in clay work of any character are invited to join the association and attend the convention. Members and their families or friends who may accompany them will be entitled to reduced railroad and hotel rates, and so participate in all the side trips, etc. Those desiring further information as to requisite of membership, etc., are requested to communicate with the secretary at Indianapolis.

THE EXECUTIVE COMMITTEE,

Theo. A. Randall, Secretary.

M. E. Gregory, President.

UNIFORM TEMPERING OF PULVERIZED CLAY.

EVERYONE WHO HAS had experience in making stiff mud brick of pulverized clay or shale has struggled with the problem of tempering the clay evenly and uniformly in the pug mill, and of adjusting the quantity of clay flowing to the pug mill, so as to produce a uniform speed of the bar of clay issuing from the brick machine. He knows that the uniform tempering of the clay, the incorporating with the clay the proper amount of water to produce the best brick, and doing this uniformly and constantly, is an important factor in economical manufacture—something that is to be strived for unceasingly, but which is not practically attainable by the ordinary means. He knows, moreover, that a uniform supply of clay to the machine every instant means a uniform speed of the bar of clay, a uniform lubrication of the die of the brick machine, and a uniform output every hour, without waste or bad brick. He knows that the ordinary method of feeding the pug mill by gravity from the hopper or screen gives an almost constantly varying amount of clay, requiring a correspondingly varying amount of water to be supplied for tempering.

Many attempts have been made to overcome the defects of this method of clay tempering, and two or three automatic devices have been brought out in the past, but difficulties in their operation have caused their abandonment after a short trial. In recent years, however, there has come into use in Europe, and to some extent in this country, a simple automatic feeder that has proven to be eminently satisfactory, and its universal adoption seems to be only a matter of dissemination of information in regard to it, and an enterprising man or company to manufacture and distribute the machines. This is now assured by the efforts of the Ceramic Supply and Construction Company, who have placed upon the market the Columbus feeder, shown in their ad on page 175. This machine is bolted to the bottom of the clay bin or hopper. The distance of the vertical cylinder from the horizontal disc is adjustable, and the feeding knife is also adjustable, so that any quantity of clay can be fed automatically and uniformly. The only other requisite for the uniform tempering of the clay is a uniform pressure on the water valve at the pug mill. This is easily secured by a float valve in the supply tank. The price of the machine is so low as to make it within the reach of all, and it will save its cost in a short time. Complete information is furnished in a circular issued by the Ceramic Supply and Construction Company, 280 North Front street, Columbus, Ohio.

Written for THE CLAY-WORKER.

FREIGHT RATES.

THE SUBJECT OF proper classification and proper freight rates on the various classes of brick has come to be a paramount issue with the railroads, who are seemingly much confused as to what should constitute a proper basis of rates and classification for this commodity, which creates such attractive revenues. For years the rates were made brick manufacturers with a disregard of trade conditions and competition with which brick must contend in the various markets. Prior to the decision rendered by the Interstate Commerce Commission, in the case of Stowe-Fuller Co. vs. Ann Arbor Railroad et al., a classification almost uniformly adopted by the railroads provided that fire brick should take the highest rates, building brick somewhat lower, and paving brick with common brick—the lowest class—these rates being covered by commodity tariffs which were issued frequently, providing for a steadily increasing number of rates, until the fabric of brick rates today is not only replete with alarming inconsistencies, but illustrates the diversity of opinion that exists between railroad traffic officials as to what is a proper basis for brick, as compared with other commodities. Brick rates should be determined upon with full consideration for the competition met with other materials in the various markets. With a consistent rate, brick will frequently displace other materials upon which the railroads enjoy small revenue, and as the interests of carrier and shipper are mutual to the extent, at least, of the former enjoying revenue and the latter the sale of the product, it is apparent that the relation between brick manufacturers and the railroads upon whose tracks the plants are located has not been of such intimacy as prompted the exchange of ideas that assured the establishment of rates which would first of all permit of the shipment, and second, provide a fair revenue for the service. It is unfortunate that the railroads have been slow to recognize the value of this relation with shippers. Only where the industry is extremely large, or where location of the plants make possible the shipment of brick via more than one railroad, has the spirit of co-operation been observed.

Now the classification of brick necessarily involves the question of trade conditions that produce the competition which each class of brick is required to meet. High-grade fire brick, for instance, will only compete with other fire brick, paving brick must compete with other paving material, and building brick must not only compete with concrete and other building material, but with building brick plants, which, because of the nature of the raw material, are frequently found at the very door of every market. With fire brick competing with itself, it is only necessary that reasonable rates be established from the various territories where fire clay is found, but paving brick (which is produced from shale and fire clay), must of necessity enjoy a low rate for transportation, in order that it can be utilized in the various municipalities at reasonable cost, where it comes in competition with asphalt, bitulithic and other materials which produce small tonnage and revenue for the railroads. Building brick, which involves a large variety of high-grade as well as low-grade brick, are properly classified between the two extremes, as they not only compete with themselves, but with other materials. It could not be expected that the carriers could provide a classification for brick that would be influenced by the dry press or stiff mud, or any other process. The influencing factor in the making of rates, aside from allowing a reasonable rate per ton per mile, must be determined upon trade conditions in conjunction with the producing and consuming districts. The railroads are not agreed among themselves as to all the elements that should be considered in making brick rates, but the bill of complaint now pending before the Interstate Commerce Commission,

filed by the National Paving Brick Manufacturers' Association, promises to develop a solution to the question of classification, and it will devolve upon the railroads to then apply rates consistent with the requirements of the brick manufacturer, as no commodity is more deserving of consideration by the carriers, and none has been as much abused, as the existing fabric of freight rates will demonstrate:

"As to the separation of the various kinds of brick into classifications:

1.—Chrome brick, magnesite brick, corundite brick and enameled brick to be put on fifth class basis, as per official classification.

2.—Silica brick, fire brick, mill brick, ladle brick, tuyeres, ladle linings (no distinction to be made on mill brick according to usage, whether they come into direct contact with flame or boiler settings, settings of glass house pots, paving around glass houses, iron and steel mills, etc.)

3.—Building brick, common or pressed, pressed face brick or blocks used for other than municipal paving purposes.

4.—Paving brick, to apply on brick or blocks for municipal paving for streets, alleys and sidewalks, must not include brick for paving glass houses, etc., nor private walks, yards, lanes or driveways."

The shipment of brick is accomplished by less transportation cost than probably any other commodity. The loading is always performed by the shipper and the unloading by the consignee, so that no labor expense attaches other than is involved by the train crews, and the shipments from a standpoint of rates and volume parallel in a large degree the movements of coal, ore and other low rate materials. Consideration must be granted for the many inconsistencies that exist in the freight rate schedules, much of which is due to the rapid development of the brick industry, and to a lack of knowledge on the part of the carriers of the trade conditions and competition with which brick contend. The rates assessed have permitted of short haul movements, but to enjoy markets at any considerable distance from the brick plants, the rates as they exist today must be materially modified to permit of the natural growth of the industry, and, with this encouragement of movement, the carriers will enhance their own interests. The attitude of the carriers having been improved within the past two years, it is expected, and, in fact, promised that a greater interest will be displayed by the traffic officials of the railroads to meet the shippers in working out these problems together for mutual profit.

J. F. L.

A CORRECTION.

A typographical error appears on page 4 of the official program of the N. B. M. A. Convention. The last line of the first paragraph on that page should read, "tickets good going from January 28 to February 3," instead of "February 1 to 7." This is of particular interest to those who intend to follow our injunction to "COME EARLY AND STAY LATE," and all those who do so will have ample reason for gratulation, for, at best, the stay in the convention city will be all too brief.

AN IMPROVED WILLIAMS PULVERIZER.

M. F. Williams, the senior member of the Williams Patent Crusher and Pulverizer Company, St. Louis, writes that he is happy to announce that his son, M. J. Williams, has won a prize of \$1,000 offered to anyone who would make an improvement on the Williams pulverizer. This Williams junior has done, it seems, so effectively as to materially increase the capacity of this remarkable machine, which grinds to a powder with equal ease apparently anything from feathers to flint. A cut of this remarkable machine is shown on page 17.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Will Increase Output Seventy Per Cent.

Editor THE CLAY-WORKER:

Enclosed find \$2.00 to renew our subscription to THE CLAY-WORKER for another year. The prospects for the coming year are bright in this section, and we are getting ready for it by putting in an American Blower Company dryer, and expect to increase our output about 70 per cent. We wish you a happy and prosperous New Year, and success in your good work.

F. W. ALHORN.

Morganfield, Ky.

Method of Tying a Building Block Wall.

Editor THE CLAY-WORKER:

I see in the November CLAY-WORKER that B. H. Reed & Bros. want to know about using wire for tying in brick or block walls. I have had thirteen years' experience in that line. I do not make much brick or concrete block, but I have a large trade in clay building block. They are used for all purposes, especially for dwelling houses, barns, ice houses, stores, chicken coops, hog pens, and almost any kind of a building imaginable. My block are made 4x4 1/2x12 1/4; they are probably what you would call large hollow brick. For houses or large buildings they use two courses and have a 2-inch space between that will make a 11-inch wall; and I take No. 10 galvanized wire and cut it 15 inches long, bending it in an "S" shape, and lay it in the wall every five or six courses, but it depends on the width of the wall, not the length. A wall that is made as above stated can not be forced to sweat.

When I saw Mr. Reed's query, I felt it was my duty to give him my experience, and if you think it will do him or any other brother brickmaker any good, I will be glad to have you publish this.

If it is the Lord's will, and I keep well, I will attend the Rochester Convention. Please send me a program as soon as you get them out.

Yours truly,

GEO. GLECKLER.

Have Ceramic Schools Been Beneficial to the Clayworking Craft.

Editor THE CLAY-WORKER:

Having noticed in the papers that Professor Rolfe, of the Department of Clayworking of the University of Illinois, had offered the position vacated by Prof. Bleininger to Dr. Pukall, director of the Royal Prussian Ceramic School, at Hohn, Germany, it occurs to me that our American ceramic education must be somewhat backward as compared to foreign countries, when we do not have enough available material in our own country to select a professor to teach the principles of clayworking.

This question also brings out another point in my mind. Has the clayworking fraternity been benefitted to that extent by the existence of clayworking schools like Columbus, Alfred, Champaign, and others, as we are led to believe? Several cases have come to my notice where graduates from such schools had advanced scientific ideas, but which did not bear out in practice. It would be advisable for the directors of such schools to get into closer touch with operating plants, and give an education along practical, technical lines, rather than to teach theoretical, scientific principles which have

never been tried, and of which the clayworking industry has no benefit.

Yours truly,

CERAMIC INQUIRER.

Colleges and Competition.

Editor THE CLAY-WORKER:

It sometimes happens that a correspondent affords one an opportunity of saying that which one desires to say. This does not depreciate the value of correspondence in general, but is only intended to point out that the letter signed "Ceramic Inquirer" opens a discussion which it is hoped will be profitable.

The letter criticizes the alleged action of the trustees of the Illinois State University in inviting Dr. Pukall to take charge of the Department of Ceramics at Champaign.

The writer has the privilege of knowing Dr. Pukall somewhat intimately, having been associated with him in that section of the Jury on Manufactures which had the adjudication of the exhibits in ceramics at the World's Fair at St. Louis in 1904. Dr. Pukall is a man of attainments and profound knowledge in the science of clayworking, and if the University of Illinois can succeed in persuading him to come to America and to identify himself with American pottery manufacture and instruction, the whole country will have cause for congratulation.

The trustees of a university have a large responsibility. They are bound to engage the very best men who are within the reach of their resources, and it is no disparagement to the many trained clayworkers in the United States to say that Dr. Pukall can claim an equality, to say the least, with the very best of them. A teacher of the necessary caliber is not trained in a single college course. Experience can not be accumulated in a brief term of years, and the ceramic schools and colleges have not laid themselves out to train teachers. From the Ceramic Department of the Ohio State University, a school which antedates by some six years all the other schools, at least two teachers of high rank have emanated, but they served many years in the capacity of assistants. One of these men has been preempted by the National Government, which in itself is a high recognition not only of himself, but of the school where he was trained. So far as the writer is aware, no other school has had either the need of a permanent assistant, or the funds wherewith to retain one. Where then are teachers to be sought? Our correspondent would imply that ceramic school graduates who have had no experience in teaching should be tried. This, however, would be in the nature of an experiment, and would be attended by heavy risk. In endeavoring, on the other hand, to secure a man of established reputation, the college will run no risk, but, if successful, will strengthen very materially the art of clayworking in this country.

It is most devoutly to be wished that Dr. Pukall will come. He will be cordially welcomed by his brethren in this country.

The second part of our correspondent's letter is not so easily answered, because he assumes a great deal. To prove his words he would have to produce voluminous statistics. To bring his assertions and implications to a direct issue, let us state them in due form and with specific intent, though not in the same order:

1.—The directors of our schools are not in close touch with manufacturing plants.

2.—The education given is on theoretical scientific principles, and not along practical technical lines.

3.—The clayworking industry has received, or is receiving, no benefit from these theoretical scientific principles.

4.—In several cases the graduates from the schools have advanced scientific ideas.

5.—These advanced scientific ideas do not bear out in practice.

6.—The clayworking fraternity has been led to believe that they would be benefitted by the existence of ceramic schools, and, the inference is, they have been disappointed.

These six points appear to cover the indictment of our correspondent. Let us take them one by one:

First, concerning the matter of close touch with manufacturing plants, the idea appears to be that the needs of manu-

facturers are not studied by the teachers. If the correspondent who makes this charge has ever attended the conventions of the N. B. M. A. and the A. C. S., two societies which comprise the leading clayworkers of the country, he should be able to refute his own statement. One has only to listen to Professor Orton talking to the brick manufacturers to realize that their confidence in him is almost unbounded. Among the researches which have been undertaken in the laboratory at Columbus, there are, notably, three, the results of which have been published. They are: "The Role of Iron in the Burning of Clay," "Carbon in Clay," and "Iron, Sulphur, and Carbon in Clays." If these do not come into touch with the needs of manufacturers in throwing light upon the phenomena of burning, there is nothing in the English language that does. The writer hesitates to speak of himself, but the last two mails have brought four requests from manufacturers for assistance in technical troubles.

Secondly, it is asserted that the education given in our schools is theoretical and not practical. This presumes a conflict between theory and practice, whereas it is well-known that every sound practice is based upon a theory. The teaching is theoretical; we glory in it because theory must come first. But is it also practical? What would our correspondent have? It is not possible that there should be attached to every school a manufactory for every type of clay ware. The manufacturers themselves would be the first to complain that the schools were competing in their business. Factory conditions are not possible in the schools, and the students have this fact impressed upon them continually. A man may be taught the composition and behavior of fuels, and the reaction and products of combustion, but only practice at the kiln will make him a burner. Having the theoretical knowledge, however, he will be a more intelligent burner than without it.

The third point is an accusation which is serious, if true, and would form an indictment against every description of technical training. In gauging the amount of benefit which any industry receives from science, account must be taken of the condition of the industry before the coming of the scientific man. Some industries had no existence at all, relatively speaking, until the science arrived. The manufacture of steel is rooted in the laboratory, but the art of clayworking existed for long ages upon empirical methods. The scientific man, consequently, has had to attach his theories to existing procedure instead of building upon them as on a foundation. He has had to face the prejudices of practice, but, nevertheless, he has made a deep impression. The truth of this statement may be seen by examining the status of certain manufactures which are comparatively new; the production of high-tension porcelain insulators, for example, is of recent growth. This was brought to perfection by scientific men. The important developments in terra cotta which have taken place during the last few years are due, in the main, to science, and no large terra cotta plant is now without its chemist.

The fourth point may be passed over by saying that if it were not so, the schools might well be called failures.

The fifth is partly true and partly untrue. Ceramic science is of so complex a nature that it is not easy to prove theory by practice, and yet there are numerous cases where science has come to the aid of empiricism and has saved it from loss. In order to work out his theories to perfection, the scientific man must have a free hand, and it is not fair to put a recently graduated student into a large factory, bind him hand and foot in the prejudices of managers and foremen, and then expect him to work out his theories in practice.

The sixth and last point admits perhaps of some discussion. Some of the implied criticisms have already been answered, but a few facts from one's own experience may be stated. In technical correspondence a few years ago, the writer was almost unable to ascertain the temperatures at which any work was to be done. For some years he made a practice of sending pyrometric cones to his clients, with the request that they be set in the kiln and returned. But what is the condition at the present time? Rarely is a request for assistance received but in the first letter, and without inquiry, the number of the burning cone is stated. The advantage of this is very marked, not only because it simplifies the relations between manufacturer and expert, but because it indicates an attitude of mind and a method of thought which is scientific.

If our correspondent has reaped no benefit from the

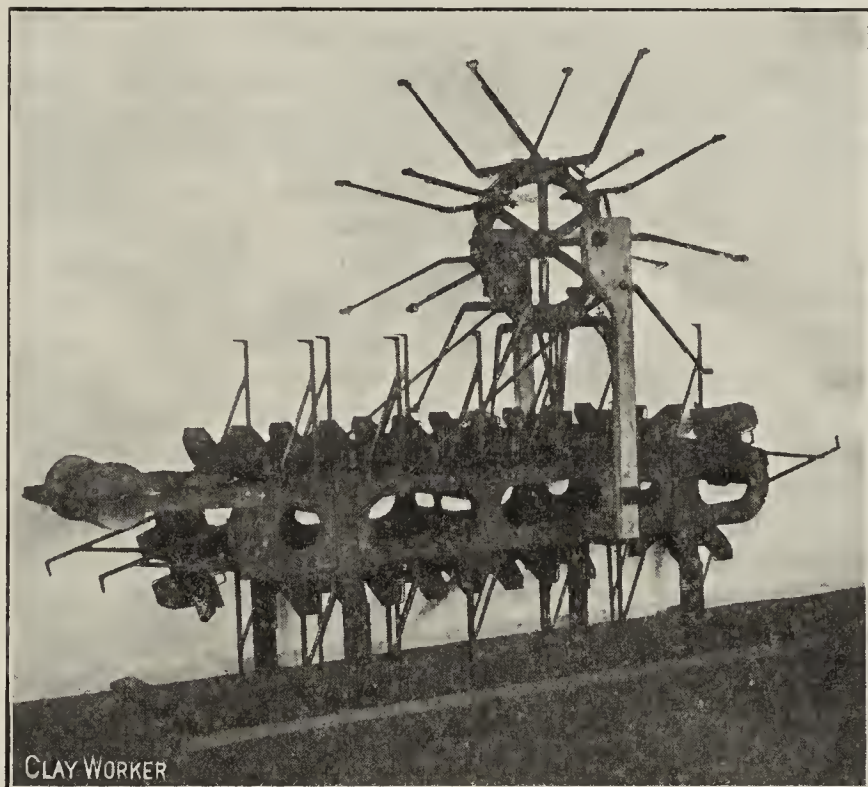
ceramic schools, he is either a very fortunate man in having no need for assistance, or a very short-sighted one, in refusing to seek it. The fact is that when a manufacturer who is gifted with common sense (as most of our friends are), finds himself confronted by new or unusual conditions, he calls to the schools for help, nor does he call in vain. The school records are full of cases in which difficulties have been laid bare to be either greatly mitigated or entirely removed.

These things are not published for a very good reason—they are confidential. Nor is it necessary to publish them. It is not often that an attack upon the teaching of scientific principles is made, and when such a case occurs there are almost always friends at hand to speak for the defense. The schools are content to rest upon their record.

CHARLES F. BINNS.

NEW BENSING CUTTING TABLE.

THE UNQUALIFIED SUCCESS of the Bensing automatic table for cutting drain tile, in sizes up to and including 8-inch, has led the manufacturers of this table, the J. D. Fate Company, of Plymouth, Ohio, to design a similar table for the purpose of cutting 10 and 12-inch tile, and while it may seem to the casual observer that this would only necessitate the building of a table exactly like the other one, only larger, so as to accommodate the larger



An Improved Cutting Table for Large Tile.

sizes, this would not do, and it was necessary to build a table quite different, but using the same principles. And this was no small proposition, and months of time and many dollars were spent in experimental work before the new table began to assume practical proportions, and while inquiries were constantly coming in for this type of table, and while it was doing fairly good work in the experimental corner of the shop, the J. D. Fate Company would not send one out, as it is their fixed policy never to experiment at the possible expense of a customer, but to absolutely know before sending out a machine that it was fully perfected. And the tilemaker wanting an automatic table for cutting 10 and 12-inch tile can order one now, confident that it will do all that is claimed for it, which is that it will cut 10 and 12-inch tile of exact even lengths, and perfectly true and square on the ends.

This is no longer a shop table, but is out in factories in actual service and doing as good and practical work as the one built by the same company for cutting the smaller sizes, which is in everyday use in hundreds of tile plants.

By the use of an extra set of scoops, especially designed for the table, it can be arranged so as to cut and deliver the tile of double length, and this feature will be especially valuable where the tile are so cut. If you are interested in a table of this sort, write the J. D. Fate Company, Plymouth, Ohio, and get full information.

A Business Barometer of the Clay Industries.

Hopeful Views Expressed by Representatives of the Brick and Tile Interests of a Great Clay Center.

WITH THE VIEW of ascertaining the business feeling of the clayworkers and machine men of St. Louis, our special correspondent made a canvass of the situation and reports that the outlook seems to be very hopeful, as is evidenced by the subjoined interviews:

F. H. Chapin, sales manager Hydraulic Press Brick Company: "Our records show that deliveries have not fallen off more than 10 per cent. from the aggregate of the previous year's record, which is a gratifying condition in view of the general slackness in building operations. It is, of course, somewhat early to make a reliable forecast as to what 1909 will bring forth, but the orders we have booked and the business in immediate prospect at the present time is much greater than it was last year. We feel confident now that this year in general will be the best one in the history of this company."

Anthony Ittner, president Anthony Ittner Brick Company: "I do not see anything startling for the new year. Our past year's business was about four-fifths of the volume of the year before; prices have been slightly shaded. If the anticipations of our million club are realized, then the brick business will jog along quite successfully, but the outcome is very difficult to prophesy, as competition is very severe in St. Louis, owing to the large number of brickyards here; also to the number of brick shipped in from the outside, as the growth of the city has compelled quite a number of plants to move from the city and locate in tributary sections. Our plants will be run to capacity, as heretofore."

L. R. Blackmer, president Blackmer & Post Sewer Pipe Co., gave the following information: "Of course the year's business was not as good as might have been, owing to the financial depression. However, upon analyzing the conditions and comparing with former panics, our conclusions were that there was no tangible reason for a long continued term of such monetary depressing influences, and that business would pick up again in a comparatively short time."

"We felt so sure of our convictions that word was passed up to the factory department: 'Put on steam and keep her going,' with the result that we now have a very complete stock of sewer pipe, and can fill the increasing orders on short notice."

"One of our strongest arguments was the prosperity of the farmer. The farming community all practically had a very good crop and sold it for a very good price, hence was prosperous and had plenty of money. One of the keynotes of political economy is: The farmer, being strictly a producer, creates wealth and thereby adds to the wealth of the country. He can not eat it, but will invest it, and, if possible, in close vicinity of his home, and this brings us to a peculiar phase of our business. The smaller municipalities all over the country are awakening to the fact that good sewerage is a necessity to good health. But a sewerage system costs money, and the usual way to procure the funds is to issue bonds. But who would sell bonds or would buy bonds of some little country town during the panicky times, when first-class, well-known securities were hard to sell, even at an enormous decline. But with the election having gone right, it is not so difficult to sell the sewerage bonds to some local banks, who again place them with the prosperous farmer. In this way quite a number of sewerage propositions have been rejuvenated, and the outlook is very bright for a good business in sewer pipe."

Peter B. Gibson, president U. S. Engineering Company: "The firm name, 'Luce Engineering Company,' has been changed to 'The U. S. Engineering Company,' the announcement of which appeared in the trade papers. The company

has increased its staff, and is prepared to handle any kind or phase of clayworkers' problems rapidly and satisfactorily. The outlook for business is very good, and quite a number of propositions have resulted in engagements of our experts. Of course, earlier in the season we had a great deal of preliminary correspondence, and some of the deals are still hanging fire, but we are looking for profitable culminations. It is now understood by the practical brickmaker that expert service is of value, and we find a good deal of work coming our way, owing to the fact that we have no interest in any machinery or kilns. We, as well as our clients, have faith in our slogan: 'We have nothing to sell but our services.' Under these conditions, we feel that we are in no way hampered in giving wise advice and opinions, as our judgment is not influenced by outside influences."

C. E. McEwing: "Both of our brick plants are located at Golden Eagle, Ill., which, as the natives claim, was named 'Golden' because there was no 'gold' there. We, however, have utilized to good advantage a 'golden' opportunity, and have not regretted starting our plants in this locality."

The Calhoun Brick and Clay Company manufactures fire brick and builders made from fire clay and have had a good year, and are completely out of stock on the yard. The shipping was very heavy, and they have shipped in the past year as far north as Winnipeg, Man., and as far south as Old Mexico."

The Central Shale Brick Company is a new company; have a shale that makes as fine a red brick as the best Ohio shale brick or the finest product of the Kansas gas belt. The plant was completed only a short time ago, with a capacity of 1,000,000 per month, and the first burnt kiln, just opened, shows good results. We are anticipating a prosperous year for both plants."

Eb Rogers, manager Alton Paving Brick Company: "We have had a very prosperous year, and our continuous kilns have served us exceedingly well, both as regards to quality and quantity. We are doubling our capacity and adding another continuous kiln and equipping the whole plant, that is, both old and new, with electric power. We shall be all finished up in a few months, and then be able to cater to the paving brick demand, which we believe will be phenomenally good. Taking all in all, we think the coming year will be our banner year."

Mr. Otto C. Oehler, president Enterprise Brick Works Co.: "We have had our share of business, which, however, was not much to brag about, that is, on our city yard. We have been trying a series of experiments on this plant, with burning oil in the ordinary clamp kilns. Our experience therein points out to us that brick may be successfully burned under such conditions, and even probably do away with the future erection of down-draft kilns at this plant, especially so if any smoke nuisance agitation is started, which would be a serious drawback for us, in that this plant is located within the city limits."

"Our plant at 'Continental' has had a good shipping demand, and we were in a way very successful. We adopted a new drying off system for our down-draft kilns, which has cost us quite a sum of money, but the results obtained justified the expense."

"In this system we take waste heat from the bottom of the burnt cooling kiln and force adequate heat into the bottom of the kiln to be dried off, thus drying off the brick on the up-draft, and when dry they are burned on this down-draft. By means of paper partitions the kiln is divided into sections, and each section is dried off in about twenty-four hours. It takes about four days to fill a kiln, and within one day after the last day's setting the brick are completely dry and are ready to take coal fire. It results practically in saving a great deal of time when compared to the old method, and in that way increases the kiln capacity. Besides,

it does away with handling hot brick from hot cars and hot tunnels, as is ordinarily done in this section of the country. Besides the way the partitions are arranged, there is no inconvenience to the setting gang at work in the kiln. We believe the adoption of this system will enable us to get a good share of the coming year's trade, because we can furnish the goods."

L. C. Hamlink, president Gas Bench Construction Company: "From the inquiries coming in and the work held over from the past year, we felt warranted in making up double the amount of stock we carried last year."

"The tendency all over the country seems to be to break away from coal fires in domestic life, and we have quite a number of projected gas plants on our boards which will, in all probability, mature, and thereby open up a good market for gas retorts and auxiliary fire clay ware. We are also interested in a number of other enterprises which will require special industrial furnaces, which are very likely to be put through in the near future, so the outlook is very promising for an unusually busy year with us, and our demand for fire clay goods will be very heavy."

W. F. Scott, president Scott Manufacturing Company: "We did not do as much business as we hoped for at the beginning of the year, owing to the panicky times. Nevertheless, we did fairly well, owing to the fact that we had added three new side lines to our business, namely, hand presses, clay plows and clay gatherers."

"The addition of these three lines gave an apt illustration of the ditty: 'A little bit added to what you've got, makes just a little bit more.' But we are confident that our new year's business will be satisfactory, as business confidence seems to be restored all over the country, and it is not very difficult to secure the necessary financial assistance to foster new commercial clayworking industries, especially as the scarcity of timber makes the use of brick practically necessary or compulsory. Business has already picked up with us, in that some of the deals that we had been figuring on have been closed up."

W. L. Rogers, manager Fernholtz Brick Machine Company: "I presume we are in line with other manufacturers, in that our amount of business originally anticipated did not materialize, owing to the financial stringency that spread all over the country, which, in our opinion, was of value, in that it curtailed and possibly cut out a good deal of wild-cat business propositions that were at that time floating around the country. The consequent effect of this will be that from now on business will be done along the lines of good and wholesome business principles. Our banks all show up exceedingly large reserve funds, which, however, they will only let go out to legitimate industrial enterprises, in turn eradicating wild, speculative ventures."

"The panic has shown people the value of real money. For instance, our department stores show an average increase of 4 per cent. of the best business year they ever had for a Christmas trade. This shows that people spend their money freely. But the fact that most of this money was spent for useful articles proves that the people know the value of money. This all tends to show that people will only put their money in legitimate ventures and the extensive long time credit system will be largely eliminated, which will cause close buying prices."

"With this healthy business instinct developed all over the country, we look to a good rejuvenation of business, and we believe that with the good reputation our machinery enjoys, we shall get our share of the coming business."

G. W. Jones, secretary Evens & Howard Fire Brick Co.: "Have nothing startling to report. We think we got our share of the past year's business, and we are therefore in a measure satisfied. We look to a good year's business in our sewer pipe department, in that more of the towns and smaller cities are growing, which will cause a healthy demand. A great many new industrial enterprises are springing up all over the country, especially so in the 'mineral' lines, which will create quite a firm demand for fire clay products. The panic has taught business people the value of conservatism, and we believe that the country will enjoy a fine business prosperity."

Progress Press Brick Company: "Both of our city yards

have been quite busy, and our yard located at 'Lindenwood' has had its share of business. We have secured some good big contracts early in the season, and we can not complain about the share of business that came to us, and we are perfectly well satisfied."

"We have been running all the time and shall continue to do so; we never shut down for machinery repairs. We keep our machine shop busy in making repair parts, and just as soon as there is an indication of a breakdown we go to our stock and repair before anything serious takes place. We already have orders for over 7,000,000 brick on our books for new year's delivery, and we expect to do a rattling good business. Money is easy in this city, and it is not very difficult to obtain it on real estate loan, and legitimate building will go on at a good rate."

"St. Louis people are called conservative, but this very conservatism causes home investments, and, with business confidence restored as it is, there is no doubt but that the St. Louis brickmakers will all fare well this year."

Mound City Roofing Tile Company: "The financial market condition, of course, interfered somewhat with our business, but our delayed orders are coming in very rapidly, so much so that at this time we are as busy as we would ordinarily be in the height of our summer season. The demand for the ordinary slipped and commercial roofing tile is very good. We have also an excellent demand for our fancy glazed and enameled tile, as the buyers have quite an assortment of shades and colors to select from. The demand for such tiles comes principally from the finer residences and mansions, and enables the owner to better satisfy his or her individual taste and have something different than the neighbor, and also prevents the monotone color of the ordinary roofing tile. The outlook for this year's business is very flattering."

Written for THE CLAY-WORKER.

ANCIENT CONCRETE.

SOME CONCRETE EXPERTS love to dwell upon the assumption that their ideas and theories are based upon well-established precedents, and that the skillful Roman builders of old already recognized the value of concrete as a structural material. A writer in the "American Architect" has evidently dug into history and gives us the following, that may not be exactly what our concrete friends, the enthusiasts, would like to believe:

"Ancient Roman buildings offer no precedent for this problem. The so-called concrete of the Romans, though structurally fulfilling many of the same functions as modern monolithic concrete, was quite differently made, being composed of alternate layers of cement, mortar and small stones carefully laid by hand. Some of the smaller vaults seem to have been of almost pure cement, and to this day show the grain of chestnut boards used as centerings or molds. But the Romans always built up their 'concrete' walls and piers between facings of brick; and the huge vaults of the Pantheon and some of those of the Baths of Caracalla were laid upon a complete inner shell of careful brickwork. The Assyrian palaces were built of soft, unburned clay bricks, which dried under the pressure of their own weight into uniform homogeneous masses; but these walls appear to have been for the most part faced with slabs of alabaster or limestone and flat enameled tiles. The past offers no exact analogy to the problem under discussion, and its solution must be worked out by experiment, like all other aesthetic problems, under the guidance of common sense and good taste."

The above is quoted from an issue of the "American Architect," devoted exclusively to concrete, and it is rather interesting to note that that journal says, editorially, in the same number: ". . . Finally, it must always be kept in mind that concrete, while a serviceable fireproofing mixture, is not itself fireproof, and that in certain positions it must be protected by other fireproofing, whose function it shall be to absorb into itself the inevitable disintegration due to impinging flame—or flame and water in alternation."

A CALENDAR SHOWER.

As usual the CLAY-WORKER sanctum has for weeks past been flooded with attractive and most acceptable calendars. This is the time of year when the various machinery firms and manufacturers present to the trade their compliments and well wishes through such mediums. All seem to be vieing with one another for first place in beauty and attractiveness, the calendar feature being of minor importance.

One of the first calendars to arrive this season was the beautifully printed one of the Deckman-Duty Brick Co., of Cleveland, Ohio. The calendar is about 3 feet in length, of the poster variety, showing a charming Japanese girl dressed in her bright-colored kimona and holding a large bouquet of chrysanthemums. The title of the calendar is "In Old Japan."

"The Meadow Brook Evening" is the title of a beautiful print from an old oil painting used in connection with the calendars being mailed to the trade by E. M. Freese & Co., of Galion, Ohio. It is a delightful springtime scene, showing the appearance of a winding brook at twilight, reflecting the bright coloring in more subdued tones of the setting sun's rich tints of lavender and gold. A group of cattle stand knee deep in the inviting clear water, stooping to drink or to watch the lengthening shadows of the approaching eventide.

The Tuttle Brick Company, of Middleton, Conn., are sending out a calendar showing a waterscape entitled, "The Highway of all Nations." The old ocean is seen at sunset, its ceaseless waves rolling on and splashing here and there into large masses of spray. This holds an important place among our collection of calendars.

The Sibley Brothers' Coal Company, of Birmingham, Ala., are issuing an unusually attractive calendar, in which green is the predominate color. It is a portrait of a beautiful girl, presumably one of the South's favorite daughters.

The calendar mailed by the Newport Pressed Brick and Stone Company, of Newport, Ky., also shows a fair lady, this one of auburn hair and blue eyes, with a dainty mouth and pearly teeth holding by the stem a red rose. The color scheme of this calendar runs mostly into browns.

It is surprising the number of girls advertising firms are sending us. We have received from the Golden Gate Brick Company, of San Francisco, "A Winter Girl," dressed snugly in white furs, with a witching smile that won't come off on her pretty face.

A. M. & W. H. Wiles Co., of Grassy Point, Rockland County, N. Y., manufacturers of brick molds, trucks and barrows, general machinery, etc., have made a nice selection for this year's calendar—"Keeping Watch." This shows the faithful St. Bernard watching a sleeping child by the seashore, who has been playing in the sand near an old fishing boat, and has passed away to slumber land all on a summer's day.

The Roessler & Hasslacher Chemical Co., who have the reputation of being most artistic in their selection of their yearly calendar, presents a finely painted picture of "The Ceramic Merchant," showing a scene in far off Asia of an interior of a mansion, in which the merchant is exhibiting an immense vase to a noble family. This is one of the most valued calendars we have received this year.

The Suffolk Clay Company, of Suffolk, Va., mailed us another girl. This one is the "Opera Girl." This is in portrait style, mounted on a gold embossed card which in turn is mounted on a green background. The lady in question is dressed in a light green, low-necked dress, wearing a bunch of yellow roses. If you want to get an introduction to this beautiful Miss, you must write the Suffolk Clay Company.

"The First Born," is the title of the calendar of the Scott Manufacturing Company, of St. Louis, Mo. It shows a mother sitting in a rocking chair in the warm red glow from an unseen lamp, rocking her babe to sleep. The background for the picture is a modeled relief, giving the appearance of a piece of clay tile or terra cotta.

The New York Brick and Paving Company, of Syracuse, N. Y., is mailing a pleasing calendar to the trade. It is a print of a painting called "Trouble for the Bully." The

picture shows two strapping young newsboys preparing for a fist fight. There is the usual audience seen on such occasions in the poorer sections of the large cities.

The Johnsonburg Vitrified Brick Company, of Johnsonburg, Pa., have delighted us with a calendar showing Washington's old home at Mt. Vernon.

Mr. James W. Hensley, of Indianapolis, Ind., is distributing this year an attractive calendar called "Devotion," being a picture of a pretty girl caressing a beautiful chestnut horse, the intelligent looking animal seemingly enjoying the "devotional" exercise as much as the maiden.

The Dallas County Brick and Tile Works, of Adel, Iowa, have a plain calendar printed in green and white, setting forth in printed matter a list of their clay products. The lettering is white with green for a background.

A calendar bearing a three-colored label was recently received from C. K. Williams & Co., of Easton, Pa., manufacturers of dry colors and fillers. The contrast of the blue, red and gold, setting off the trademark "Williams Anchor Brand," makes the calendar very attractive.

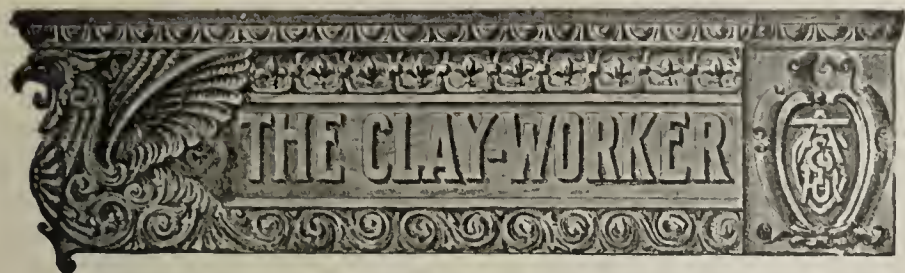
We have received several other very handsome calendars, which, together with the above-mentioned souvenirs, have found a welcome place in our large collection. By this means we wish to thank our many friends for the well wishes extended by them for a prosperous New Year.

DOINGS AT GALESBURG.

Midwinter finds the immense Purington paving brick plant at Galesburg, Ill., running full-handed. Last year they delivered 90,764,000 block and brick-size pavers, being an increase of about 5,000,000 over the output of the previous year. It would seem that improvements are always in order at these plants, and, living up to their reputation, they recently purchased an additional Porter engine, making four now in use. They have also added a Browning clam shell crane, the second of that type. Just before cold weather set in in earnest, they completed four new square kilns and one round one. One of the notable orders filled by them was 3,000,000 of brick-size pavers for the streets of Panama City, which were shipped to New York by rail and thence by boat to Colon, where they were again loaded on cars and taken across the Isthmus.

PRACTICAL GOOD WILL.

An example of practical good will toward man by man was furnished by the American Blower Company, of Detroit, Mich., in dealing with its employes Christmas time. There was not only an excellent talk by President James Inglis, of the company, to the employes assembled at the works, extending holiday greetings and expressing the satisfaction of the management over the mutual interest and cordial relations existing between the company and the men, in which there has been practically no break for a quarter of a century, but, in addition to this, they put into practice a system of substantial Christmas gifts that is worthy of note. The system consists of giving each employe one dollar, with one additional dollar for each year of continuous employment. By this means the newest employes are remembered, no one getting less than a dollar, and the older the employe the longer he has been with the company, the more in proportion he receives as a Christmas gift. The largest single amount paid out was \$25, that being the entire life of the company at that time. The amounts ran from one dollar up to this in varying amounts. This is demonstrating good will in a practical manner, and shows the same minute consideration of the finer points that is manifested by the American Blower Company in all its business dealings. They are strictly up-to-date at all times, and enterprise as well as good will pervades the institution.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. I I

JANUARY, 1909.

No. 1.

CURRENT COMMENT.

For full convention particulars, read the announcement on pages 80 and 81.

* * *

It's the same old refrain, but the words must be changed to "Don't Forget to Put Me Off at RO-CHESTER."

* * *

For the benefit of the uninitiated, we will state that all regular sessions of the N. B. M. A., and auxiliary organizations as well, are open to the public.

* * *

Never mind, if you have broken a few resolutions you will have a chance to make them over again at the end of the year, and it is worth something to have made them, even if it didn't last a month.

* * *

If you really can't attend the National Convention, the next best thing to do is to study the report of the meetings, which will be given in full in the February CLAY-WORKER. That one issue is well worth the price of a year's subscription.

* * *

The first regular session of the N. B. M. A. occurs Wednesday afternoon, but the festivities at Rochester will begin on the arrival of the early delegates Monday and continue right through the week, so the wise ones will arrange to come early and stay late.

* * *

The annual banquet will be the chief social function at this year's N. B. M. A. Convention, but there will be various other entertainments, in arranging for which the ladies will receive particular attention, so those who can should bring their wives and daughters. Those who can not may bring

their cousins and their aunts. A dress suit will be in order, but is not at all necessary. Should you forget it, no impertinent questions will be asked.

* * *

The idea of building a complete structure of the mortar that is generally used as a binder in brick work, partakes too much of the nature of the tail wagging the dog.

* * *

The weather man gave the home builders a good chance the first part of the winter, which seems to have been taken advantage of. May they have another good chance and take advantage of it again.

* * *

There were a few more idle cars Christmas week than earlier in the fall, but the railroads are promising to put them all to work as soon as the demand becomes sufficient to warrant it, and while they may be delayed a little about getting started, it is thought by early spring there will be plenty of shipping to keep them moving.

* * *

The proposed side trip to New York City will appeal to many of the members, especially those from the West. Those wishing to participate are requested to notify the Secretary at once, or on arrival, so that ample facilities may be provided. It is the intention to have a special train of Pullman cars if a sufficient number go to justify it.

* * *

Progressive manufacturers need no urging to attend a National Convention. It is time and money well spent. More than this, it pays well to take yard superintendents and foremen, for if they are wide awake they will pick up many practical pointers in the button-hole talks between sessions, that will yield dividends in the form of more and better output in the year to come.

* * *

Delegates to the National Convention will please make a note of the fact that tickets are good going from January 28th to and including February 3d. The return tickets are good until midnight of Wednesday, February 10th. Those wishing to spend a week or ten days in New York City can obtain the desired extension of time by depositing ticket at Niagara Falls, after the convention.

THE GREATEST WASTE.

According to a philosophical paragrapher, the greatest waste in the industrial world is not in the waste material or things of that kind. For example, in the brick industry it is not the waste of heat in burning nor the waste of brick through defective ones that come out of the kilns, nor waste of clay in mining, but the greatest waste of all is the unused and undeveloped capacity of the men doing the work. This waste applies to the workmen in the factory, and to the proprietor, foreman, and everybody else. It is admitted that employes are worked hard enough and long enough, but the majority are not worked at their highest capacity as regards the quality of their service. Then, if it is followed up, it takes two things to bring out the best in workers—opportunity and systematic instruction. "And, continues the paragrapher, "the sad fact of it is that often neither the worker nor the employer realizes that there is such a waste because neither takes ample measure to develop the latent capacity." We are inclined to agree a little bit with the paragrapher, but desire to find fault, just the same. It is one thing to tell us that we are not utilizing all our powers as we should, and quite a different thing to inform us how they may be utilized better and we may all be better satisfied at the same time. Moralizing is a kind of ticklish theme. A pointing out of faults without sug-

gesting a remedy therefor is but a half-baked idea at the best, and is too much like finding fault with a poorly burnt brick without telling how it may be corrected in the future. It makes us feel bad without doing any good.

FARM PRODUCTS AND MINERAL PRODUCTS.

The Secretary of Agriculture recently gave out an optimistic statement of the value of farm products in this country, and the enormous total piled up for the past year when there was depression in other lines.

Aside from farm products and their progress it may be pointed out that mineral products are going some, too, and the increase seems to be pretty well represented in all of the principle mineral products, which represent an annual output of over two billion dollars. This product has increased more than 100 per cent. in less than ten years.

Commenting on this phenomenal increase, George Otis Smith, the director of the Survey, stated it as being yet the more impressive when compared with the recent optimistic statement of the Secretary of Agriculture, to the effect that, taking 100 as the basis for the value of farm products of 1899, those of 1907 had increased to 159, and those of 1908 to 165. The figures of the mineral production of 1908 are not yet available, but, assuming the value of the product of 1899 to be 100, as in the case of agriculture, that of the 1907 mineral product was 204, or more than double.

CONNECTING THE PUBLIC AND TRADE SCHOOLS.

In its preliminary report at the annual convention of the National Society for the Promotion of Industrial Education, at Atlanta, Ga., the committee of ten prominent business men and educators, formed for the purpose of making recommendations, among other things, recommends the connecting of vocational or trades schools with the public schools, not necessarily making them a part of the public schools, but making easy and natural the change at a certain point from the public schools into the vocational schools. In other words, it is recommended that the trade schools make a study of the conditions under which the majority of children leave the public schools, and take into consideration the fact that such trade schools must articulate at some point with the public school, preferably the grammar school. On the other hand, the grammar schools should at some part in their course lend a hand to developing the vocational principles of the pupils, so as to fit them for entry into trade schools, as naturally as the ordinary city graded school fits the children for entry into the high schools. In short, there is recognized a need for co-operation between those in charge of our public schools and those in charge of the trade or vocational schools, so that children in the country may get a combination of mental and physical training of the best kind, with the fewest handicaps and breaks between the two. This is an excellent idea, one that looks like it might be worked out in a practical manner, and we hope to see it making good progress the next year or two.

CEMENT FELT THE PANIC.

While detailed figures are not yet obtainable, there is furnished by Edwin C. Eckel, of the United States Geological Survey, an estimate of the cement production for 1908, which shows that cement felt the panic. In round numbers, he estimates the total production of cement for the year at 40,000,000 barrels, as compared to 48,785,390 in 1907. The years 1906 and 1907 were banner ones in cement production, the year 1906 showing a total of nearly 46,500,000 barrels, and also in the promotion both of cement and cement industries, and while there may be some increase in the future,

present indications are it will take several years for it to again reach the records of production already made, even with increase in population. The falling off in trade was probably in excess of the showing by the figures, because the statement is made that the year 1909 opens with a very heavy stock on hand. In other words, the sales were less than the production, just how much it is difficult to understand, but it is admitted that there is a heavy stock now in the hands of the manufacturers, not having been sold. This will serve to hold back the production a little in 1909, but, of course, much depends on how the spring trade opens up. What is regarded as the maximum producing capacity of the cement mills in the country is now about 60,000,000 barrels, so during 1908 the plants ran about two-thirds maximum capacity. The technical and industrial development in connection with the cement industry will be discussed in detail in the annual report of the Survey, which will be issued early in the spring.

CONCRETE SEEKING NEW FIELDS.

From one of those mysterious sources of information and inspiration from which editorial writers are supposed to derive a lot of their ideas, we have had a hint for some time that it was coming, and now we have positive evidence in the reports from one of our Consuls of the use of concrete for making boats. Some time ago there was some talk of using reinforced concrete material or something of the kind for warships, but now it is breaking out into the field of boat building, pure and simple, according to reports from Consul Chapman Coleman, of Rome, who says that the Gabelinni Company, who have been engaged in concrete construction for eight years, have been building successfully for several years barges and boats of concrete; have built one barge of 150 tons for harbor use which proved a great success. In fact, the Consul makes quite a nice report, setting forth the superior qualities of concrete as compared to wood and steel for boat building, and though it is admitted it has not yet been tried for boats that are power-driven and have the vibration of machinery in them, it is freely predicted it will prove successful even in these. The main thing all these details prove, however, is that concrete is breaking out in a new place—is starting into a fresh field of adventure, either growing tired of the battle for a place along with brick, or else has hopes of conquering the whole world.

Seriously, concrete is probably more at home in the water than in walls above dry land, and there are various ways in which its use can be extended in harbor work, in the building of docks and for various other purposes, but its weight and the matter of repairing cracks is used against the idea of extending the use of concrete in boat building. They may find in certain classes of floats, and, as stated, for harbor work and things of that kind, quite an extensive use of it, and if it is handled right and confined to such lines as it is really adapted to, good results may be obtained, whereas too wild claims for it in these lines, like too extravagant assertions for it in regard to its use in building operations, may result in giving it a black eye, so that it will not get even the recognition it deserves in the end.

U. S. POTTERS' ASSOCIATION ELECTS OFFICERS.

The following officers were elected at the annual meeting of the United States Potters' Association, which was held recently at the Hotel Raleigh, Washington, D. C.: President, Joseph Mayer, of the Mayer Pottery Company, Beaver Falls, Pa.; first vice-president, William Burgess, Morris Heights, Pa.; second vice-president, Hugh A. McNicol, of the Potters Co-Operative Pottery Company, East Liverpool, Ohio; third vice-president, A. M. Maddock, of the A. M. Maddock Pottery

Company, Trenton, N. J.; secretary-treasurer, Charles C. Ashbaugh, of the West End Pottery Company, East Liverpool, Ohio. Col. John N. Taylor, of the Knowles, Taylor & Knowles Pottery Co., East Liverpool, Ohio, is chairman of the executive committee, while W. Edward Wells, secretary-treasurer of the Homer Laughlin China Company, of Newell, W. Va., is chairman of the labor committee.

The sharp penciled experts who like to figure up things have demonstrated that everybody in the United States eats half their own weight in sugar every year, or to be exact, 82¾ pounds. It is proven that we are the greatest eaters of sugar and sweet stuffs in the world. The sugar bill of the country averages over \$1,000,000 for every day of the year. In this connection, and speaking of sugar production, we only produce one-fifth of our sugar, importing about one-fifth of it from the neighboring islands, and something like three-fifths from foreign countries. It looks like there is room for expansion in the sweetest industry in the country.

Written for THE CLAY-WORKER.

STICK TO YOUR WAD OF CLAY.

(After Kipling.)

A brickmaker worked in an honest way,
Molding his wad of clay;
He always was there when the whistle blew,
And never was told what he must do.
His life was happy and gay.

He rose from the bottom through the ranks;
To attention to business he gave his thanks.
He laid up a fortune by no ways mean,
And he made it all in a manner clean.
Wherever he went he could pay.

But he grew smart, as many men do;
He wanted to branch out as I and you.
So in on the ground a promoter permitted;
As president he was especially fitted.
So he was elected one day.

But things go wrong when one's not on to the job;
You can't meet the trade and with them hobnob,
And he soon found the fortune which he had amassed
Far from his grasp had quickly passed.
He's back molding a wad of clay.

W. S. R.

A HAPPY NEW YEAR'S LAY OF YOUTH.

Why speak of the scythe and the hour-glass
As the bards so long have sung?
Why should we notice how Time may pass
So long as the soul is young?
Let wrinkles come and the head grow gray—
It's never a cause for tears,
For Methuselah hoped and laughed, no doubt,
When he had nine hundred years.

They fail to learn their lesson right
And take the dross for gold,
Who think gray hair, a wrinkle or two,
Are marks of growing old.
Joy's songs may be as gladly sung,
And e'en in better tune
If the heart keeps time with the proper beat—
In December than in June.

So, when it haps in the run of days
That we turn the New Year page,
Why point to Time, with his dented scythe,
Or other signs of age?
What is it, in truth, that has been brought
By the seasons in their whirl,
Where a boy, a light-winged promising lad,
Gives a good-bye kiss to a girl?

No talk of tombstones on Life's road;
No milestones of the past,
But dreams of hope and songs of joy
Each merrier than the last.
And whether we're eighty, or twenty, or ten,
Let this New Year's praise be sung:
Not Nineteen Hundred and Nine years old,
But that many years still young.

P. H. DOYLE.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 161.]

FOR SALE, WANTED, ETC.

TILE MILL FOR SALE.

With 5 down-draft kilns, waste heat fan, and over 200 dryer cars. Switch running up to kilns. Oil and gas well with the property. Good location and market. 40 acres of land. A bargain.
J. P. ANSPACH & SON,
11 cm Edgerton, Ind

FOR SALE.

About ninety single-deck iron cars for drying brick. Used very slightly; good as new. Also two transfer cars. Will sell part or all. For particulars, address
BOX 304,
1 tf dm Liberty, Mo.

FOR SALE—An Andrus three-brick steam press complete in first-class condition, with a William disintegrator and elevator, sieve, belts, shafting, pulleys, etc., and every part complete ready to run. Also six two-wheel heavy trucks and twelve boxes holding 500 press brick. Address
THOS. J. ROSE BRICK MFG. CO.,
Erie ave. and G st.,
1 1 dm Philadelphia, Pa.

For Sale, Wanted, Etc., Ads Continued on
Pages 148-152.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



NEW YEAR OPENS as the old year closed, full of promise and with everything to indicate that 1909 will be one of the best years for building in the industrial history of Chicago.

True, a comparison of the opening weeks of this year with those which ushered in the last would be bound to show an increase, for the simple reason that things were just about as dead as they could be a year ago. At the same time, the increase is so much greater that every hope is felt for an unusually good twelvemonth. This year and for the closing weeks of last year the permits issued by the Building Department ran in the neighborhood of 100 a week, while for the same period of 1907-8 the number ran between thirty and fifty a week.

One peculiar thing may be noted in the comparative figures for December of the last two years. Last December has to its credit almost three times as many permits as the closing month of 1907, having 724 permits, as against 246 for December, 1907, while on the other hand, there is a loss in estimated expenditures involved, the first total being \$5,382,300, as against only \$5,290,450, divided among the far greater number of buildings last month. This, of course, is in keeping with the general rule through the last year, which showed that a larger number of small buildings than ever before were being erected. It is also explained by the fact that the permit for the new LaSalle Hotel swelled the cost figures for December, 1907.

The cold weather around the tenth of the month had scarcely any effect, except to slow down deliveries on jobs under way. In the offices of the architects all was hurry and bustle. Plans were being prepared, and in cases of buildings projected for which plans are not now being drawn, the architects are making preliminary sketches, which will have more definite development in the next few weeks. Every dealer of brick, roofing tile and terra cotta in the city looks for things to open with a hum before April Fool's day, and to keep safely on past that fatal event.

The brick contracts on two "show" jobs, for which there was considerable competition, have been let this month. Both prizes were captured by the Hydraulic Press Brick Company. The biggest job was that on the Chicago & Northwestern's huge new passenger station on the West Side. This calls for approximately 1,500,000 brick, and the Hydraulic's vitrified gray will be used in the walls.

The work on the Blackstone Hotel, Michigan avenue and Hubbard place, calling for 850,000, was the other prize, and in these walls the red brick, made at Akron, Ohio, will be laid.

More contracts are coming along, however, and there is a very general feeling that there will be enough to go around before the end of the year.

Many new jobs of considerable importance are already on the books; permits have been taken out for them and contracts will soon be let. A new school building, the Burke School, is planned for erection at Fifty-fourth street and South Park avenue, at a cost of \$200,000. The Chicago Telephone Company is planning to make improvements and build new exchanges during the year, involving an expenditure running into the hundreds of thousands. Hart, Schaffner & Marx, wholesale clothing manufacturers, will put up a new thirteen-story brick building at Monroe and Franklin streets, and in the same locality William Randolph Hearst will erect a new structure at Madison and Market streets, to house the plants of his two papers here.

The West Side is already building up with foundries, plating establishments and printing shops, in place of the cheap tenements and saloons and dives which formerly clung along within a block or two of the river. The building of the Chicago & Northwestern's new terminal is largely responsi-

ble for the change. The Marshall & Husart Machinery Company are to put up a \$250,000 plant at 72 West Madison street. The Chicago Railways Company, following its plan for general rehabilitation, is to put up a one-story brick sub-station at 1107-67-69 Leavitt street, at a cost of \$400,000. A one-story brick Post Office is also planned for erection at 1714-16 North Sixty-third avenue.

"A Handful of Clay," was the facile subject deftly handled at a gathering of the Arts and Crafts Society in the Art Institute on Friday night, January 15, by no less an expert on the subject than W. D. Gates, president of the American Terra Cotta and Ceramic Company. Gates, as usual, sprung something of a surprise upon his audience. Having a good deal of a reputation as a potter and expert in pottery, being known about the country as "the Father of Teco," or something of the kind, it was generally supposed that he would tell something about his famous ware, and illustrate his talk with a few pictures of the shapes and shades he has produced with the aid of his skilled artisans at Terra Cotta, Ill.

Instead, Mr. Gates took up the use of terra cotta from an architectural standpoint, and before he was through his audience was convinced that there was about as much to be said for artistic workmanship in a cornice or a panel, as in a vase. In fact, it was allowed that a cornice might illustrate a little "higher" art than anything else that could be turned out of a handful of clay, or a carful, either.

The lecturer was not lacking in examples of the fine uses to which terra cotta has been put in producing modern temples of industry, commerce, justice and religion. He had with him his own slides, made from photographs of buildings which bear testimony to the truth of the words he spoke, and he threw these upon a screen for the benefit of his audience.

SCRIP.

DEATH OF HENRY WALLACE CALDWELL.

We regret to announce the death of Henry Wallace Caldwell, president and founder of the H. W. Caldwell & Son Co., of Chicago, which occurred December 22, at Redlands, Cal., where he had gone in search of health.

ARE YOU TROUBLED WITH WHITE WASH?

Do you want to make a better face brick? Do you want a wider and more profitable market for your product? Do you want to make from the same material, whether light or dark, a variety of colors and shades that are winners in the market, and double your margin of profit? Why not go your competitor one better? Let us help you earn larger dividends. J. B. & I. L. Hammond, exclusive agents for the Lynn brick facing machine. Adds \$2.00 to \$15.00 per thousand to the value of your product, and costs but little in comparison. Positively the most advanced step yet taken in the manufacture of impervious face brick. Inquiries promptly answered. A collect telegram will bring a representative.

J. B. & I. L. HAMMOND,

Specialists in the Brickmaking Industry,

Bolivar, Pa.

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of

CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.



"That which is worth doing at all is worth doing well."

This is the principle upon which we build Clay Working Machinery, and this is the principle upon which you should equip your plant.

The indifferent selection of your machinery is a long step toward the failure of your enterprise.

A little care and a little extra cash invested in correct machinery would save in repairs and time much more than the excess of the original outlay. All insurance costs money, but the assurance which good machinery gives for the success of your enterprise is the cheapest insurance you can buy and the best investment possible.

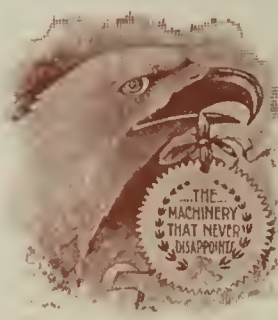
We are working constantly and earnestly for the betterment of the entire Clay Trade, and have a pardonable pride in calling attention to our line of "Built Right, Run Right" machinery. Our fifty years spent in the betterment of this class of machinery makes us positive that there can be no better foundation for the Clay Worker's success than the installation of our machinery. There is no machine or appliance used in any branch of the Clay Trade which we do not build and build right.

Correspondence Solicited.

The American Clay Machinery Co.

Bucyrus, Ohio

PURINGTON
PERFECT
PAVERS
PRESSED
ON EAGLE
PRESSES.



A LOT OF EAGLES.

Count the Eagles.

See what a big bunch there are.

We reproduce on this page one eagle for each Eagle Repress now in use in the Purington Paving Brick plants at Galesburg, Ill. A year ago there were eighteen Eagle Represses working in the Purington Plants. During the past year two additional Eagles have been installed. This indicates two vital facts! Paving Brick are increasing in popularity and the Eagle Repress is also increasing in popular favor.

Both of these points are of vital interest to clayworkers, as the popularity of the paving brick means a chance to make more money and the use of the Eagle Repress means an opportunity to both make and save more money. There is no Repress equal to the Eagle, and there is no paver equal to those made on the Eagle.

Galesburg, Ill., August 31, 1908.

American Clay Machinery Co.,
Bucyrus, Ohio.

Gentlemen:—

We are in receipt of yours of the 29th, and would say we are using at the present time twenty Eagle represses.

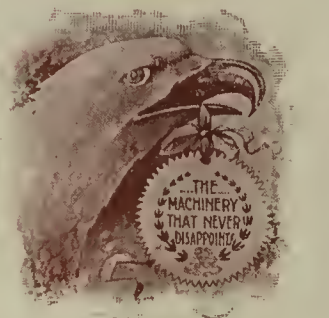
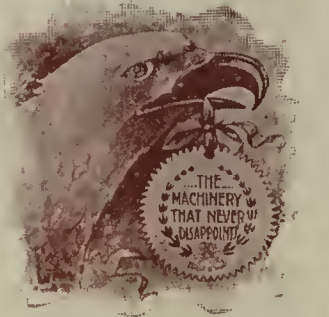
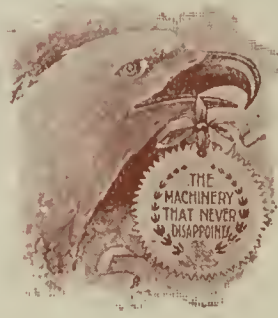
The same are giving good satisfaction.

Yours truly,

The Purington Paving Brick Co.,
By W. S. Purington, Gen. Mgr.

We build every machine and appliance used
in every branch of the Clay Trade.

The American Clay Machinery Co.,
Bucyrus, Ohio.

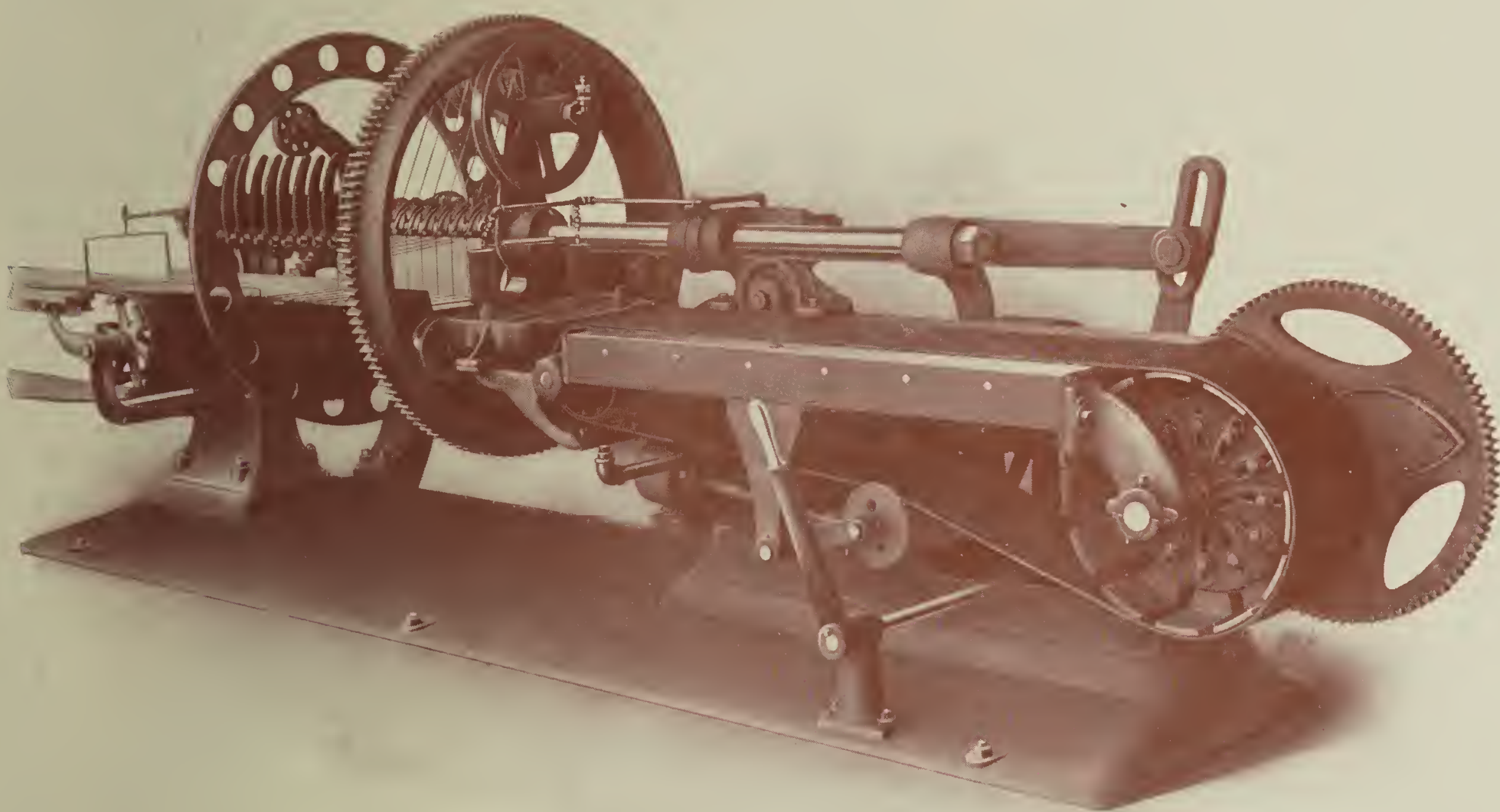


PAVERS
PROPERLY
PRESSED
PROMOTE
PROFIT.
USE THE
EAGLE PRESS.



Highest Type of Cutting Tables

The well known policy of The American Clay Machinery Company to supply machinery with the widest possible range of capacity and capability, has led to the development of the No. 91 Automatic Cutter, designed for cutting both side and end cut brick. This addition to our line of Cutters gives the clay worker thirty or more cutting tables to select from, ranging in size and capacity from the largest automatic to the most simple hand power cutter. This large line of well built cutting tables makes it unnecessary for you to buy a small capacity machine and crowd it beyond its rating. Nor is it necessary to invest capital in a machine away beyond your requirements.



This line of thirty Cutters, which is the largest line built in the world, makes it possible for you to get exactly what your plant requires. The No. 91 Cutter is similar to our other reel type Cutters known as the No. 86, No. 93 and No. 25. All of our Cutters are excellently built of the very best material and are designed to do more than we claim for them. Full particulars on Cutting tables or any other clay working machinery will be given on application.

The American Clay Machinery Co.
Bucyrus, Ohio

Greatest Value in Auger Machinery

Take this No. 65 Auger Machine, point by point, item by item, feature by feature, then take the results of a practical trial.

Consider the amount of its product, the quality, the convenience of its operation and its freedom from repairs and you will concede that the No. 65 is just about the best value in Auger machines that can be found in the whole world. For the plant in need of the great capacity of this great machine there is no better investment possible. It has the weight necessary in the place necessary to give the output necessary in the time necessary without any unnecessary delay.

In our complete line of twenty-five or more Auger machines we can give you exactly the machine your requirements demand and of quality which will assist instead of retard your successful operation.

Write for a copy of our new monster catalogue. It's the best ever issued to the Clay Trade and describes our full line.

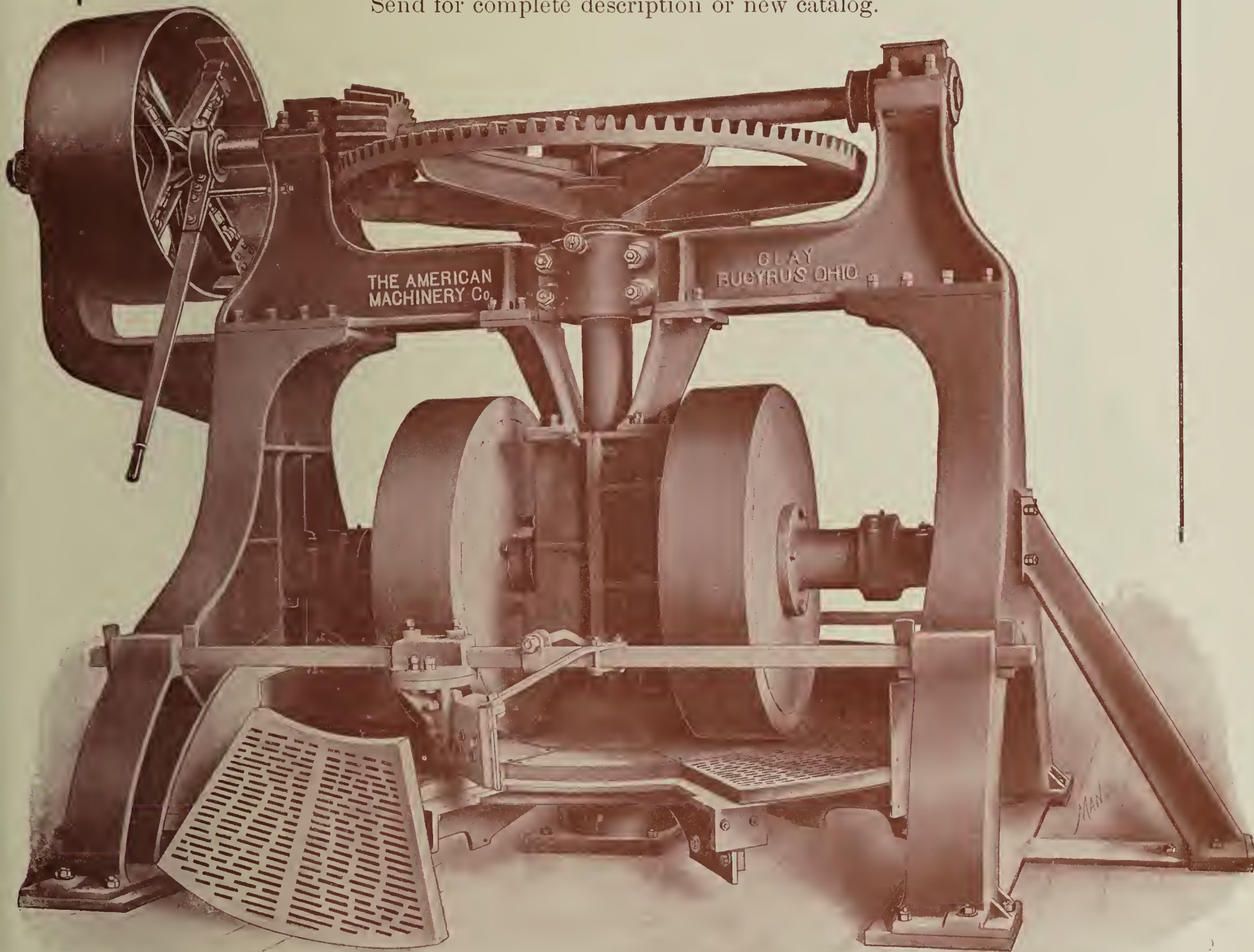
The American Clay Machinery Co., Bucyrus, Ohio



No. 57 Heavy Duty Nine Foot Dry Pan

You may search the pan field over, and nowhere will you find so many detailed points of pan excellence as will be found in our No. 57. Taken as a whole it stands as a triumph of pan construction. Capable of the most service with the least trouble. There is not an ounce of shoddy in it and when duty calls it is on the job, ready to do its share and a part of the other fellow's. The No. 57 is only one of a line of two dozen styles and sizes of Dry and Wet Pans which make up our line. From these you can select just the pan needed without paying for more than you want or getting less than you need.

Send for complete description or new catalog.



The American Clay Machinery Co.
Bucyrus, Ohio

Three Dozen Pug Mills

If you only had one Pug Mill to look at it would be an easy matter to decide whether to buy or not. With the big line offered by The American Company, comprising three dozen or more sizes and styles, it becomes a problem. And yet it's comparatively an easy matter when you consider the nature of your clay, the amount you want to handle, the product you want to make and the money you want to spend. Give us these facts and we can place in your plant a machine that will always be "on the job when the whistle blows" and won't want to stop for lunch.

We build an exceptionally large and excellent line of Pug Mills and Granulators. It is so extensive a line that any condition or requirement can be satisfactorily met and besides, no matter what size, capacity or style of machine you buy, you can depend upon the quality being the best that design, material and workmanship can produce.

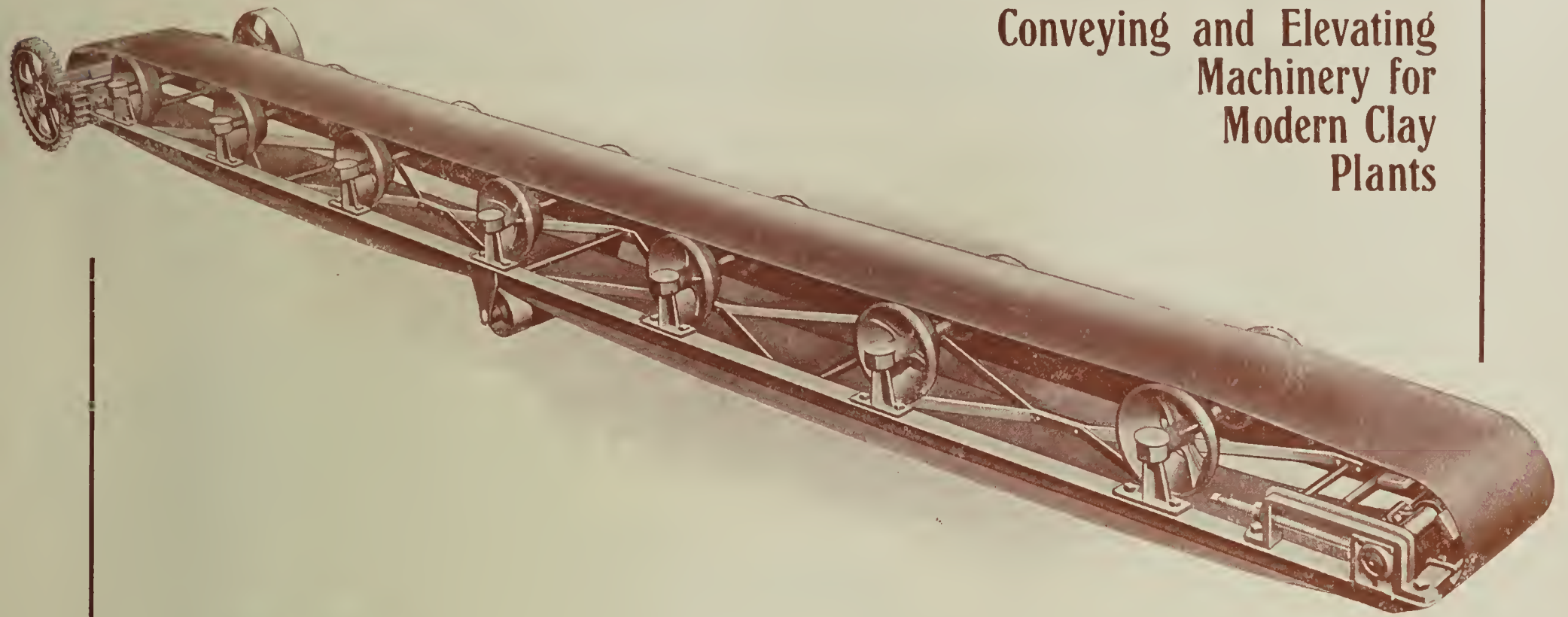


No. 94 Pug Mill

Our new 500 page catalog of Clay Working Machinery tells all about our complete line. If you haven't it you will be supplied upon request. It's full of information, attractively presented and profusely illustrated. It describes our complete line of Stiff Mud, Dry Press, Soft Mud and Sand Lime Machinery. When we say "Complete" we mean practically every machine and appliance needed in the manufacture of clay products by any known process.

The American Clay Machinery Company
BUCYRUS, OHIO

Conveying and Elevating Machinery for Modern Clay Plants

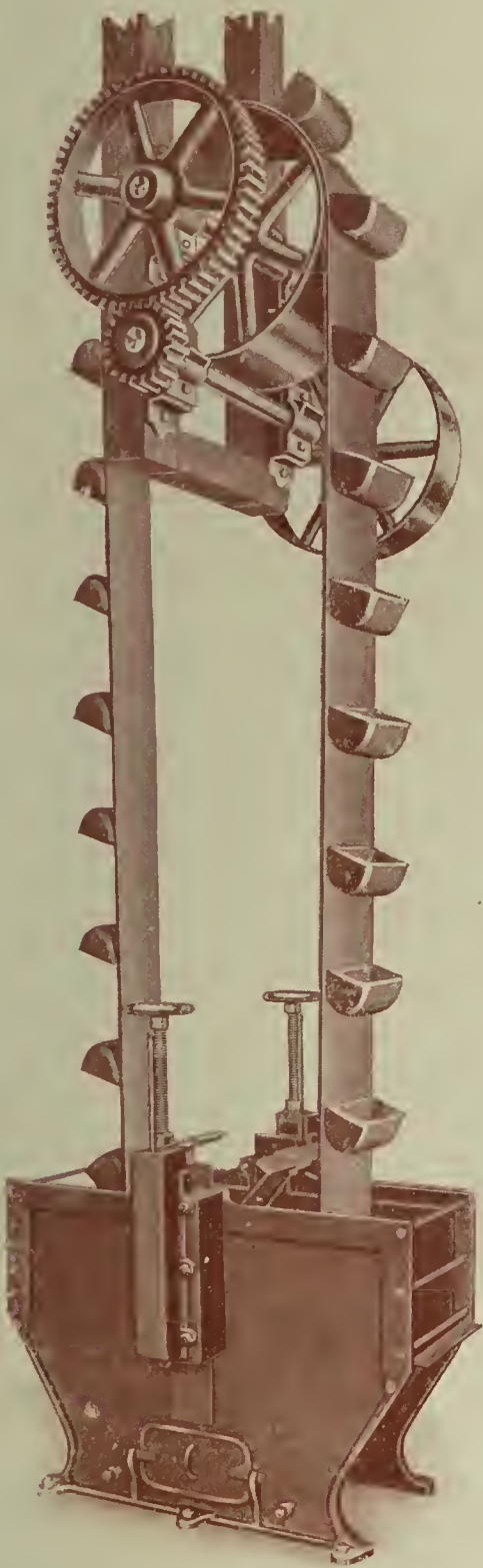


There are usually problems of Conveying and Elevating about any Clay Plant and our line of machinery is designed to conveniently and economically solve these difficulties. Our Steel Frame conveyers are at once simple, strong and efficient. Their adaptability to any plant or any special condition makes them a favorite. The length and width are a matter dependent upon the conditions, but the operation is always satisfactory. We have several styles of conveyers, all of excellent design and faultless construction.

Our elevators are the best that can be built from a design, material, workmanship and operation standpoint. They have our improved "troubleless" boot with dust proof bearings. We also build other styles of elevators, a description of which will be found in our big new catalogue which is yours for the asking.

There are numberless machines and appliances used about clay plants, all of which will be found illustrated and described in our big 500 page catalogue.

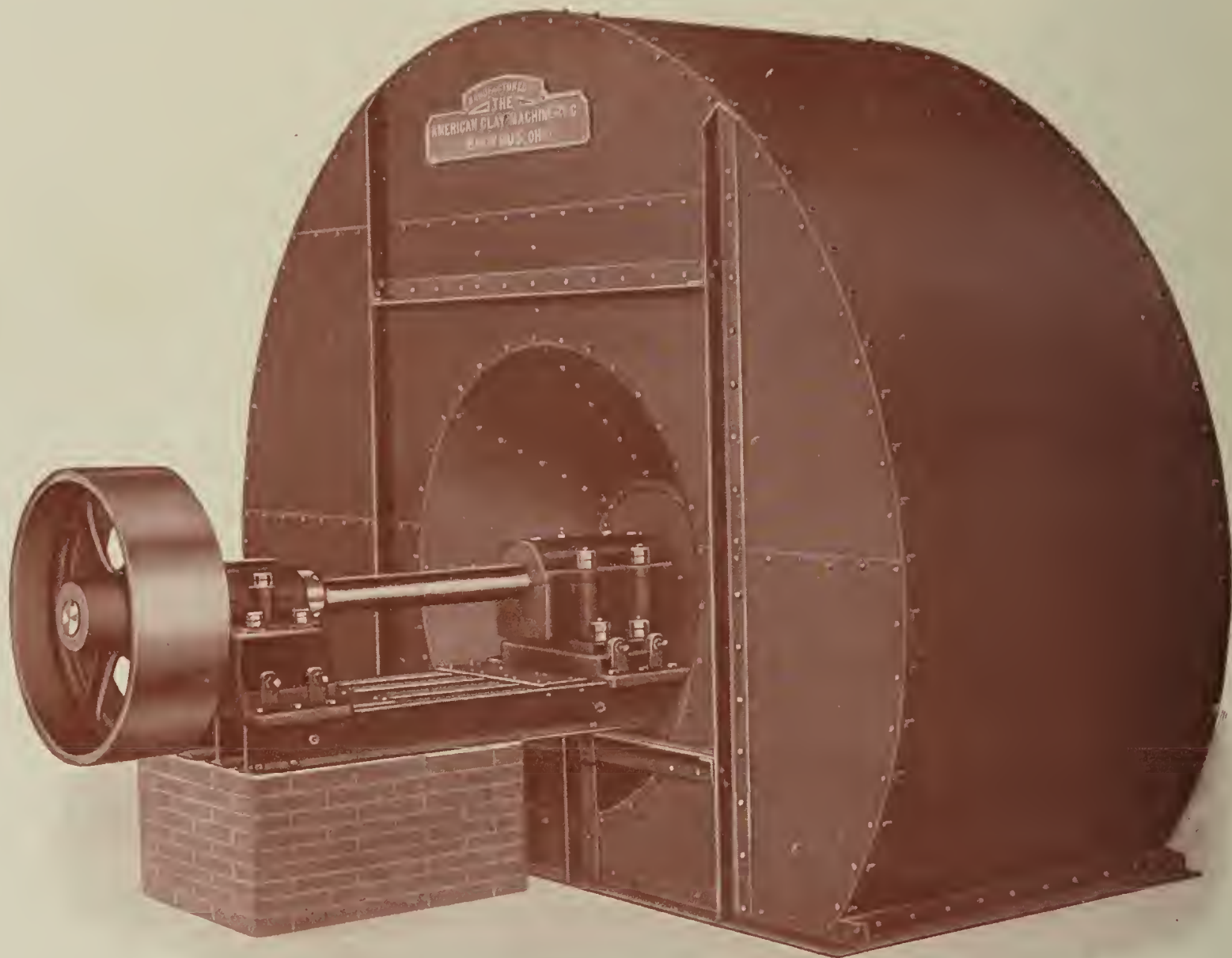
The American Clay Machinery Co.
Bucyrus, Ohio



Personally Inspected Dryer Equipment

To know that a machine is built right is more than half of your success and ours. That's why we have made it a practice to personally oversee every piece of every machine on which we place our name plate as, upon the operation of that machine, depends our reputation as builders. This care of construction led us to equip a department of our big plants for the manufacture of Fans, Exhausters and other Waste Heat Dryer apparatus. Every one of our Dryers, when completed, are known to be right both in design and construction and will give efficient service. Our Fans are the best for the Waste Heat Dryer work because they are made on special designs for just that work. The hot gases from the kilns make an ordinary fan construction impractical and expensive to the operator. We have our specially constructed Waste Heat Dryer apparatus which means greater returns for the investment and an increased capacity and quality.

Our Engineering Department includes the most advanced engineers in the Clay Trade; those who have successful records and are able and willing to lend their aid toward your success. They will plan your plant from start to finish and deliver to you a complete success. Such insurance of success is worth while.



Pulley Driven Steel Plate Fan with Water Cooled Bearing

We invite correspondence on any machinery or matter connected with a Clay Proposition.

The American Clay Machinery Co. - Bucyrus, Ohio

DRY PRESSES—ALL SIZES—ONE QUALITY



We build the most complete line of Dry Presses on the market.

So complete is this line that we can exactly meet the needs of any plant without the necessity of overloading a press or without unnecessary investment in a capacity not needed. Presses range from one mold to six.

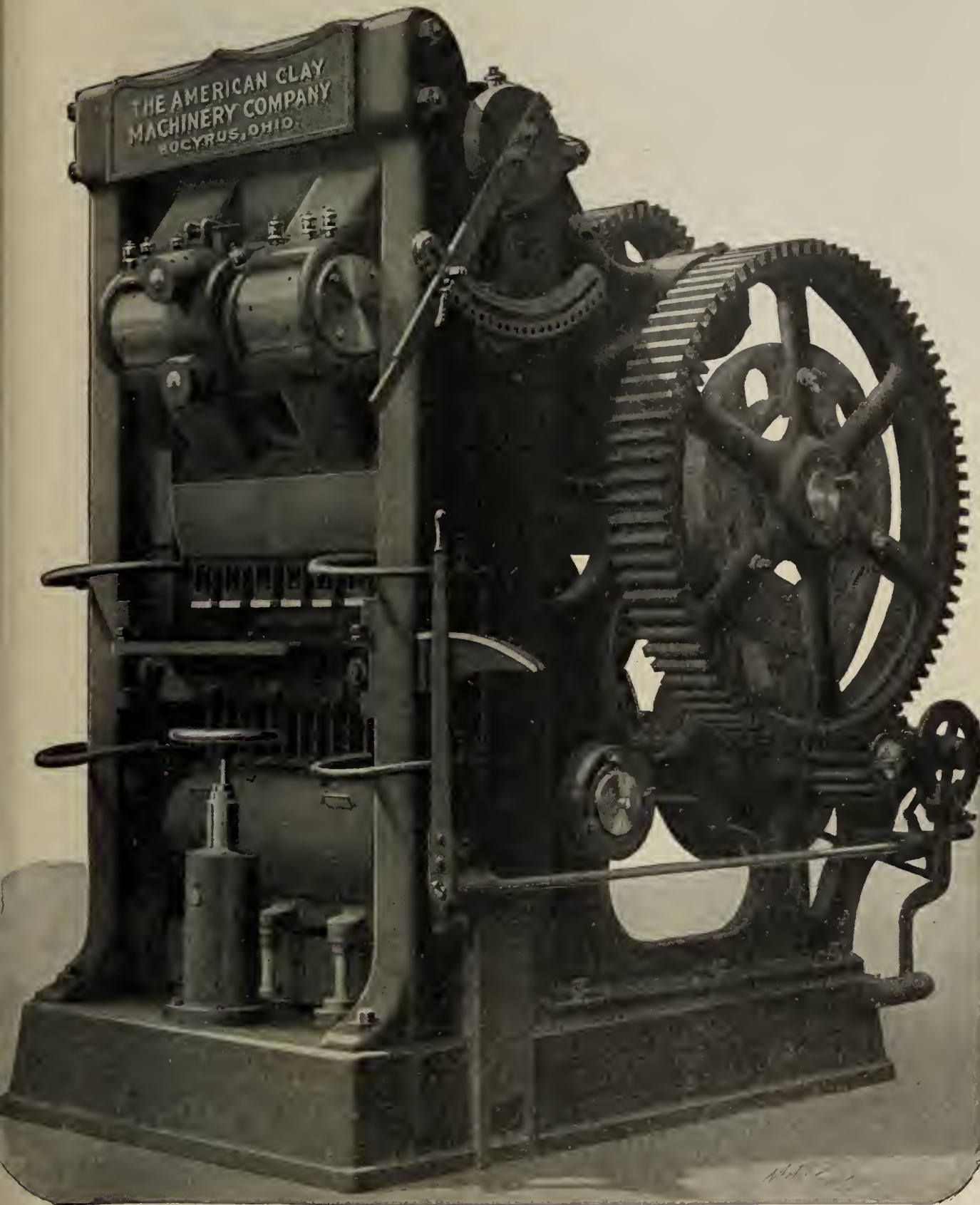
The illustration shown is our No. 515 Six Mold Dry Press.

In this Press we have the highest type of Strength, Durability and Capacity.

Although very heavy and massive in all its parts, nevertheless the 51,500 pounds of iron and other metals entering into its construction, have been so proportionately distributed that none of the details are unnecessarily heavy, all have an ample factor of safety, and all movements are smooth and in good balance.

All shafting and tension bars are made of high grade steel forgings of our own make, and all other parts which sustain the great strains of pressing the brick are of open hearth steel castings.

Full description for the asking.

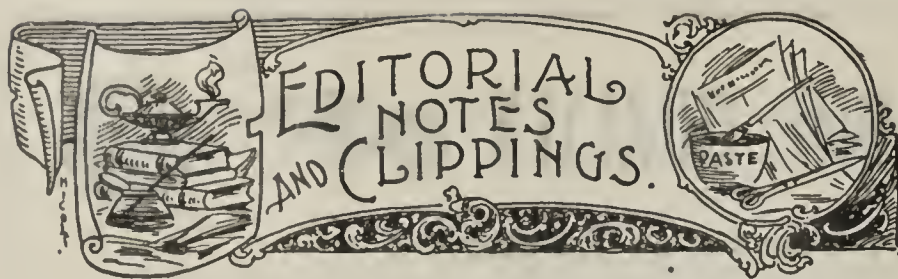


We build every machine and every appliance used in every branch of the Clay Trade. Write for new catalogue.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



J. B. Robinson has sold his brick plant at Mt. Vernon, Iowa, to S. W. DuBois & Son.

M. R. Gustin & Co., Sullivan, Ind., advise us that they are in the market for clayworking machinery.

A good opening is offered both a brick burner and a good machine man by XYZ, whose ad appears in our Wanted columns.

The Villa Park Brick Company, 1371 Meade street, Denver, Colo., is in the market for a dry press brick machine, a dry pan and elevator.

J. V. Swift, 1122 Ogden street, Denver, Col., has completed the organization of a company to establish a plant at Denver for the manufacture of dry press brick.

Bert Neal, an employe of the Sheffield (Iowa) Brick and Tile Company, was instantly killed recently by a charge of dynamite, which was being used to loosen up the clay in the clay bank.

All of the married men employed by the Excelsior Brick Company and the D. Fowler & Son Brick Co., at Haverstraw, N. Y., were presented with turkeys the day before Christmas, which added much to their Christmas cheer.

Robert T. Hall and R. J. Meakin, of East Liverpool, Ohio, have completed plans for the building of a ten-kiln pottery plant at Bartlesville, Okla., where they will manufacture whiteware pottery. They will start the construction of the plant within ninety days.

The McCook Brick Company, of McCook, Neb., has recently been organized. The new company has purchased forty acres of clay land containing extensive shale beds, on which they will erect a plant of 50,000 daily capacity for the manufacture of vitrified brick.

The Champlain Brick Company, of Mechanicville, N. Y., has been awarded the contract to furnish the brick for the new educational building at Albany, N. Y., which calls for 4,000,000 brick. As the full capacity of the yard is 85,000 brick a day, it will take nearly two months to fill the order.

L. D. Morris, superintendent of the Golden Pressed Brick Company, Golden, Col., writes that business is fair with them, although it was dull early in December, owing to a small strike on the part of the bricklayers. Since that was settled, affairs in the brick and building lines have been moving smoothly.

We are pleased to announce the marriage of Mr. T. C. Lundy and Miss Frances McElroy Keane, at Albany, N. Y., December 16. Mr. Lundy is the manager of the Lonsdale Face Brick Company, and an old-time member of the N. B. M. A., and rarely misses a National convention. Our hearty congratulations are extended to the happy couple.

The Rothwell Brick and Manufacturing Company, located at Pooler, Ga., a small town near Savannah, will make a number of improvements in the plant preparatory to increasing the capacity for turning out brick, and also for the purpose of turning out roofing tile, for which their clay seems specially adapted. Ben Rothwell and George G. Baldwin are both actively interested in the plant.

Work on the many improvements at the plant of the Pocatello Pressed Brick and Manufacturing Company, Pocatello, Idaho, decided upon some little time ago, are being pushed to completion without a moment's delay, and when spring comes the plant will have a capacity of 50,000 brick. Gustave Voelcker is in charge of the work. A fine pressed brick office and residence for the superintendent have just been finished.

Webster City, Iowa, is to have a \$175,000 clayworking plant, to be erected the coming spring, for the manufacture of sewer pipe and drain tile. The men interested in the movement are those interested in the Lehigh Clay Products Company, Lehigh, Iowa, and the Portland Sewer Pipe Company, of Portland, Ind. Both of these plants are crowded to their utmost capacity, and it was deemed better to start an en-

tirely new plant, rather than to add to either of the old plants.

One of the employes at the Mason City (Iowa) Brick and Tile Company was caught in a cave-in at the clay bank and crushed to death.

L. L. Ponsler, the proprietor of the Iola (Kans.) Brick Company, has been appointed receiver of the LaHarpe Shale Brick Company of that place. The LaHarpe plant burned down last fall and was never rebuilt.

Encouraged with the success of the sand-lime brick plant at that place, a movement is now on foot to establish a clay tile factory at Fremont, Neb. Mr. Tenbrink is at the head of the enterprise, and he expects to have the plant in operation in the early spring.

Westboro, Mass., is to have a new manufacturing firm, to be known as the Gilmore Brick Company, which is capitalized at \$50,000. Stephen A. Gilmore, of Westboro, is president of the company, with Frank P. O'Connell, of Marlboro, treasurer, and Joseph Pell, of Southboro, secretary.

The Keene Brick Company, of Keene, N. H., has filed articles of incorporation with the Secretary of State. Those interested are: George L. Smith, Ralph D. Smith, Edward L. Gay, Orville E. Cain and John E. Benton, and the company will operate the Appleton-street brickyard at Keene. The capital stock is \$10,000.

The Winfield Pottery and Fire Brick Company has been organized with \$30,000 capital stock, at Winfield, Texas, and officers elected as follows: A. N. Holmes, Winfield, president; S. P. Pounders, Mt. Pleasant, vice-president; J. C. Glass and J. W. Barrett, Winfield, secretary and treasurer, and J. C. Hogue, general manager.

John W. Graham, one of the pioneer brick manufacturers of Illinois, died at his home at South Rock Island, January 12th, after a brief illness. Mr. Graham had been engaged in the brick business since he was fifteen years old, with the exception of four years he served in the army at the time of the Civil War. He is survived by his wife, five daughters and one son.

The Terre Haute Vitrified Brick Company, Terre Haute, Ind., will spend \$75,000 in making a number of improvements at their plant, and installing machinery for increasing the daily capacity. They have just finished the erection of four new kilns and the installation of a steam shovel, and hope to be able to meet the demand for their paving brick the coming season.

Marion W. Blair, of the United States Engineering Company, St. Louis, Mo., son of W. P. Blair, secretary of the National Paving Brick Manufacturers' Association, and Miss Clara Goodman were married in Terre Haute, Ind., November 29th. Their many brickmaking friends will have an opportunity of extending congratulations at Rochester, at the coming convention.

Charles Austin, head burner at the Barber Asphalt Company's paving brick plant, at East Des Moines, Iowa, stepped into an open manhole which leads to a flue carrying away the hot air and gases from the brick kilns, and was severely burned about the legs and body. His accident, while painful, will not prove fatal. He was working about the plant and

(Continued on page 146.)

Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade Missouri semi-flint fire clay.

A large stock of Number One brick and shapes always on hand.

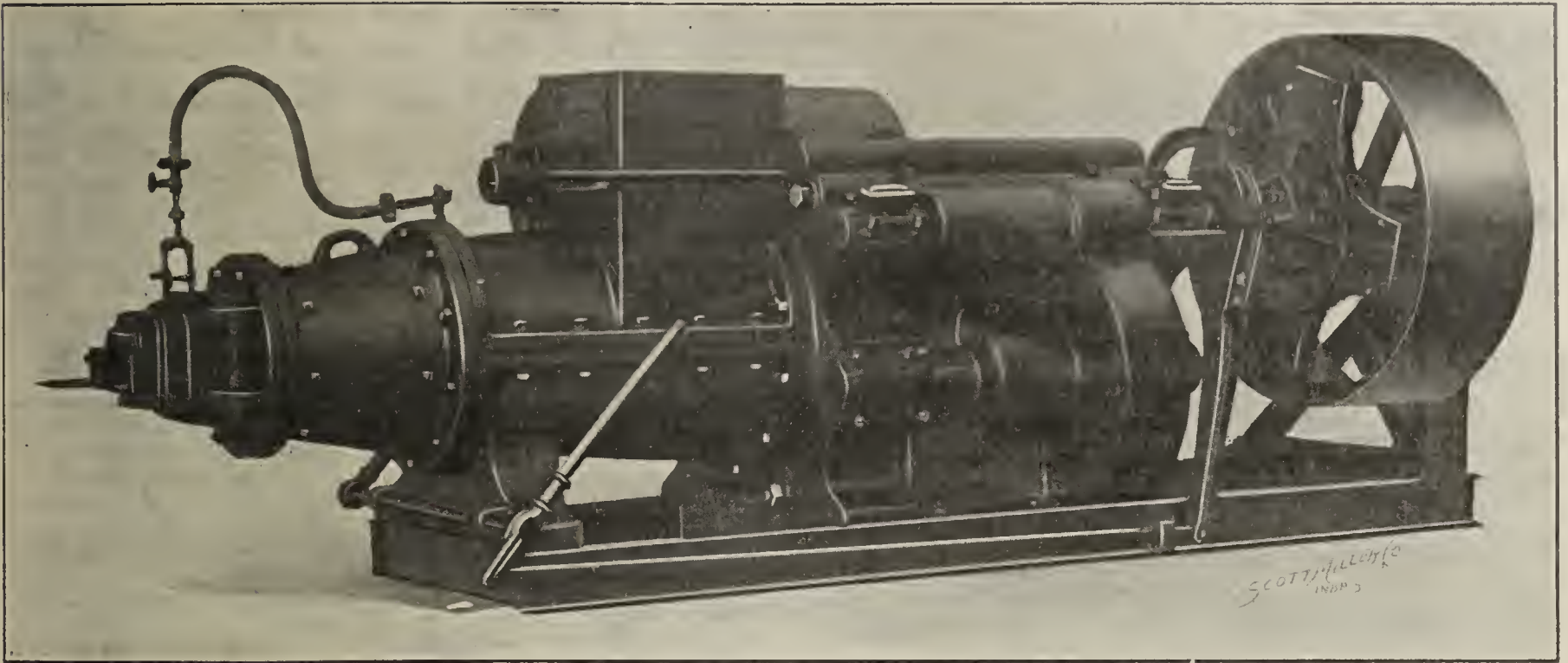
Let us quote you prices and we will save you money.

Samples sent upon request. Address

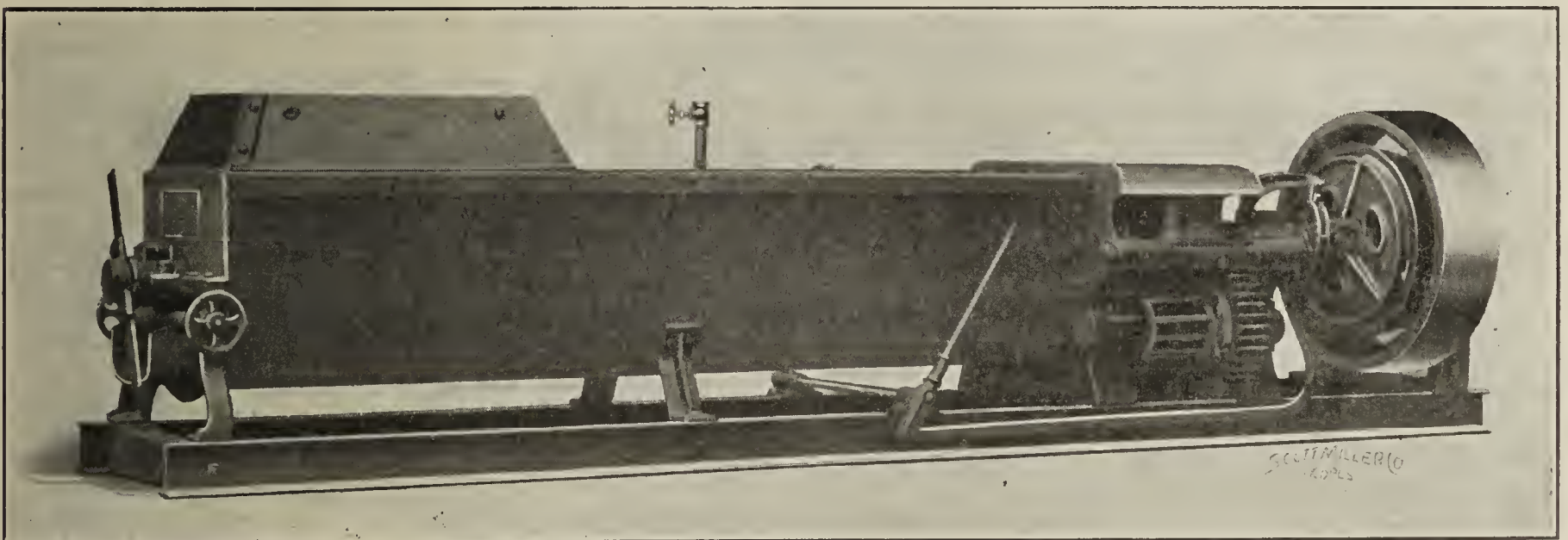
Mexico Brick & Fire Clay Co.

MEXICO, MISSOURI.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

Galion, Ohio.

(Mention The Clay-Worker.)

See Ads on Pages 202 and 203.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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HYDRAULIC-PRESS BRICK COMPANY

MISSOURI TRUST BUILDING

ST. LOUIS

We manufacture all kinds of Brick
known to Modern Brickmaking

IN COLORS

Red, Gray, Buff, Mottled, Pink,
Brown, Flashed and Iron Spot, in
standard Roman *and* Norman sizes

IMPERVIOUS BRICK

Light Gray, Buff, Dark Iron Spots
Also Gray and Buff Iron Spot

ENAMELED BRICK

We fully guarantee our enamel
product. We manufacture all the
desirable colors. American, Eng-
lish, Roman and Norman sizes,
together with special shapes

FACTORIES

THE HYDRAULIC-PRESS BRICK CO.

Home Office and Main Works.....ST. LOUIS, MO.

OFFICE WORKS

"ILLINOIS BRANCH"....Mo. Trust Bldg., St. Louis, Collinsville, Ill.
"KANSAS CITY BRANCH"....Kansas City, Mo. { Kansas City
Diamond, Kan.
Chanute, Kan.
"WASHINGTON BRANCH"....Washington, D. C. Washington, D. C.
"PHILADELPHIA BRANCH"....Philadelphia, Pa. Winslow, N. J.
"CLEVELAND BRANCH"....Cleveland, O. South Park, O.
"ZANESVILLE BRANCH"....Zanesville, O. Roseville, O.
"BRAZIL BRANCH".....Brazil, Ind. Brazil, Ind.
"CHICAGO BRANCH".....Chicago, Ill. Porter, Ind.
MENOMINEE HYDRAULIC-
PRESS BRICK CO.....Minneapolis, Minn. Menomonie, Wis.
"OMAHA BRANCH".....Omaha, Neb. Aversys, Neb.
KELLEY BRICK & TILE CO...Duluth, Minn. Wrenshall, Minn.

SELLING AGENCIES

NEW YORK, N. Y.....Fredenburg & Lounsbury
MILWAUKEE, WIS.....Ricketson & Schwarz
DETROIT, MICH.....Thomas Bros. & Co.
NEW ORLEANS, LA.F. Codman Ford.
MEMPHIS, TENN.....Memphis Brick Supply Co.
CINCINNATI, O.L. H. McCanimon Bros.
INDIANAPOLIS, IND.....Indianapolis Mortar & Fuel Co.
TOLEDO, O.....Toledo Builders' Supply Co.
DALLAS, TEX.....F. H. Dukes
JACKSON, MISS.....Morrison Bros.
CHATTANOOGA, TENN.....Jno. D. Key
BALTIMORE, MD.....Alfred Tyler
SOUTH BEND, IND.....E. A. Morse
WINNIPEG, MAN.....Dunn Bros. & Co.
EVANSVILLE, IND.....E. F. Sonntag Mantel & Tile Co.
NORFOLK, VA.....G. S. Friebus
COLUMBUS, O.....Leroy W. Gaddis
SEATTLE, WASH.....F. T. Crowe & Co.

Mention The Clay-Worker.

EDITORIAL NOTES AND CLIPPINGS—Continued.

his hat blew off. While running after it, he stepped into the manhole and plunged down into the flue.

Brown & Yoke is the name of a firm that will establish a new brickmaking plant at Ft. Smith, Ark. The plant will be up-to-date in every particular.

Elihu Hawley, of Shenandoah, Iowa, has purchased the Blanchard Brick and Tile Company's plant at Blanchard, Iowa. The former owners of the factory will go to Texas.

The New England Brick Company's plant at Rochester, N. H., has just booked an order for 10,000,000 brick, to be used in the construction of the big mills of the Amoskeag Manufacturing Company, of Manchester, N. H.

John S. Goodwin, general manager of the Goodwin Pottery Company, East Liverpool, Ohio, died January 10th after an illness of two months. Both Mr. Goodwin's father and grandfather were in the pottery business. A widow and two children survive.

The plant of the Yoke Vitriified Brick Company at Coffeyville, Kans., which has been shut down for a short time for the purpose of making some changes and improvements in the plant, is now ready to resume operations. F. P. Meyenberg has taken charge as general superintendent.

The Pomona Terra Cotta Company, Pomona, N. C., is building a modern two-press sewer pipe factory. The new factory, which is within a stone's throw of the old plant, will be equipped throughout with machinery from the shops of the Taplin-Rice-Clerkin Co., of Akron, Ohio.

The owners of the Maumee Brick and Tile Company, at Ft. Wayne, Ind., are planning to enlarge the capacity of the plant to 60,000 brick per day, in order to enable them to meet the increasing demand for their product. They will make the changes so as to be ready for steady operation the coming summer.

The Clay Products Company, Brazil, Ind., recently closed a contract with the Government to furnish immense quantities of conduits to be used in the construction of the Panama Canal. This company has enjoyed a very busy season; among orders recently filled was a trainload of conduits for Winnipeg, Manitoba.

F. N. Kondolf has tendered his resignation as president of the American Sewer Pipe Company, New York City, to take effect February 1st, at which time George B. Hill, the vice-president, will be made president. While the business of the company for 1908 was not quite up to that of 1907, the prospects are good for an unusually large business the coming year.

The Warren B. Ferris Brick Company, of Columbus, Ohio, has been incorporated with \$60,000 capital stock by Warren B. Ferris, Robert E. Kelly, Fred C. Lafountain, Harry H. Wilson and Edna H. Ferris. The company will handle the brick business which has been conducted from offices in the Columbus Savings and Trust building by Warren B. Ferris, and will sell the products of several large brick plants in the Hocking Valley.

The immense clayworking plant of Wm. E. Dee, at Newport, Ind., was almost totally destroyed by fire early in the morning of December 18, which, as nearly as can be ascertained, started in the drying sheds. The loss is estimated at about \$50,000, which is partly covered by insurance. The plant will in all probability be rebuilt at once, as they were crowded with orders and had been working overtime. The plant is owned by Wm. E. Dee, of Chicago.

The Clinton Paving Brick Company, of Clinton, Ind., held its fifteenth annual meeting January 18, 1909, and elected directors as follows: W. L. Morey, H. C. Dies, B. H. Morgan, W. C. Wright and J. W. Robb. The board then elected officers as follows: W. L. Morey, president; J. W. Robb, secretary-manager, and H. C. Dies, treasurer. The business of the year showed fairly satisfactory results, and the usual dividend was declared.

Wm. E. Turner, one of the best-known residents of Rochester, N. H., died Christmas day, after an illness of nearly four months. Mr. Turner was treasurer, manager and one of the principal owners of the Kiesel Fire Brick Company of Rochester, of which he became manager about twenty years ago. He was born in New Haven, Conn., sixty-three years ago, and had always worked at the clay industry, and was considered

one of the most expert men in the country. A wife and three children survive.

Chestnutt & Dougherty are building another large kiln at their pottery at Eufaula, Ala., in order to supply the increased demand for their ware.

Theo. Bainter, a workman at the Platt Press and Fire Brick Company's plant at Van Meter, Iowa, was killed recently while working in the clay pit. A large piece of frozen earth hit him on the head and death ensued instantly.

The Murphysboro Paving Brick Company, of Murphysboro, Ill., has been incorporated to manufacture shale and clay products. The incorporators are: W. H. Hill, H. H. Jenkins and H. C. Barnard, and the capital stock is \$100,000.

The Inter-State Brick Company, Youngstown, Ohio, has been organized with the following officers: President, W. L. Kauffman; vice-president, William McIntosh; secretary and treasurer, M. S. Logan. The company will establish a brick plant at Hillsville, Pa.

The Red River Valley Brick Company, of Grand Forks, N. D., contemplate taking over a brick plant which has recently been started at Ft. Frances, just across the river from Grand Forks, in Canada. It is possible they will also establish a plant at International Falls, just over the border line in Canada.

A charter has been granted the Royal Brick Company at Connellsville, Pa. The company is capitalized at \$75,000. The incorporators and directors of the new firm are: F. M. Richey, Jr., Pennsville; E. L. Sherrick, Connellsville; Thomas Jones, Mt. Pleasant; J. M. Miller, Pennsville; C. O. LaClair, Uniontown; E. P. Richey, Connellsville, and George W. Hatfield, Connellsville.

Nate Hazen, superintendent of the Omaha Hydraulic Press Brick Company's plant at Lincoln, Neb., was struck by a freight train recently and badly injured. Mr. Hazen was walking up the track and did not see the approaching train, as it had two box cars ahead of the engine, which hid the headlight. Being deaf, he did not hear the train and when

(Continued on page 148.)



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SOMETHING NEW!

The Greatest Money-Saver
Ever Introduced on a
Brick Plant.

Use the McKissick Brick and Tile Kiln Steam Boiler

And Get the Full Heat Value
of Your Fuel.

Write for particulars or see our repre-
sentative at the National
Convention.

W.L. MCKISSICK & CO.,

Carlisle, Iowa.

EDITORIAL NOTES AND CLIPPINGS—Continued.

he saw the cars he leaped from the track, but the cars struck him and threw him to the side, rendering him unconscious.

Donaker & Hammen have purchased the machinery for their new plant at Jolley, Iowa. They do not expect to operate the plant until early in the spring.

The Western Pressed Brick Company has been incorporated to manufacture brick at Cincinnati, Ohio, by E. L. Kennedy, A. H. Bade, Jr., F. L. Hoffman, R. A. LeBlond and C. C. Hearn. The company is capitalized at \$60,000.

Amos W. Osborn, superintendent of the Adamant Brick Company, of Boulder, Col., died at his home, December 23, after a protracted illness. Mr. Osborn was eighty years old, and was the pioneer brickmaker of Colorado, having engaged in the brick business in Denver in 1882.

The Rose Brick Company at Roseton, N. Y., is installing electric mechanical devices for carrying the clay from the banks to the pits. This will do away with fully 100 horses and carts and an equal number of men. It is estimated the installation of this machinery will cost the company \$18,000, but will effect a saving of \$12,000 the first season. The horses are to be sold at public auction in Newburgh in the near future.

The plant of the Denton Pressed Brick Company at Denton, Texas, was damaged to the extent of \$10,000 by fire the latter part of December. The company carried a small insurance which will not begin to cover the loss. Originating in the machine room, the flames destroyed the machinery building, badly damaged the boilers and other machinery and spread to the drying sheds. The drying sheds are a total loss.

The Toledo Hollow Brick and Tile Company, whose plant is located at Curtis, Ohio, has declared a 15 per cent. dividend. Most of the stockholders are from Toledo, where the main office of the company is located. The company turned out 300,000,000 feet of drain tile last year. Herman Bunte, of Toledo, is president; W. P. Ackerman, Curtis, vice-presi-

dent; Charles Yost, Curtis, secretary, and Charles Dunn, Curtis, treasurer of the company.

The Central Georgia Brick Company has been incorporated at Macon, Ga., with \$25,000 capital stock. J. B. Hart is the president of the concern.

The Excelsior Granite Brick Company, of Michigan City, Ind., recently closed a contract with the American Clay Machinery Company, Bucyrus, Ohio, for the complete equipment of their new factory for the manufacture of sand-lime brick.

Early in the morning of January 4, fire broke out in the brick and tile factory of S. S. Gleason, at Edgewood, Iowa, and before the flames could be controlled the entire plant was destroyed. The loss is placed at \$5,000, which is partly covered by insurance. The fire is supposed to have started from an overheated kiln.

PUTTING NEWS INTO THE WRITE-UP.

"In the best journals the so-called write-up has been placed upon a relatively high plane. This has been made possible by such absolute independence of the editorial and the advertising departments that articles of merit may be described regardless of the fact that their manufacturers are not advertisers in the particular paper. This condition opens the way for much more legitimate technical publicity than is secured by the average advertiser. If he will but understand the editor's attitude, he will see that description of his particular product or system is withheld or given solely upon the basis of its novelty or its relation to the field covered by the given journal. If he has something really new it will be described. If he has acquired the art of making news out of the facts that others neglect, he may frequently find his name in print, with at least indirect benefit to his business."

—From a recent article by Walter B. Snow, Publicity Engineer, Boston, Mass.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE—One right-hand disc fan complete with shafting and bearings. Address ILLINOIS, 1 1 dm Care Clay-Worker.

FOR SALE—Raymond board delivery cutting table and Williams pulverizer; in good condition. Address NEWBERG BRICK AND TILE CO., 1 1 d Newberg, Ore.

WANTED. Brick setters and brick tossers, work the year round. Setters paid \$2.50 per day and tossers \$2.25. Address BURKE BRICK CO., 1 2 d Ft. Smith, Ark.

ATTENTION—BRICKMAKERS. I will share my invention with a pottery or party desiring to invest in manufacture of a household necessity; burnt, porous. N. J. VOITA, 1 1 cm New Prague, Minn.

FOR SALE—\$50 each will buy two Ohio Ceramic 1½-yard steel shale dump cars, used only two weeks and replaced on account of steam shovel; heavier service. Address "DICK," 1 2 d Care Clay-Worker.

WANTED—Position as superintendent of a stiff mud or dry press brick plant. Good references. Address H. B. W., 1 1 cm Care Clay-Worker.

WANTED—To buy or lease a brick plant having shale or fire clay, raw material and round down-draft kilns. Address LOCK BOX 743, 1 tf dm Uhrichsville, Ohio.

FOR SALE—One H. Brewer eight-mold machine; all gears and bearings in fine condition. Does not need anything but replacing of mold wheel. Price, \$150. Address A. F. LYTCH, 1 1 cm Laurinburg, N. C.

FOR SALE. Brickyard in Southern New Jersey. Going plant; good condition; capacity, 80,000 per week. Convenient to Philadelphia and New York markets. Address C. F. E., 1 1 cm Care Clay-Worker.

WANTED—A thoroughly practical dry press man to manage a dry press brick plant. Fine clay and good market. Prefer man who wants a working interest and permanent job. Address S. W. BURNHAM, 1 2 dm Lincoln, Neb.

FOR SALE—Brick manufacturing plant in New Jersey. Capacity, 10,000,000. Machinery and buildings in good order. Ninety acres clay and sand. The best of shipping facilities. For particulars and terms, address BOX 153, 1 2 c Matawan, N. J.

FOR SALE—Four-mold Boyd and Simpson dry press. Three-mold Boyd and Andrus dry press. Two-mold Boyd, Whitaker and U. S. dry press. Forty sand-lime brick cars. Address B-K BRICK CO., 1 1 c Denver, Col.

FOR RENT OR SALE—Brickyard, 30,000 capacity; modern machinery; abundance cheap fuel; good shipping facilities. Owner not a brickmaker, having other interests. Address J. H. THOMPSON, 1 1 pm Eland, Wis.

FOR SALE. One two-mold Simpson dry press machine. One three-mold Andrus dry press machine. One E. M. Freese & Co.'s board delivery cutting table. DUNLAP MFG. CO., 1 tf L Bloomington, Ill.

WANTED—Position as superintendent of stiff or soft mud brick plant. Machinist by trade. Can burn with coal or wood and successfully construct and operate all details, having had fifteen years' experience. Best of references. Position east of Ohio preferred. Address "HARRY," 1 1 cm Care Clay-Worker.

FOR SALE—Brick plant at Aberdeen, S. D. Inhabitants, 10,000. Will sell for \$5,500, part cash. New machinery, ten acres clay. Only yard. Product sells for \$9.00 to \$12.00 at yard. Am dentist and must sell immediately. Address DR. W. E. FISH, 1 1 1pm Anita, Iowa.

FOR SALE.

One Hercules mud machine.
One mold sander.
Three mule brick trucks and a lot of six-brick pallets.
Address J. C.,
1 3 dm Care Clay-Worker.

FOR SALE—One 9-foot dry pan, made by the American Clay Machinery Company. This pan is as good as new, having been in use only about sixty days. Write for price to
THE ALPENA PORTLAND CEMENT CO.,
1 1 dm Alpena, Mich.

FOR SALE OR WILL TAKE PARTNER.
Soft mud brick plant; Martin machine, rack pipe steam dryer. Capacity, 30,000. Plenty of clay and on railroad. But a few years old, and only yard in growing city of 40,000 population in Northern Ohio. Address L. B. CO.,
1 1 cm Care Clay-Worker.

WANTED.

To hear from face brick manufacturers making light colored stiff mud brick within 200 miles of New York, Chicago and St. Louis, who would be in position to contract to furnish a half million to a million brick in 1909. Address FACE BRICK,
1 3 d Care Clay-Worker.

FOR SALE.

One of the best-equipped brick and tile factories in Central Iowa, doing good business. Side track in yard, good tributary territory, close to fuel. Everything modern and up-to-date, with Freese and Brewer machinery. Quality of ware the best. Reason for selling, owners have other business interests demanding their attention. Address "M. & K.,"
1 2 cm Care Clay-Worker.

WANTED—Position as manager or superintendent with an up-to-date brick firm. Know the business thoroughly. Best of references can be given. Address J. F. C.,
1 1 c Care Clay-Worker.

WANTED.

An experienced and thoroughly competent superintendent and manager for a modern, thoroughly equipped, 40,000 capacity stiff mud brick plant. Only men who have proven successful need apply. State fully with application age, experience and references from last employer.
"NEBRASKA,"
1 2 dm Care Clay-Worker.

WANTED—POSITION.

By a successful brickyard superintendent, thoroughly experienced in manufacture of high-grade dry press and stiff mud face, common and paving brick in large quantities. Can reduce costs and improve quality. A high-grade man; twenty years' record open for review. Address "QUALITY,"
1 1 c Care Clay-Worker.

FOR SALE.

One Standard "T" all iron and steel 9-foot dry pan, with bottom unloading device; one improved Acme auger machine, hourly capacity two to three thousand brick; three hollow block dies, respectively 8x8, 5x8, and 5x4; one Standard No. 3, Style "F" pug mill, and one No. 8 down-cutting board delivery table; one piano wire screen, Adams patent; one No. 1 agitating clay feeder; 26 feet of 2x15x16 steel shafting complete with journals; four all iron pulleys, 76x16x2 15-16, 32x8x2 15-16, 26x12x 2 15-16, and 28x8x2 15-16. Entire outfit is the make of the American Clay Machinery Company. Practically new; have made but 250,000 brick, and must make room for a large equipment. Will sell all cheap. Address
POCATELLO PRESSED BRICK AND
MFG. CO., LTD.,
12 2 d Pocatello, Idaho.

WANTED—Position by a graduate of ceramic course of college in glaze or any department. Can make chemical analysis of silicates. Address HOWARD,
1 1 cm Care Clay-Worker.

FOR SALE OR LEASE.

Good soft mud brick plant in an Indiana city of 10,000. Capacity, 25,000. Will be sold at a bargain on easy terms. Good reason for selling. Address 5-C,
1 3 cm Care Clay-Worker

WANTED—An assistant burner; must be reliable and competent. Stiff mud process; open top kilns. Healthy location in Central North Carolina. State wages expected and give references. Address J. & J.,
1 1 dm Care Clay-Worker.

WANTED—POSITION.

A party at present employed desires a position as superintendent or head burner. Am thoroughly familiar with all kinds of dry clay, press and down-draft kiln propositions. Have first-class testimonials. Address "J. J. K.,"
1 tf d Care Clay-Worker.

FOR SALE—CHEAP.

One Potts brick machine, capacity 50,000 daily; complete, with disintegrator rolls. One sander, one turn table, one sand dryer. Two thousand brick pallets. One 90-foot elevator, pulleys, shafting and a complete outfit for brickmaking. Address
"FRANKFORT,"
1 1 dm Care Clay-Worker.

FOR SALE.

Modern tile factory in Southern Wisconsin. Established in 1886. Demand for capacity business at good prices. Good chance for practical man with from \$3,000 to \$6,000 capital. Will sell half interest or whole. P. O. BOX "A,"
1 1 lpm Elkhorn, Wis.

FOR SALE—Some second-hand machinery, consisting of one 80 h. p. boiler, one 80 h. p. engine, one No. 3 Adrian stiff mud machine and cutting table, one Potts disintegrator, and one No. 2 hand repress. Will sell all or in part. Address LOUIS,
1 1 cm Care Clay-Worker.

FOR SALE.

One kiln tile plant, ready for operation. Drying building 30x175 feet, two stories high. Slate roof. Fine and ample clay. Excellent market. Machinery in good condition. Eight miles from Toledo. Price, \$4,000. For further particulars, address D. E. CHILD,
1 1 cm Findlay, Ohio.

DRY PRESS BRICK PLANT TO LEASE.

On account of death of owner, an up-to-date plant, with a capacity of 30,000 per day, will be leased on exceptionally liberal terms. Clay is brought to plant by an aerial twin rope tramway, operated by gravity and rail. Plant opposite growing city of over 25,000. References as to experience and financial ability required. Address "W. Va.,"
1 1 cm Care Clay-Worker.

FOR SALE.

One Raymond No. 777 auger brick machine, with side-cut die. One No. 2 rotary automatic cutting table, with extra set of platens and 25-foot carrier belt. One Victor repress with extra set of molds. One No. 10 Cyclone disintegrator. All in good condition; used but one year. Will be sold cheap, owing to entire change of system. Address
MOUNTVILLE BRICK CO.,
1 1 cm Mountville, Pa.

Continued on page 152.

FOR SALE.

Modern Brick Plant.

Favorably located for Chicago, Indianapolis and Cincinnati markets; capacity 50,000 per day, with inexhaustible bed of red and buff shale for finest face, building and paving brick; ample coal mined from the same premises. Death of manager prompts owners, otherwise occupied, to offer this property for sale at sacrifice. For particulars address

J. B. CORLISS,
Detroit, Mich.

1 1 cm

ON THE BARGAIN COUNTER

FOR QUICK BUYER.

A Chambers No. 5 End-cut Auger Brick Machine, capacity 40,000 daily. Has Automatic Sander, End Cutter, Automatic Edger, with 16 ft. delivery frame. Our customers purchased a large Chambers End-cut Machine and we took the smaller one in trade. Machine can be seen and shipped from the brick works of L. J. Haskins, Sergeant Bluffs, Iowa. Apply to

CHAMBERS BROTHERS COMPANY,

Fifty-second and Media St.,
Philadelphia, Pa.

59 West Jackson Blvd.,
Chicago, Ill.

WANTED—A competent man to superintend a new paving brick plant. One able to make a small investment preferred. Address BOX 815, 12 3 dm Care Clay-Worker.

FOR SALE—One No. 10 Chambers latest improved machine with extra attachments. One Bensing side-cut cutter. Reason for selling, changing from stiff mud to soft mud. Address

THE KING ENGINEERING CO.,
12 L. tf Richmond, Va.

FOR SALE—Second-hand machinery cheap, including 25-ton Ref. Wolf ice machine. Chambers brick machines, pug mills, drying cars, repress, line shafting, boilers, engines, fan pumps, feed water heater, electric locomotive, etc. Address

ANTHONY & BUCHANAN,
11 6 cm Kewanee, Ill.

FOR SALE.

A rare opportunity to purchase an established brick business or an interest in same. One of the latest improved brick manufacturing plants in the State. Located near Philadelphia. Shipping facilities to all points. Address PENN, 12 3 c Care Clay-Worker.

WANTED.

A first-class, expert pressed brickmaker, who can buy stock, to correspond with us about taking charge of our plant. Would sell entire plant outright. No brick made within 100 miles. Address

Secretary Chamber of Commerce,
12 2 cm Room 1221, Astoria, Ore.

FOR SALE—One Leader Manufacturing Company brick machine, one Kells machine, one Big Wonder, and one Quaker. All in good running order. Also three engines and three boilers. Each from 40 to 50 h. p., which I desire to sell outright or trade for engines of more horse power. For full information, address D. P., 12 6 cm Care Clay-Worker.

BRICK PLANT FOR SALE OR LEASE.

Good clay, on railroad in rapidly growing southern town of 25,000 population. Success soft mud machine, Standard steam dryer; also racks, engine, two boilers, hoisting engine and incline, commissary, clay cars, and small equipment. Owner is civil engineer, and has not time to run the plant. Reasonable terms. Address

WALTER G. KIRKPATRICK,
12 3 cm Jackson, Miss.

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.

Throttling—18x26 H., S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.

Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.

Vertical—55, 35, 30, 20 and 15 horse power, etc., etc. Pumps, heaters, tanks saw mills and general machinery.

THE RANDLE MACHINERY CO.,
1735 Powers st.,
1 tf d Cincinnati, Ohio.

FOR SALE.

A modern, vitrified paving brick plant situated in central part of Ohio, with unlimited supply of shale and local coal. Plant contains 22 down-draft kilns and has a daily capacity of between 50,000 and 60,000 paving block. Unequaled railroad facilities for shipping. An excellent opportunity for a practical brick manufacturer.

We have acquired this plant in the course of business, and as we are not practical brickmakers we wish to dispose of same. For particulars apply to

R. B. PARSONS,
1 3 cm Room No. 2, Temple Court, Cincinnati, Ohio.

A FINE BRICK PLANT IN CALIFORNIA.

I have 176 acres of very fertile land on the Sacramento river, the only clay that makes good brick in this vicinity, with sufficient wood to burn several million brick. Brick bring a wholesale price of \$11.50, retail \$15.00. I want a good practical brickmaker with \$10,000 to buy half interest, or will sell entire for \$18,000; one-third cash, balance as you can make it. Country is growing and progressive.

Address D. MADIGAN,
12 6 cm Chico, Butte Co., Cal.

J. B. & I. L. HAMMOND,

Specialists in All Kinds of Brick and in All Phases of the Brick Business.

Properties examined, physical and chemical tests of materials made. Practical opinions given as to the adaptability of materials. Estimates made on new plants and remodeling old ones, and class of machinery and kilns best suited to conditions. Practical suggestions as to improvement of quality and workmanship of product. Thorough knowledge of markets. Trade for product developed. If you are in need of treatment, let us prescribe for you. More than twenty years' practical experience and a good knowledge of conditions throughout the continent. An able and competent corps of specialists on our staff.

J. B. & I. L. HAMMOND,
Specialists in the Brick Making Industry, Bolivar, Pa.

Sand-Lime Brick Plant at a Bargain.

We have for sale and immediate delivery a plant completely equipped for the manufacture of sand-lime brick. We will sell the entire plant or the different machines separately, as may be desired. The principal items in the plant consist of the following:

- One 16-inch by 32-inch right-hand Nordberg heavy duty Corliss Engine, 10-foot by 21-inch wheel.
- One 138 h. p. Aultman & Taylor horizontal water tube boiler, 140-pound steam pressure.
- One 125 h. p. 72-inch by 16-foot return tubular boiler, 140-pound steam pressure.
- One 5¼x3½x5 Gardner duplex pump.
- One 150 h. p. closed feed water heater.
- Four 6½-foot diameter by 40-foot long steel plate dryer cylinders, equipped with car track, 38-inch gauge.
- Four 6½-foot by 78-foot steel plate dryer cylinders, equipped with car track, 38-inch gauge.
- One hundred and twenty small brick cars with flat steel plate tops, 38-inch gauge.
- One brick press, made by the American Sandstone Brick Machinery Company.
- One brick press, made by the American Clayworking Machinery Company.
- One Berg brick press, made by the Anderson Foundry and Machine Company.
- Two sand mixers, receiving basins 6 feet 6 inches in diameter.
- One sand mixer, receiving basin 4 feet in diameter.
- One Kent mill, made by the Kent Mill Company, New York City.
- One set of beam scales.
- One large steel plate hopper or tank, 8½ feet square.
- One Taylor centripact screen.
- One incline belt conveyor and elevating apparatus, used for unloading sand from barges or cars.

Also miscellaneous lot of shafting, hangers, pulleys, piping and some other small apparatus required for the complete plant. This plant being located in New York City, can be inspected by appointment with our New York office. Prices will be quoted on application.

WICKES BROTHERS,
West and Cedar Streets, New York City.

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use

Cutting Wires For Brick Machines

CHAMBERS BROS.' CO., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

WE KNEW OF THE RECENT HARD TIMES THROUGH HEARSAY ONLY.

WE WERE BUSY **ALL** THE TIME building our **IMPROVED FLUE SYSTEM KILNS**

and installing our patent flues in old kilns that were not doing as they should. We invite correspondence with those contemplating new kilns, and with those whose old kilns are not giving best results.

Absolute Draft Control. Fuel and Time Economy.

Kiln and Yard Rights, with Plans, Specifications, License, etc., sold at very reasonable rates. Booklet and full information cheerfully furnished.
Address

GEO. E. SNOWDEN & CO., New Cumberland, W. Va.

White Pine Pallets

For Brick, Roofing Tile, And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Schuette, Parker & Co.,

Saginaw, Mich.

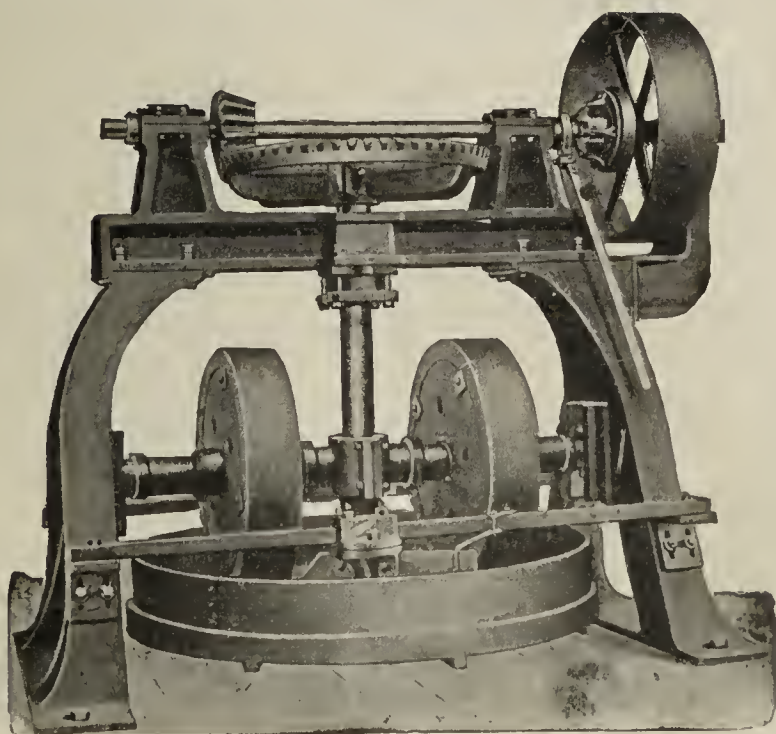
PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



FOR SALE.

Owing to the inability of the stockholders of the Superior Brick Company, Lima, Ohio, to act in unison, I offer for sale a complete, well-equipped brick and tile plant. The price is \$30,000—no more, no less. The sixteen acres on which this plant is located is within the corporation of Lima, the "live wire" town of the United States. This land alone has had a value placed on it—by two brick people of twenty-five years' experience, not interested in the company—of \$30,000. This land averages 6 feet of clay. The buildings, machinery, kilns, etc., cost over \$18,000, and everything is in first-class condition. If you don't mean business, don't write or call.

WM. F. NUMAN,
Lima, Ohio.

1 1 cm

WANTED — Position as superintendent.

Hold such a position now with a large brick plant, but want change. Can handle men and make the brick. No. 1 references.

Address **PORTER,**
1 1 cm Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address **FRANK P. CLEVELAND,**

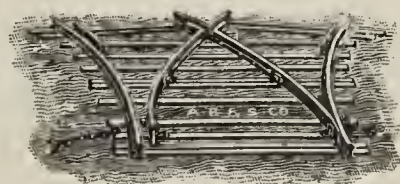
965 Adams Express bldg.,
11 tf d Chicago, Ill.

FOR SALE.

6 "Little Giant" Traction Shovels.
Dredges for Clay Swamp ½ yd. to 2½ yd.
Locomotives, cars and rails for up-to-date clayworkers.

We buy and sell.

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

WANTED.

Good experienced brick burner. One who has had long experience in burning paving blocks, dry press and common building brick. Also a machine man to operate stiff mud machine. Capacity of plant two hundred thousand per day. Must give references, age, experience, etc. None but sober and capable men need apply. First-class jobs to the right parties. Address **XYZ,**

1 1 d Care Clay-Worker.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
11 tf d Zanesville, Ohio.

See additional ads under Table of Contents.

MANGANESE
FOR ALL USES.
LUMP, GRAIN AND GROUND
60-70% 70-80% 80-90% OXIDE.
CLAY WORKERS GOODS A SPECIALTY.
SAMPLES AND PRICES ON INQUIRY.
METALLIC ALLOYS CO.
99 JOHN ST NEW YORK, N.Y.
SUCCESSORS TO KENDALL & FLICK.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

Terms	First-class
reasonable.	references.

If you have trouble with Clay, Machinery or Kilns, then consult

THE BRICKMAKERS' ADVISOR,
Julius J. Koch,
(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.

*The Anton Vogt
Down Draft Kiln*

and the

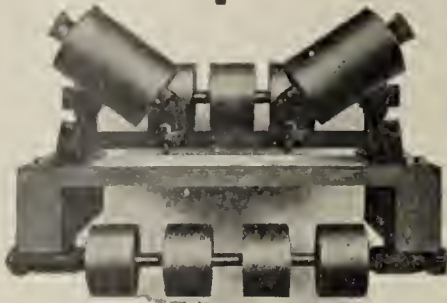
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,
Elgin, Texas.

Improved Belt Conveyors



For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and dust-proof. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

H. W. Caldwell & Son Co.

Western Ave., 17th-18th Sts., CHICAGO.

Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

CHICAGO RETORT AND FIRE BRICK CO.

Fire Brick for Building Kilns.

Factories:
CHICAGO, ILL.
Brickton No. 1 }
Brickton No. 2 } Ottawa, Ill.

General Office:
45th St., Clark to LaSalle Sts.
CHICAGO, ILL.
Phone Yards 525.

Evans & Howard Fire Brick Co.

ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

5627 Manchester Avenue.

ST. LOUIS, MO.

\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

THE WEBB WIRE WORKS

MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE
NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.

TAPLIN, RICE & CO., AKRON, OHIO.

Sewer Pipe and Clay-Working Machinery.

ESTABLISHED 1862.

The Department of
Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.

W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

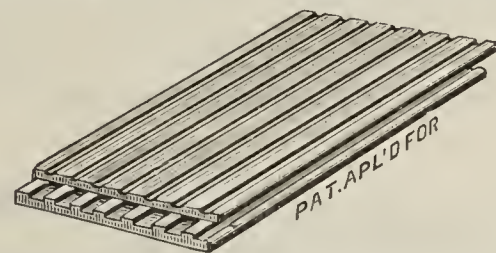
This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address

PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering,
Columbus, Ohio.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

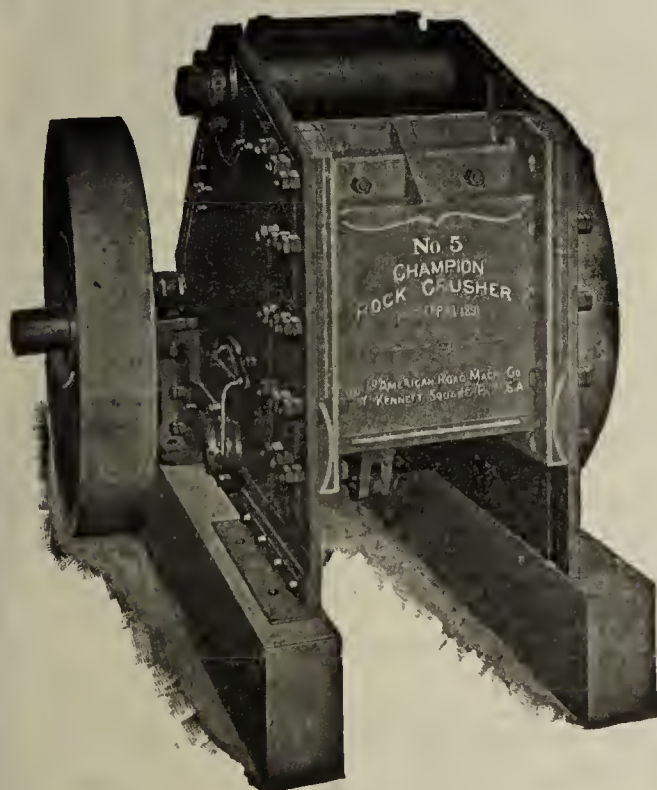
Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,

2935 Clark Avenue.

St. Louis, Mo.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do with-
out, because it saves you
money.

Catalogue is free on application. Address

AMERICAN
ROAD MACHINE CO.

KENNETT SQUARE, PA.

G. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,
Red, Brown, Buff, Black.**

Clinton Metallic Paint Co.,
CLINTON, N. Y.

Largest and Oldest Manufacturers
of
Brick and Mortar

COLORING

Be sure you get the genuine with the
"Little Yellow Side-Label"
on each package.

Let us tell you about Side-Walk Black.

GABRIEL & SCHALL

P. O. Box 1712. 205 Pearl Street.
NEW YORK.

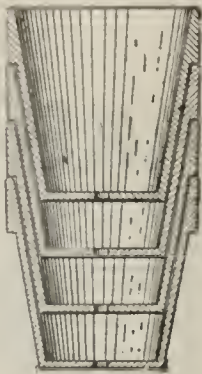
Sole Importers in the United States of the

Precipitated  **Carbonate
of Barites**

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine (PATENTED.)

No expert workmen required.

Capacity in 10 hours:

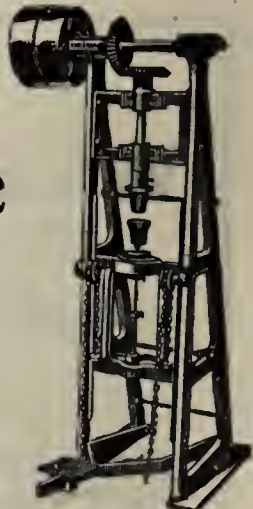
6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

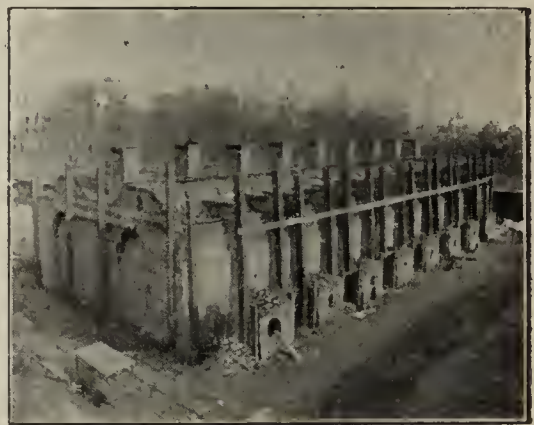
Some Claims Made for the Dennis Double Cham-
ber Down Draft Brick Kilns.

Some New Features About This Kiln.

No duck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.

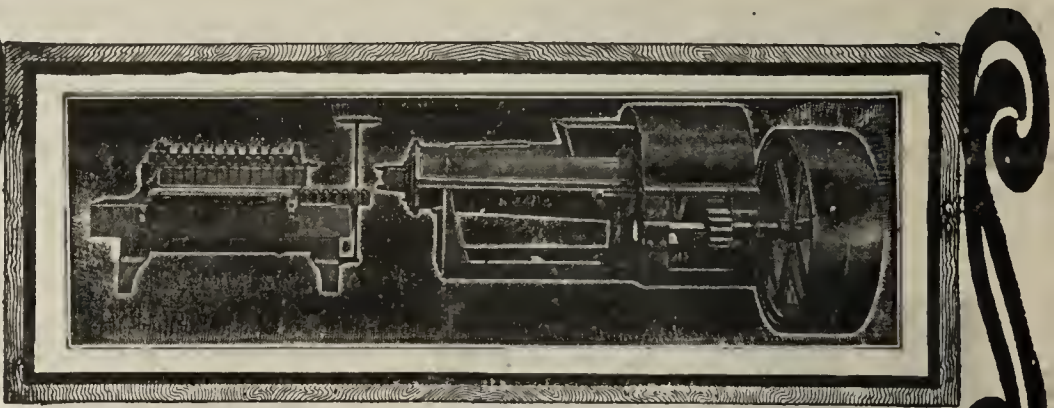


Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

145 Water St.,
NORFOLK, VA.



THE PIONEER.

Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

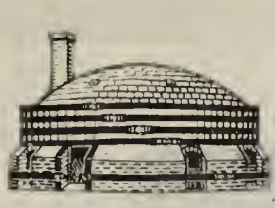
of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.



The Best and Cheapest
BAND LUG
on the market.
Write us for price.



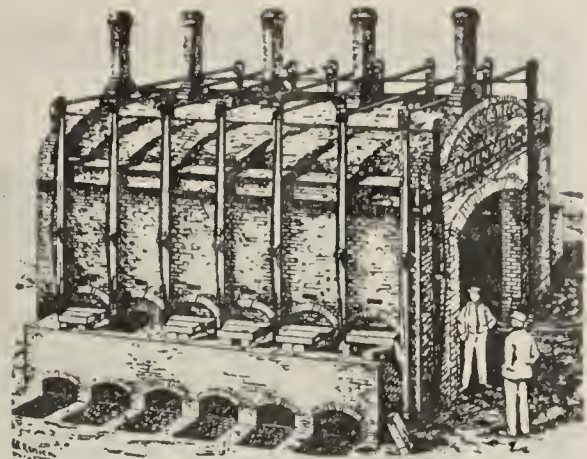
E. C. TECKTONIUS MFG. CO., Racine, Wis.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.**

MINERS AND GRINDERS.



The Yates Patent Down-draft Kiln.
Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.

ALFRED YATES,
SHAWMUT, PA.

CHOOSE WISELY...

when you buy a SEWING MACHINE. You'll find all sorts and kinds at corresponding prices. But if you want a reputable serviceable Machine, then take the



. WHITE .

27 years experience has enabled us to bring out a HANDSOME, SYMMETRICAL and WELL-BUILT PRODUCT, combining in its make-up all the good points found on high grade machines and others that are exclusively WHITE—for instance, our *TENSION INDICATOR*, a device that shows the tension at a glance, and we have others that appeal to careful buyers. All Drop Heads have Automatic Lift and beautiful Swell Front, Golden Oak Workwork. Vibrator and Rotary Shuttle Styles.

OUR ELEGANT H. T. CATALOGUES GIVE FULL PARTICULARS, FREE.
WHITE SEWING MACHINE CO. CLEVELAND, O.



If...

**You Want
to Sell
or Buy...**

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

**If...
You Want
a Man**

for any position or a position in any connection with the Clayworking Trades use the

**For Sale
and Want
Columns
of...**

**The...
Clay-Worker.**

RATES

For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

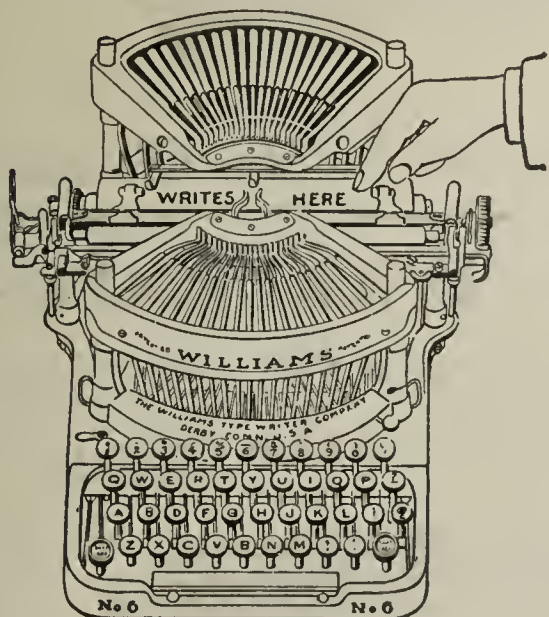
**The Best, Quickest, Cheapest
Method of Securing Results.**

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

**New
Number
Six
Visible
Writer**



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.



DAVENPORT LOCOMOTIVES

for

CLAY HAULAGE

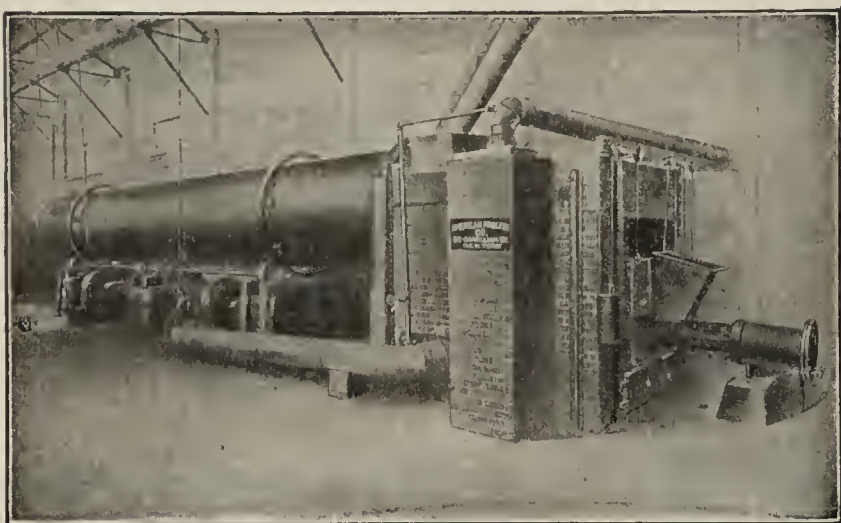
Small Size

Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars

Davenport Locomotive Works,
Davenport, Iowa.



Automatic Improved DRYERS

ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

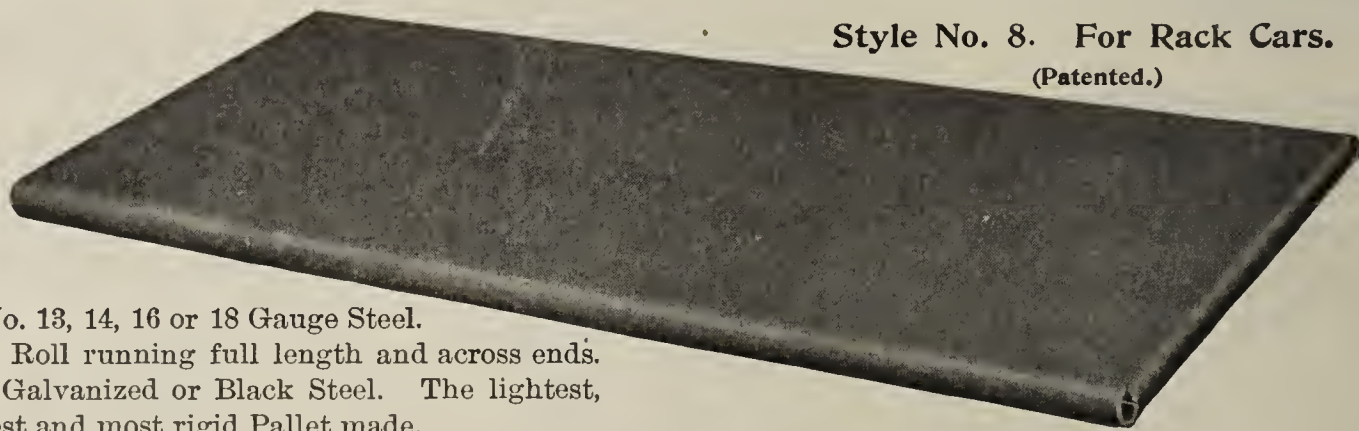
AMERICAN PROCESS CO.,

68 William Street, New York.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.

(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

$\frac{5}{8}$ -inch Roll running full length and across ends.

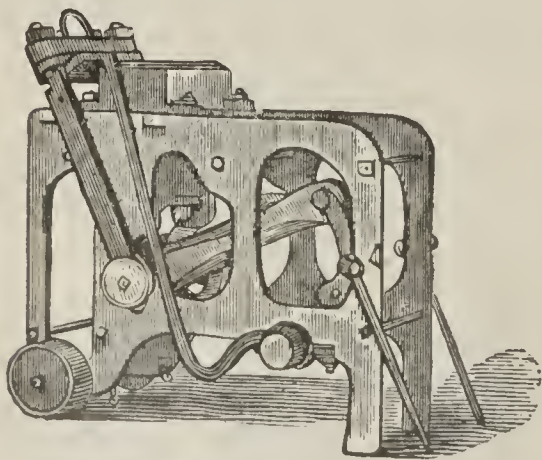
Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

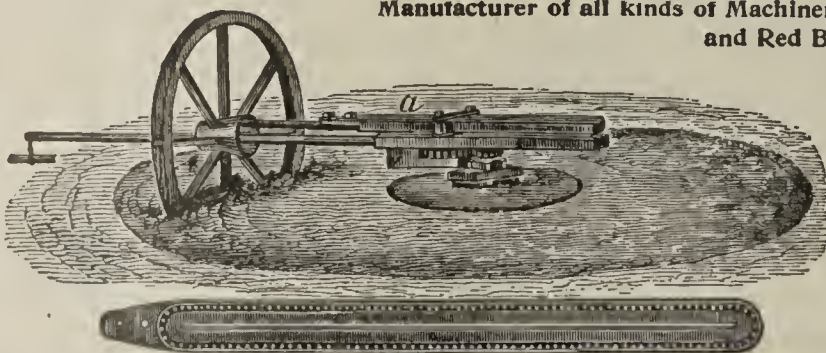
Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



RED BRICK PRESS.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
 100 William Street,
 NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES

R. & H. PRECIPITATED.

Oxide Tin,
 Oxide Cobalt,
 Red Oxide Iron,
 Green Oxide Chrome,
 White Oxide Antimony,
 Black Oxide Manganese and
 all Chemicals used by the Clay Trades.

The Richardson-Lovejoy Engineering Company

Manufacturing Propositions Investigated. Clayworking Plants Designed and Construction Superintended.
 Dryers and Kilns of every type, adapted to the special conditions and purposes.
 Pamphlets, "Ceramic Engineering" and "Brick Kilns," free.

SCHULTZ BUILDING, 232½ North High Street, COLUMBUS, OHIO.



Steam Shovels,

**Railroad and
 Traction Trucks,**

all sizes and suitable for all
 classes of work.

**Placer Mining Dredges,
 River, Harbor and
 Ditching Dredges.**

For information write

**The Marion
 Steam Shovel Co.,**

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
 718 Monadnock Bldg., San Francisco, Cal.
 F. H. HOPKINS & CO., Agents,
 Montreal, P. Q.



Through 1908 we ran full time, with full force.

A goodly number of people began to buy of us in that year.

A large part of our business was from those who first bought of us ten to twenty-seven years ago.

LEVIATHAN, therefore, has something besides reputation.

We want to show you. May we, with your next belt?

MAIN BELTING COMPANY,
1224 Carpenter Street,
PHILADELPHIA.
59 Market Street,
CHICAGO.

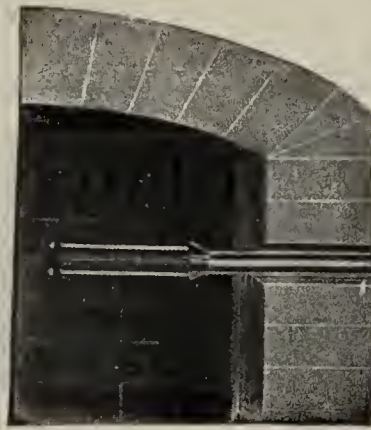
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Mo se St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311
Walnut St.,
Philadelphia,
Pa.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

The STARKEY Automatic Brick Counter



Registers

the correct number of cars, trucks or wheelbarrow loads. Will not lie, cannot forget, is simple and practically indestructible. Will

wear for years and pay for itself in a few days. Send for description and prices. TERMS, ten days' trial, subject to approval.

Manufactured by J. STARKEY, Minerva, Ohio.

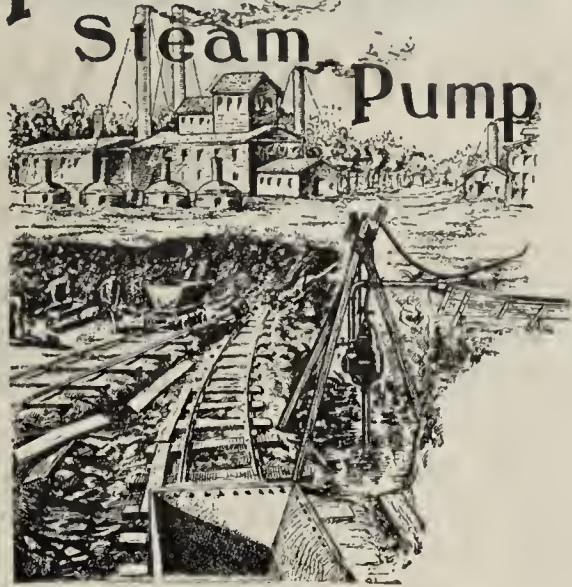
Let Us Tell You About Our

GEAR SHIELD

An Adhesive Compound Lubricant that will accomplish WONDERFUL saving in LUBRICATION and PRESERVE the wear of GEARS and PINIONS by preventing NOISE and METALLIC CONTACT between the gear teeth.

THE OHIO FILLER & SHIELD CO.,
Columbus, Ohio.

Pulsometer Steam Pump



DOES NOT

require engine, belt, oil, packing or special foundation—merely a steam pipe from boiler—that's all.

Operates as well suspended as stationary, and may be raised or lowered as occasion demands without interrupting its work.

No easily deranged inside or outside mechanism liable to become choked or clogged.

For Draining Clay Pits, pumping liquid clay, or handling water heavily charged with **mud, sand or grit**, there is nothing equal to the PULSOMETER.

Easy to Install.

Easy to Operate.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.

Chicago Office, 61-69 No. Jefferson St.

The Original ^{EXHAUST}_{STEAM} Dryer is the National.

ROCKFORD BRICK COMPANY.

Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,

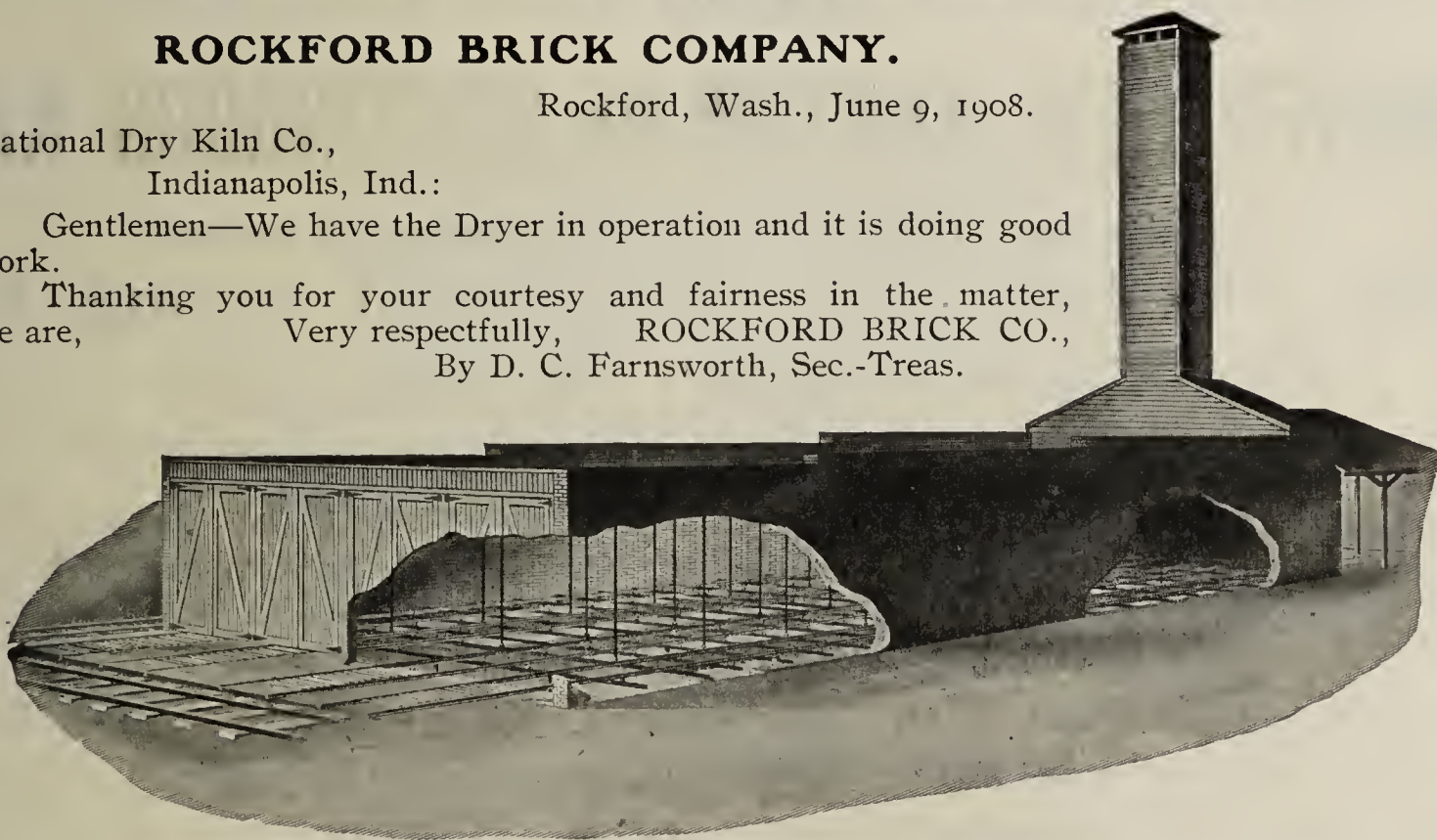
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good work.

Thanking you for your courtesy and fairness in the matter, we are,

Very respectfully, **ROCKFORD BRICK CO.,**

By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

No Fire Danger.
Steel Roller Bearing Cars, etc.

Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:	City Office:
East Falls,	Builders' Exchange,
Philadelphia, Pa.	Philadelphia, Pa.
New York City.	Washington, D. C.
Trenton, N. J.	

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

**We Build and Equip
Complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.**

**Ross-Keller Triple Pressure
Brick Machine Co.**

**Offices
Fullerton Bldg., ST. LOUIS, MO.**

HAIGH'S IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
Paving and Common Building Brick,
AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
particulars
address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Square Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.

BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.

Write for Catalogue.

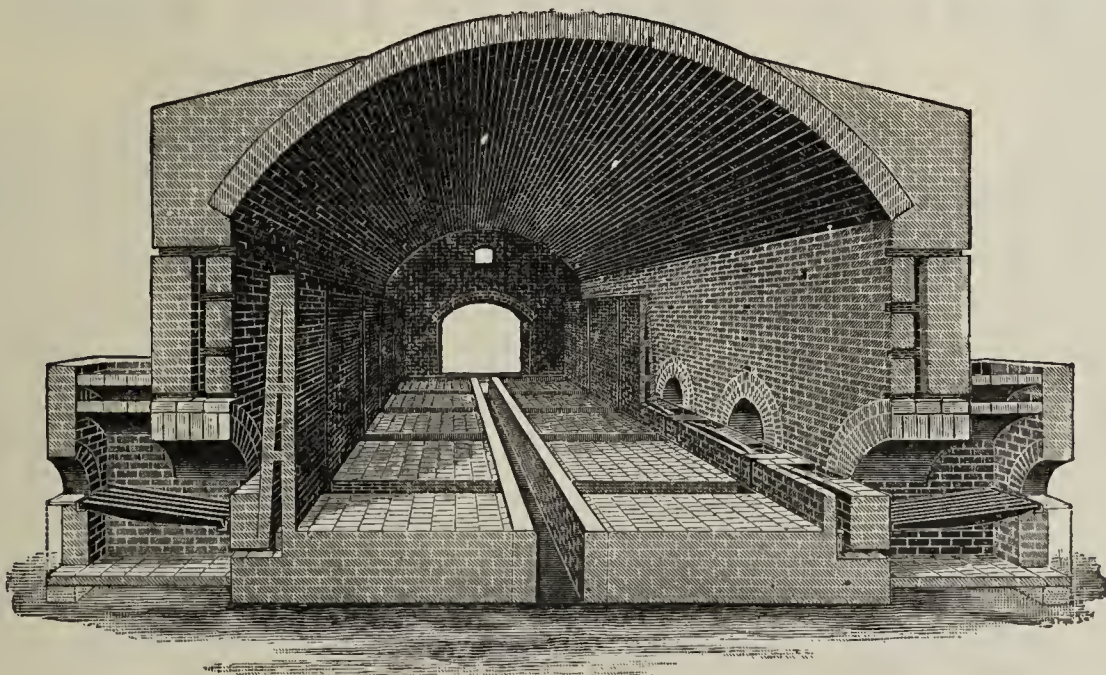
JOHN C. BOSS,

Monger Bldg.

ELKHART, IND.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.

Record of a Six-Track King Radiated Heat Dryer.

"This dryer has tunnels 110 feet long, and is in operation on the brickyard of W. Benj. Davis, Manchester, Va. Dryer has been in use 17 months with no expense for repairs on dryer or cars; present condition of each is excellent. Use three men to move cars from machine into dryer, attend furnaces night and day and take cars out of tunnel ready for the setters. Consumes $2\frac{1}{2}$ tons of coal each twenty-four hours. Highest temperature in tunnels 136 degrees. Number of brick dried as taken from Mr. Davis's books:

1908—June 8, 44,520. June 9, 48,230. June 10, 42,930. June 11, 37,100. June 12, 42,400. June 13, 32,330. Brick dried in six consecutive days 247,510, an average of 41,251 each day."

The above are extracts from a letter written Sept. 26, by Mr. J. W. Holt, manager of Mr Davis's brickyard.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.



Start the Wheels of 1909 Right

By Buying Wonder Machinery.

**We Sell the Best and Most Economical
Brick and Tile Machines
On the Market—**

The Wonder Machinery.

No Lamination if Our Machine is Used.

Our machines have large capacity and an unequalled record for durability.

Brick, Tile and Hollow Block Machinery of every description. Granulators, Pug Mills, Disintegrators, Crushers, Cutters, Dry Pans, etc. Write for catalog.

WRITE FOR LIST OF PLANTS IN YOUR SECTION WHERE WONDER MACHINES MAY BE SEEN IN OPERATION.

THE WALLACE MFG. CO.

FRANKFORT INDIANA



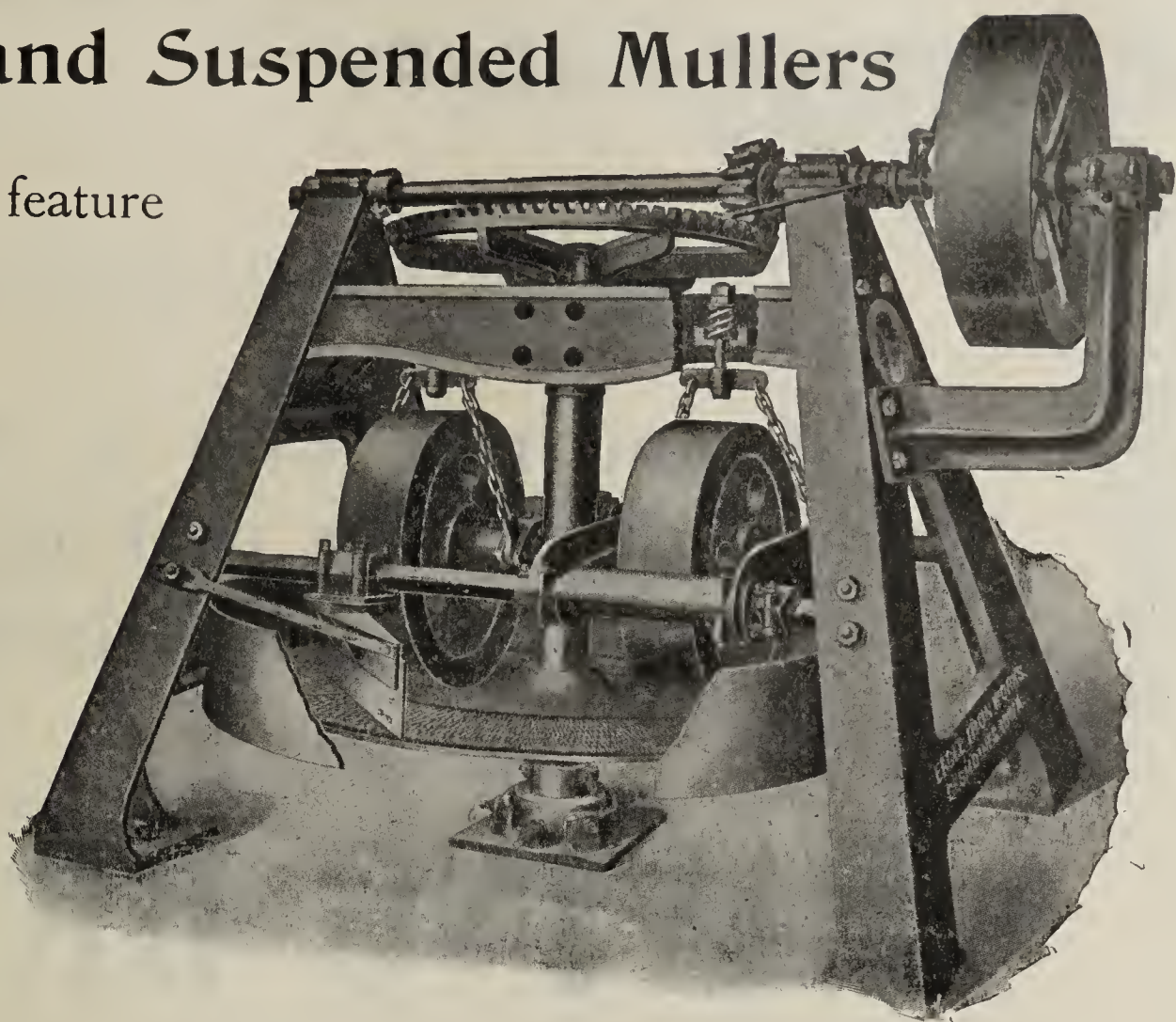
Mention The Clay-Worker.

Independent and Suspended Mullers

the distinguishing feature
of our

DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

Mention The Clay-Worker.



If you have Clay or Shale
suitable for making a
strictly first-class

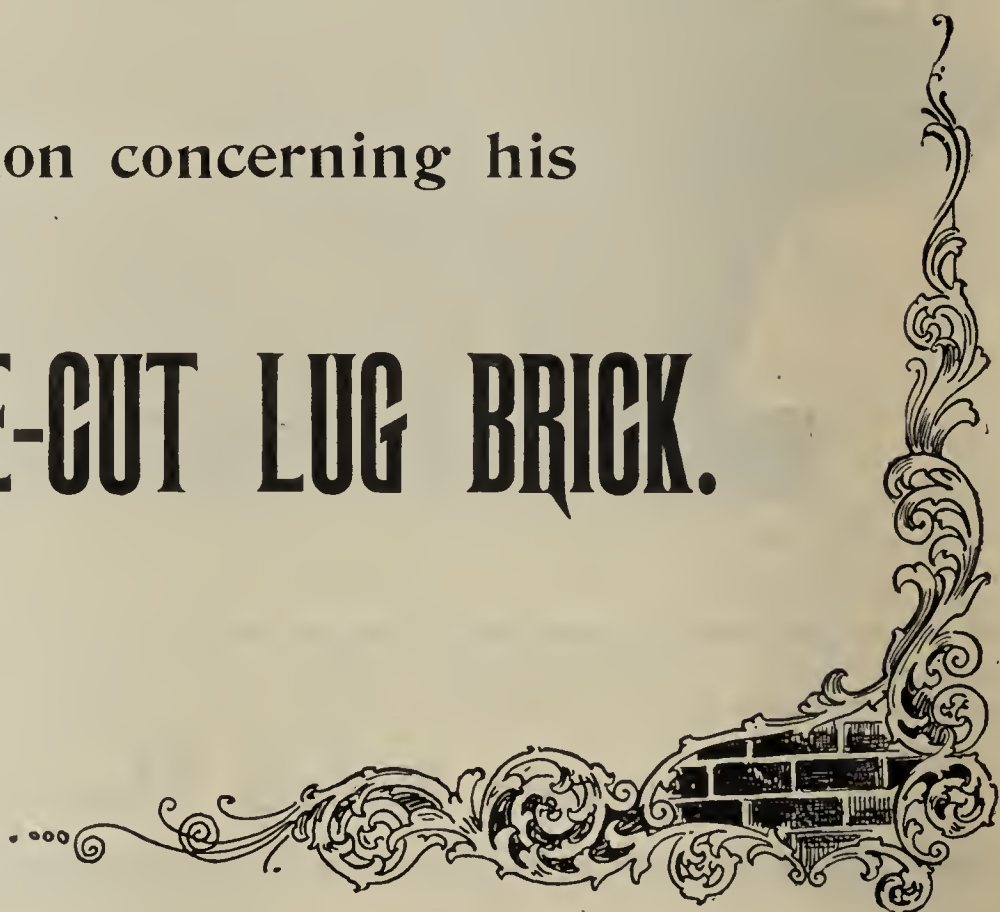
PAVING BRICK

Write at once to

FRANK B. DUNN,
CONNEAUT, OHIO,

For information concerning his

PATENT WIRE-CUT LUG BRICK.



Greetings for 1909

After figuring profits of the year, has it occurred to you that the extra profit you need can be made by some up-to-date changes in your equipment? This is the time of year when every clayworker is making his plans for the season. Whatever betterments or renewals to the machinery, whatever extensions or increase of capacity may be contemplated, should be planned now. It does not pay to allow any past connections or preferences to govern action in such important matters. What you want is the very best machinery you can obtain for your money, without regard to who is the manufacturer. There is only one reasonable plan to follow that will be fair to yourself—secure all the information that you can regarding machinery or equipment needed and get all the suggestions and literature you can to cover your needs. Whether you want one machine to strengthen your equipment at a weak place, or a full outfit, we have the right machinery.

You owe it to yourself to send for the *1909 Bonnot Catalogue*. It is filled with new and up-to-date designs of *Machinery of Quality*, and will be sent to you for the mere asking.

We extend our Greetings to you for a Happy and Prosperous Year. Very truly yours,

THE BONNOT COMPANY

Modern Clayworking Machinery

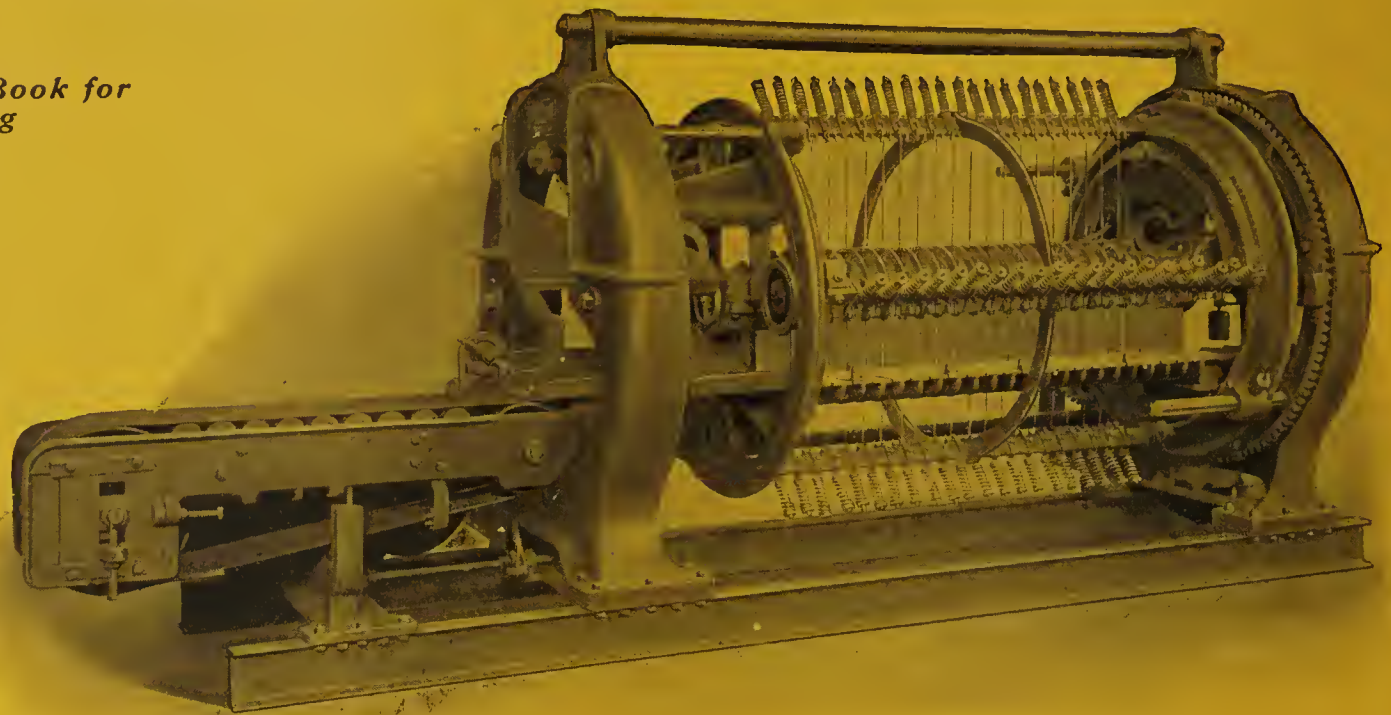
Complete Stiff-Mud Equipment

*Memorandum Book for
the asking*

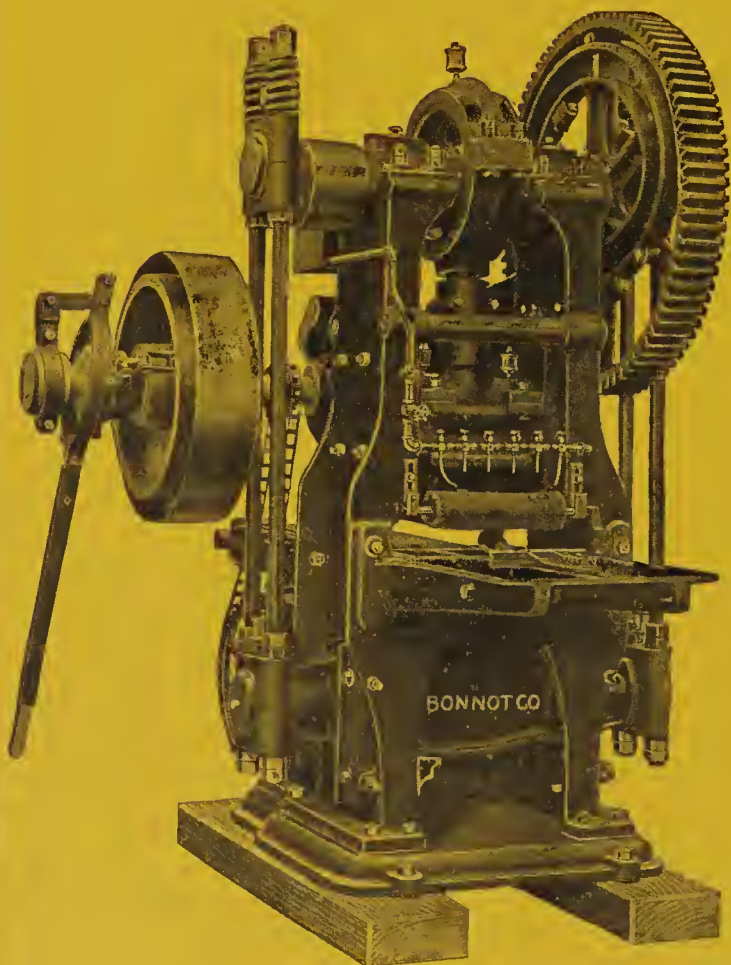
Self-Contained
Accessible
Simple-Cutting
Mechanism

All wearing
parts above
clay column and
out of dirt

Capacity
100,000 Brick
in 10 hours



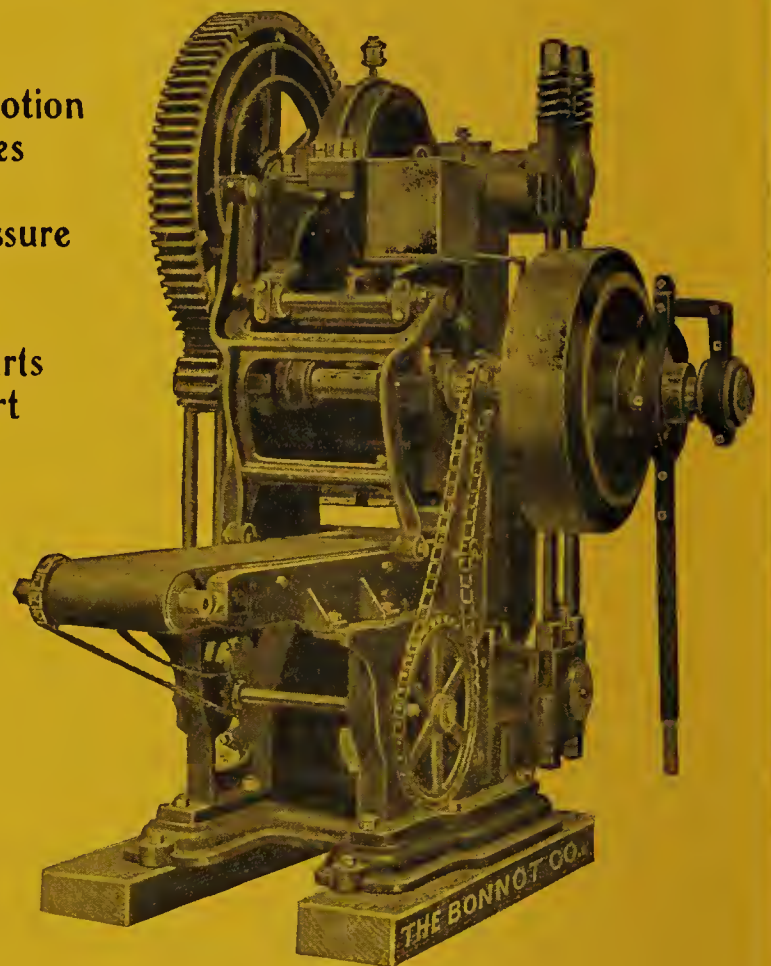
ROTARY AUTOMATIC CUTTING TABLE
Cuts Brick Within 30 Inches of Brick Machine Die



Continuous Motion
No Toggles

No High Pressure
Cams

Wearing Parts
Out of Dirt



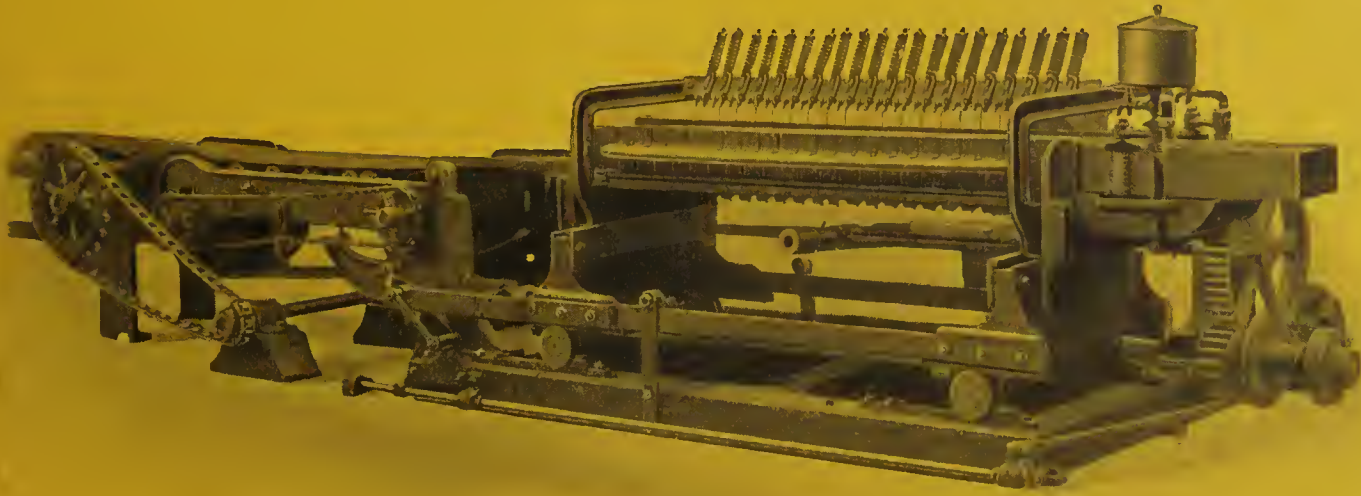
"CANTON" DOUBLE-DIE REPRESS

THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

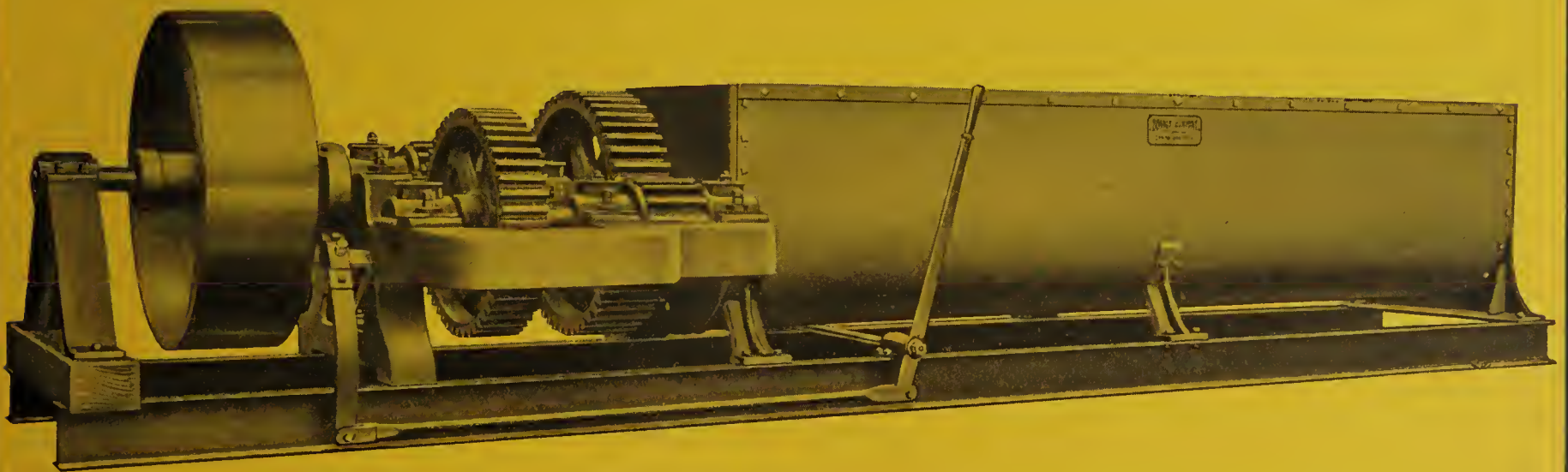
Modern Clayworking Machinery



Automatic Side Cut Table. Cuts Brick 26 Inches from the Die. Durable and Free from Trouble



No. 14 Combined Machine, 25,000 to 40,000 Capacity. We Have Combined Machines from 25,000 to 125,000 Daily Capacity



12-Foot Pug Mill for Heavy Duty

LET US FIGURE ON YOUR NEEDS. GET OUR NEW CATALOG. IT WILL INTEREST YOU

THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

Modern Clayworking Machinery

AUGER MACHINES 25,000 to 125,000 CAPACITY



No 8 Auger Brick Machine. Capacity 25,000 to 40,000 Brick per Day



No. 10½ Auger Brick Machine. Capacity 50,000 to 70,000 Brick per Day

WRITE FOR OUR NEW CATALOG

THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

Mention The Clay-Worker.

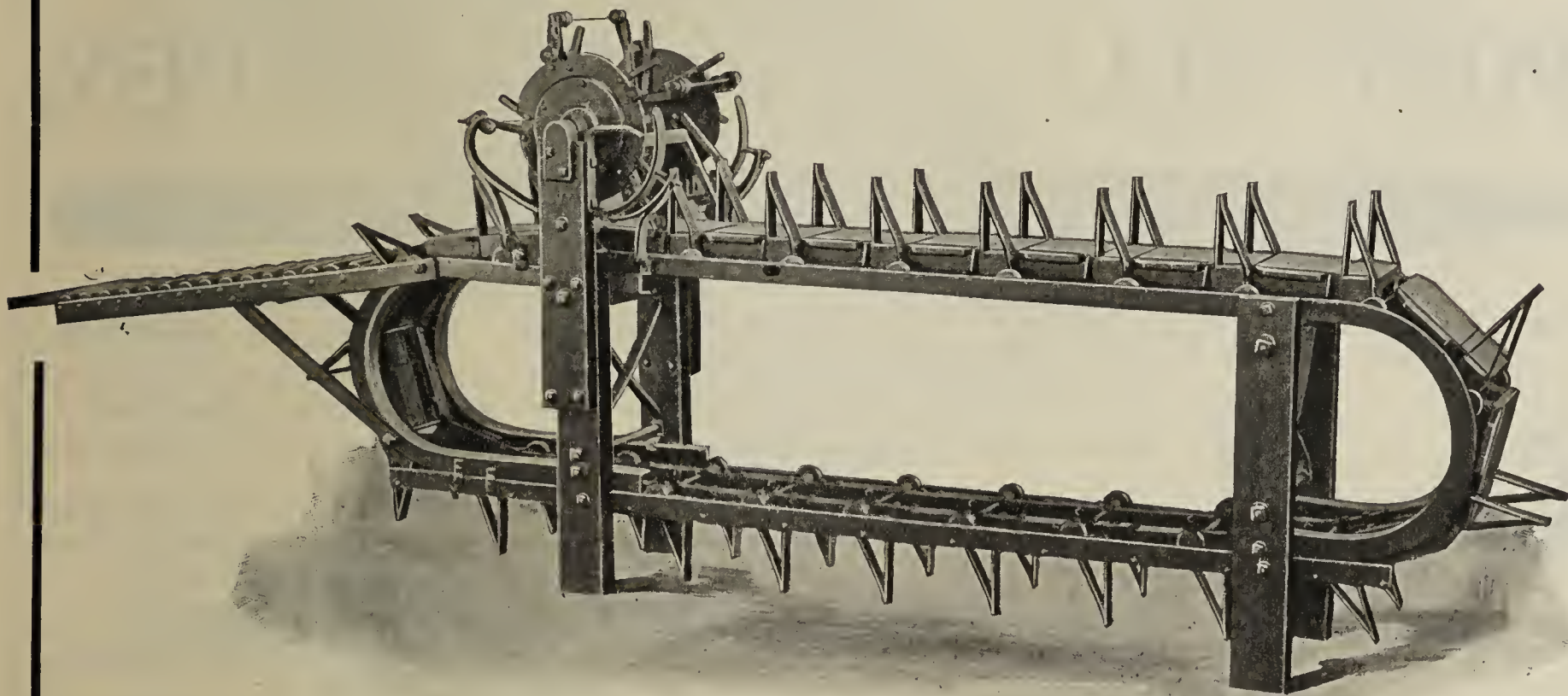
The Kindest Cut of All

It's Kind Because It's True and It's the Truest of Its Kind

The Cut of The Bechtel "Simplicity" Cutter

Automatic in Action. Efficient in Operation. The Peer of Cutting Tables

The addition of a "Simplicity" Cutter to your plant will subtract your troubles, multiply your profits and divide your clay column with mathematical exactitude



The "Simplicity" Cutter.

Georgia's Dry==But Brick Dried

In a Bechtel Carless Dryer are in the dryest state of all

NO CARS

NO CARES

The P. D. Q. Dryer Gives Best Drying Results at Lowest Cost of Installation,
Operation and Maintenance

Buy the Bechtel Cutter and Dryer and you will KUTRITE, DRYRITE, BUY-RITE. Soft Mud, Stiff Mud and Dry Press Machinery. Write for catalog and description of our lines to

Bechtels Limited

Dept. C.

WATERLOO, ONTARIO, CANADA

REMARKABLE OFFER.

We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

“POST” SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen. Guaranteed by Makers.
NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

Gen. Lew. Wallace: The author of “Ben Hur” writes, “I have tried every kind in the market and unhesitatingly give the preference to the “Post.”

Judge Luther L. Mills, Chicago: The “Post” Fountain Pen is the Best I have ever used; simple, reliable, durable.

Dr. Josiah Strong: The great author of “Our Country” says: “I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the “Post” leaves nothing to be desired.”

The CLAY=WORKER, INDIANAPOLIS,
—INDIANA.

**DO
IT
NOW**

T. A. Randall & Co., Publishers The Clay=Worker, Indianapolis :

You will please send me THE “POST” FOUNTAIN PEN and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued, beginning with the.....Enclosed find \$.....

Name.....

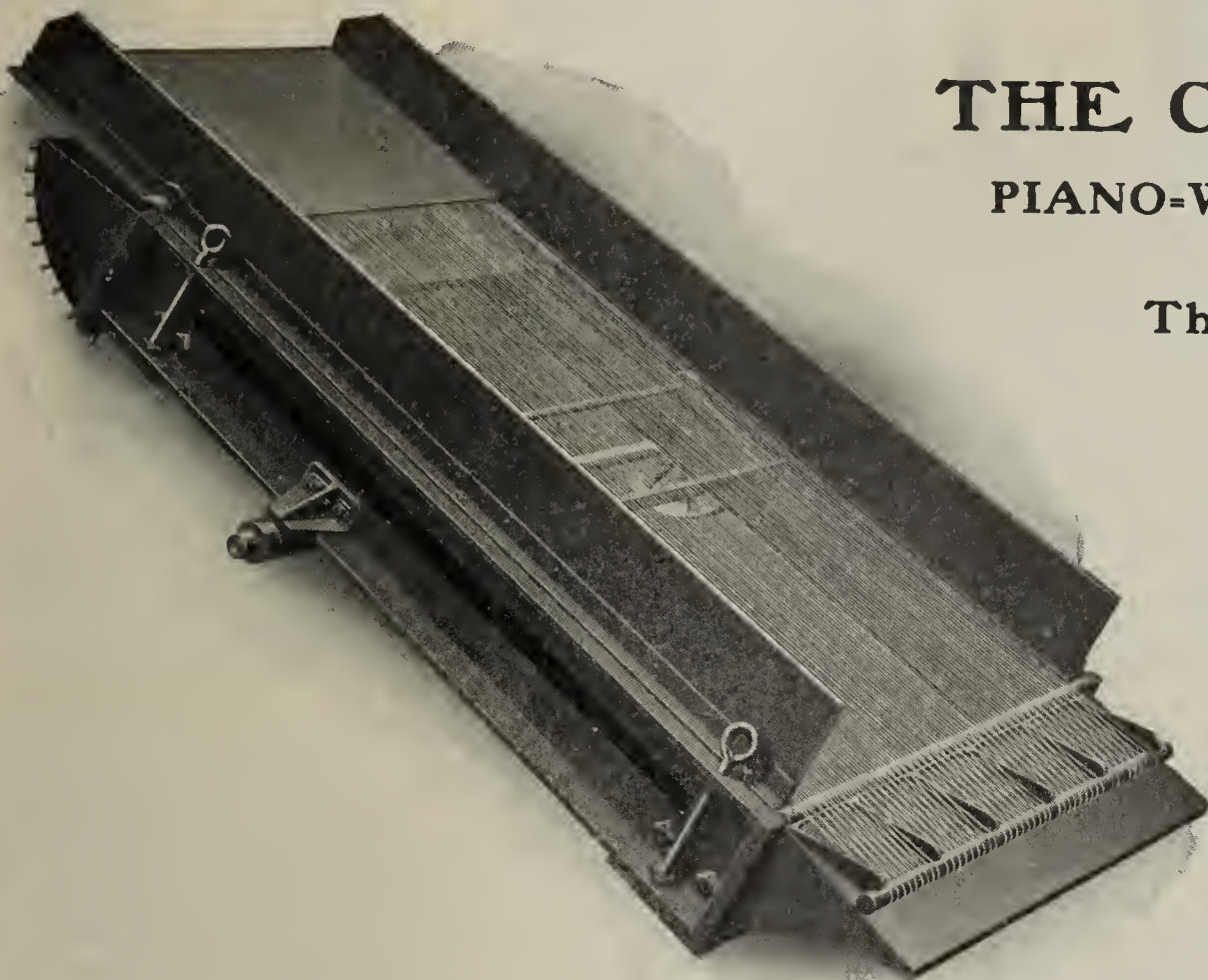
Postoffice.....

Street and Number.....

County..... State.....

TWO NECESSITIES

For the Manufacturer Using Pulverized Clay or Shale.

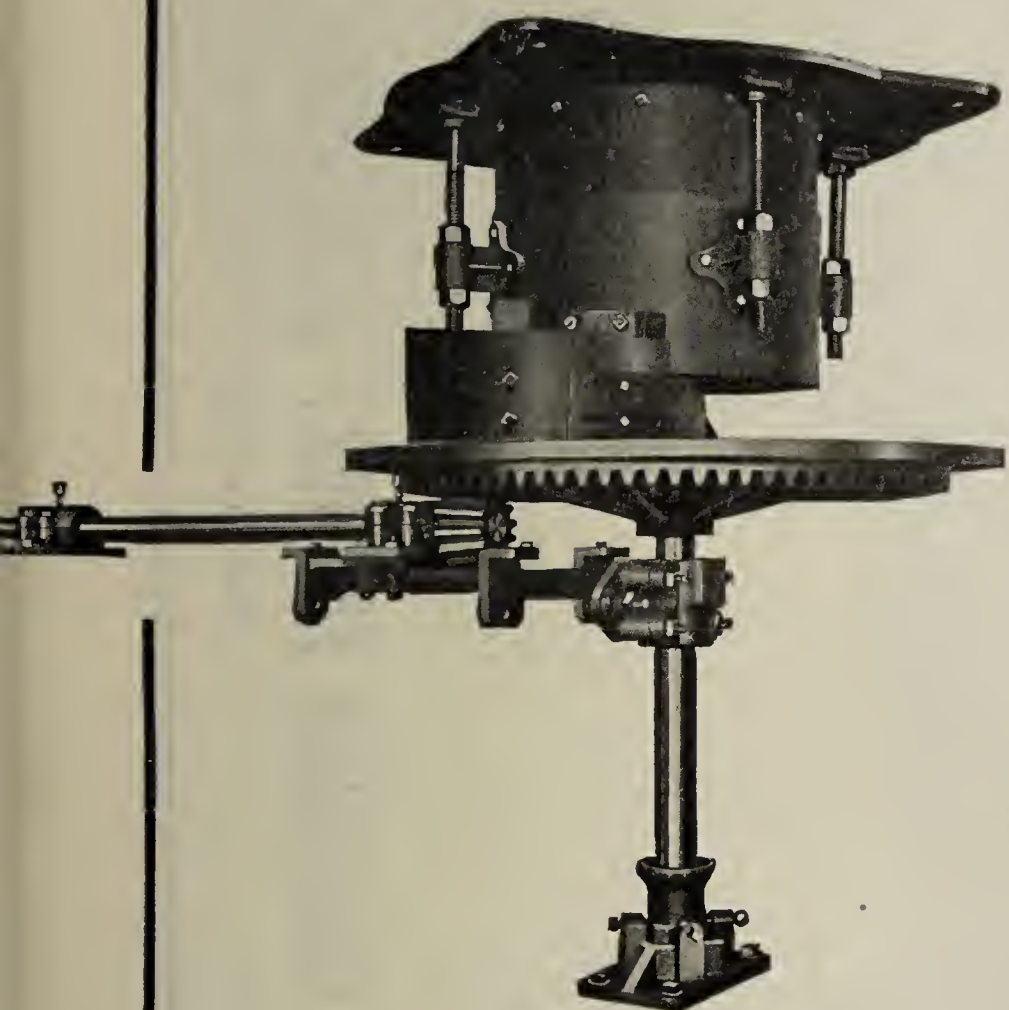


THE COLUMBUS PIANO-WIRE SCREEN.

The Best Made.

Five Sizes.
Any Mesh.

See Our Catalog
for
Superior Features.



THE COLUMBUS FEEDER.

Nothing Equal to It for Feeding
Pug Mill.

Uniform Feed—Even Tempering.

Made for Any Capacity.

Also Used in Sand-Lime Brick and
Cement Factories.

For further information of this simple
and most efficient machine see
our catalog.

THE CERAMIC SUPPLY AND CONSTRUCTION CO.,

Contracting Engineers and Machinists.

280 North Front Street, Columbus, Ohio.

OUR NEW 1909 MODEL ANDERSON GIANT



Is positively the last word on Soft Mud Brick Machinery. A Giant in both strength and capacity, embodying the latest and most up-to-date improvements, it is the result of our thirty-six years' experience in the manufacture of this class of machinery. Write to-day for our illustrated booklet containing a full description of this new machine. "It is free for the asking." We also manufacture a complete line of Dry Press Brick and Drain Tile Machinery and yard supplies of every description. Write us your needs and let us figure with you.

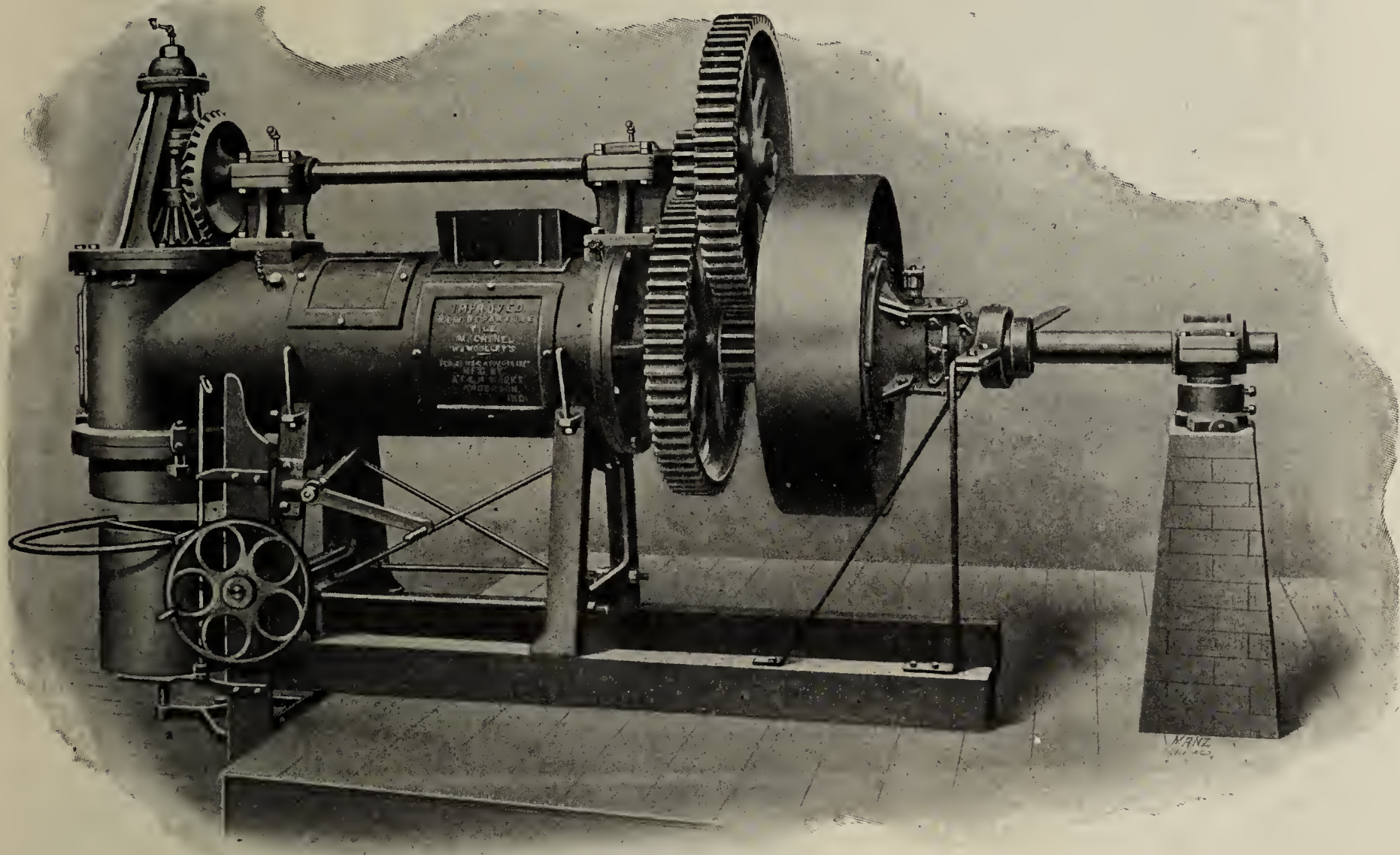
THE ANDERSON FOUNDRY & MACHINE WORKS,

Anderson, Ind., U. S. A.

Southwestern Headquarters, Wilson Building, Dallas, Texas.

1908 NEW DEPARTURE

**The Only Mill for
Making Successfully Tile from
3-in. to 24-in. Diameter.**



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent. less than formerly. Write for new catalogue.

**The Anderson Foundry & Machine Works,
Anderson, Ind.**

See ad on page 13.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untieing knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

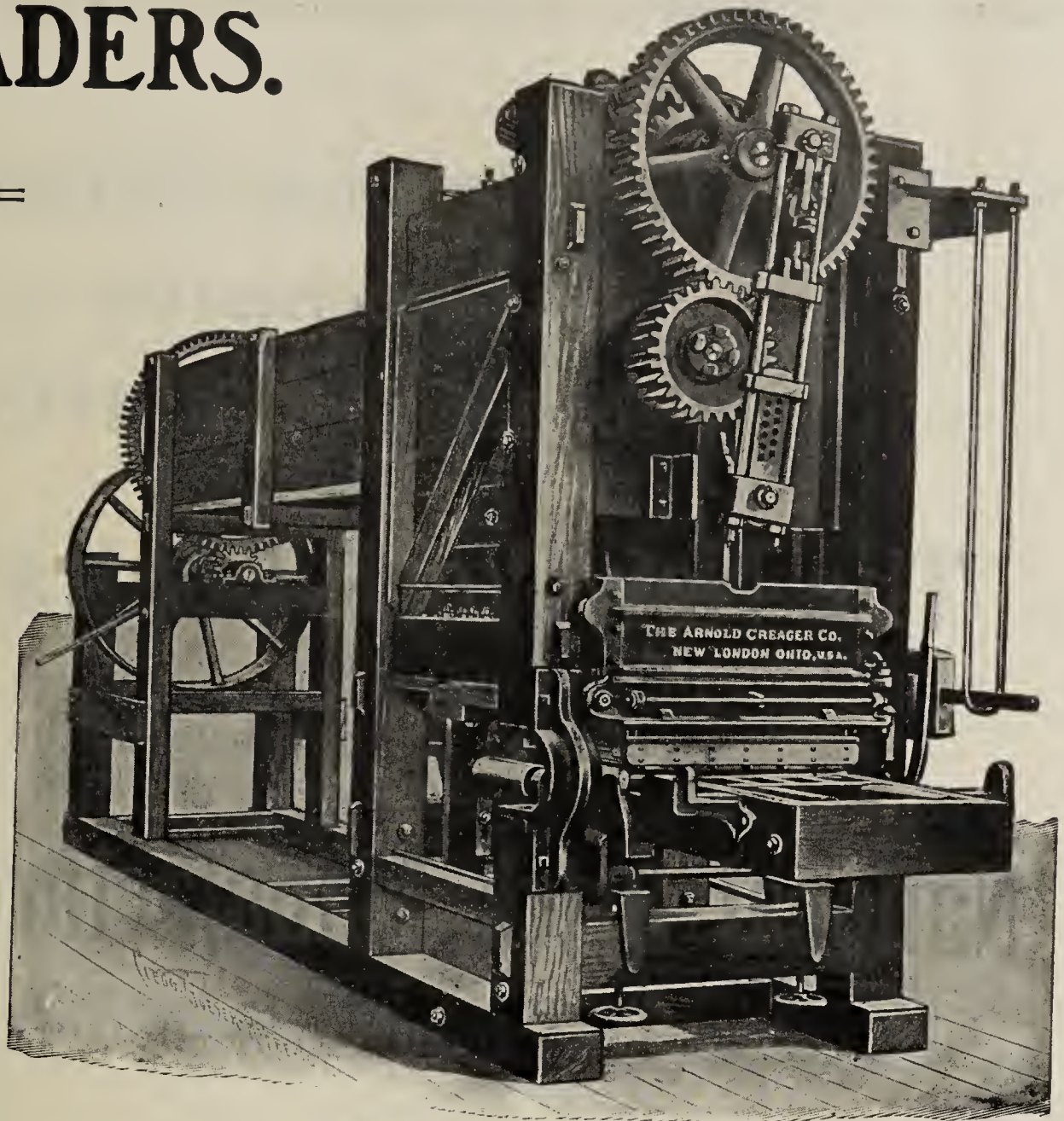
Street and Number

County State

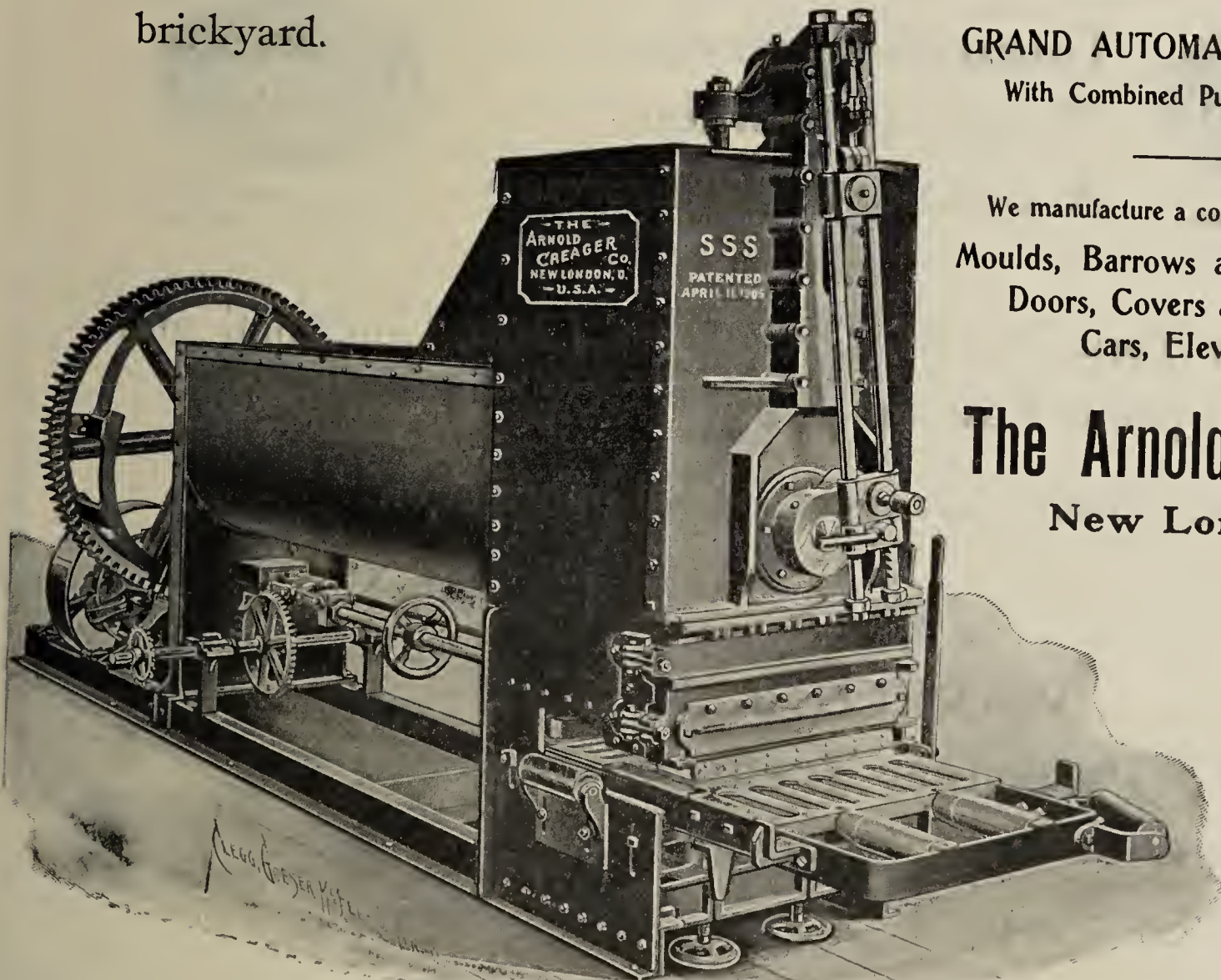
OUR LEADERS.

We
invite
correspondence
regarding
any
new
equipment
you
may
need.

We
furnish
everything
for
the
brickyards.



GRAND AUTOMATIC, JR.
With Combined Pug Mill.



We manufacture a complete line of supplies:
Moulds, Barrows and Trucks, Kiln Bands,
Doors, Covers and Ventilators, Clay
Cars, Elevators, etc., etc.

The Arnold-Creager Co.,
New London, Ohio.

**S=S=S
Brick
Machine.**

For the National Convention
At Rochester,
Feb. 1st to 6th, 1909,
The New York Central Lines
offer to the members of the
National Brick Manufacturers' Ass'n

and their friends



"AMERICA'S GREATEST
RAILWAY SYSTEM"

Unexcelled Service
Perfect Equipment
A Comfortable Journey



"AMERICA'S GREATEST
RAILWAY SYSTEM"

From New York, Boston, Chicago, St. Louis, Cincinnati and
all principal points East and West.

Ask your local ticket agent for full information.

WARREN J. LYNCH,
Passenger Traffic Manager,
Chicago.

The 23d Annual Convention OF THE National Brick Manufacturers' Association

The American Ceramic Society
The National Paving Brick Mfrs.' Association and
The National Clay Machinery Association

WILL BE HELD AT

ROCHESTER, N. Y., MONDAY TO SATURDAY,
FEBRUARY 1st to 6th, 1909.

Special Railroad Rates From all points east of the Mississippi River, Tickets Good Returning Until February 10.

The Sessions of the Ceramic Society will be held Monday and Tuesday, the 1st and 2d.

The Sessions of the National Paving Brick Manufacturers' Association will begin Tuesday, the 2d.

The Sessions of the National Clay Machinery Association will be held Tuesday, the 2d.

The Sessions of the N. B. M. A. will be held Wednesday, Thursday and Friday, the 3d, 4th and 5th.



FULL VERBATIM REPORT of the Convention, which bids fair to be the most successful in the history of the N. B. M. A., will be given in the February *CLAY-WORKER*, including all papers, discussions and portraits of prominent members. Next to attending the Convention, the best thing a brickmaker can do is to read *THE CLAY-WORKER*'s report. It is so full and accurate that those who attend the Convention would not be without it, and those who don't go can't afford to miss it. The consensus of opinion among progressive brick-makers is that the Convention Number of *THE CLAY-WORKER* is the most valuable publication of the year. If you are not already a regular subscriber don't neglect to send in your order in time to get the February or Convention number.

1909 FEBRUARY 1909						
Su	Mo	Tu	We	Th	Fr	Sa
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

Advertising Matter to Insure Insertion
Must be Received by the First of the Month.

THE CLAY-WORKER is now in its **26th Year** and is recognized the world over as the best clayworkers' magazine published in the English language. It has more readers at home and abroad than all its followers combined. Take *THE CLAY-WORKER* and you get the best value for your money. \$2.00 a year. Every issue is worth that sum.

T. A. Randall & Co.,

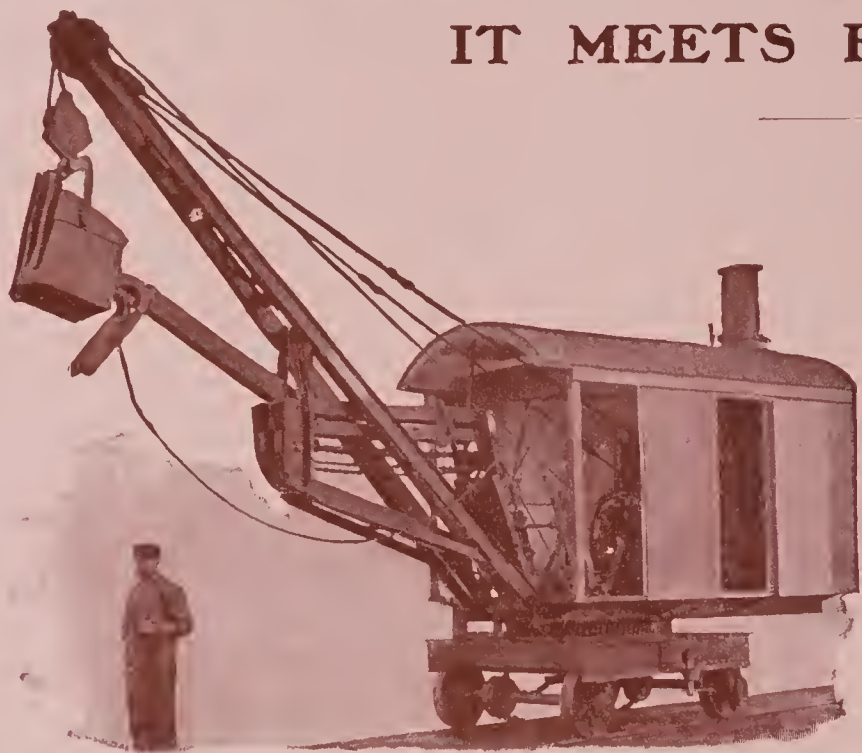
PUBLISHERS,

INDIANAPOLIS, IND., U. S. A.

The Clay-Worker is Unequaled as an Advertising Medium.

Handle Your Clay With One Man and The Thew Steam Shovel.

IT MEETS EVERY REQUIREMENT.



Type No. 0.

Swings through a complete circle.
Loads cars at side or in rear.
Cleans level floor for track.
Controlled by one operator.
Self-propelling and easily moved.

SHOVELS FOR ORDINARY CLAYS.

Type No. 0.—Weight 13 tons, $\frac{1}{2}$ or $\frac{5}{8}$ -yard dipper, capacity 50,000 to 70,000 brick. Especially designed for yards of moderate size.

Type No. 1.—Weight 25 tons, $\frac{3}{4}$ or 1-yard dipper, capacity 80,000 to 200,000 brick. Handles tough clays and is a very popular tool.

Type No. 3.—Weight 35 tons, $1\frac{1}{4}$ or $1\frac{1}{2}$ -yard dipper. Recommended for larger outputs than 200,000 brick per day.



Type No. 1.

One man on the shovel.
One boy on the ground.
It does not strike.
It does not quit.
It works in all kinds of
weather.

We cover the field. We meet
the requirements. We guar-
antee results. Write for
Catalogue.

THE THEW AUTOMATIC SHOVEL COMPANY, Lorain, Ohio.

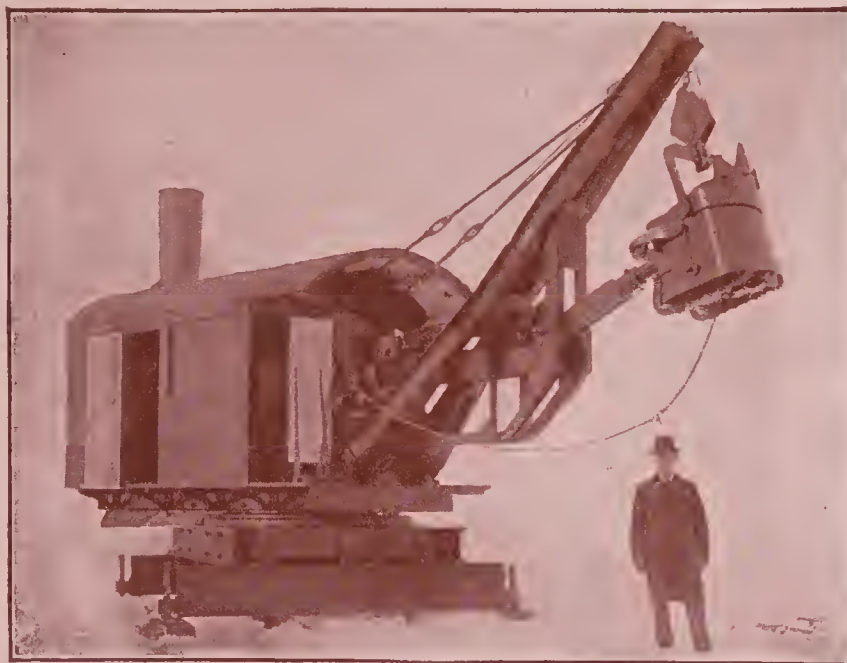
Convenience and Economy are Combined in

The Thew Steam Shovel

With Excellence of Design, Material and Workmanship.



Reduces labor cost to a minimum.
 Secures thorough mixture of clay.
 Handles its own track when moving.
 Can be used as crane or for switching cars.
 Available for stripping as well as handling clay.

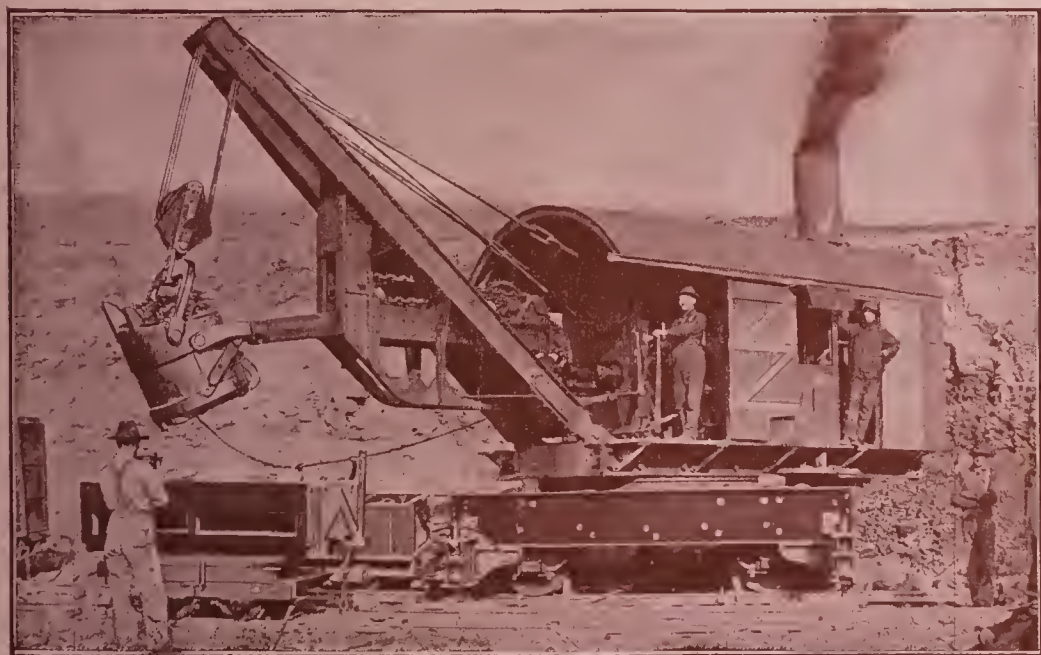


Type No. 2.

SHOVELS FOR SHALES AND FIRE CLAYS.

Type No. 2.—Weight 30 tons, $\frac{3}{4}$ or 1-yard dipper for difficult materials. Widely used for shales.

Type No. 4.—Weight 50 tons, $1\frac{1}{4}$ -yard dipper. Very powerful and intended for extremely difficult shales.



Type No. 4.

The Thew Shovel

Is a labor Saver.

Is a Money Saver.

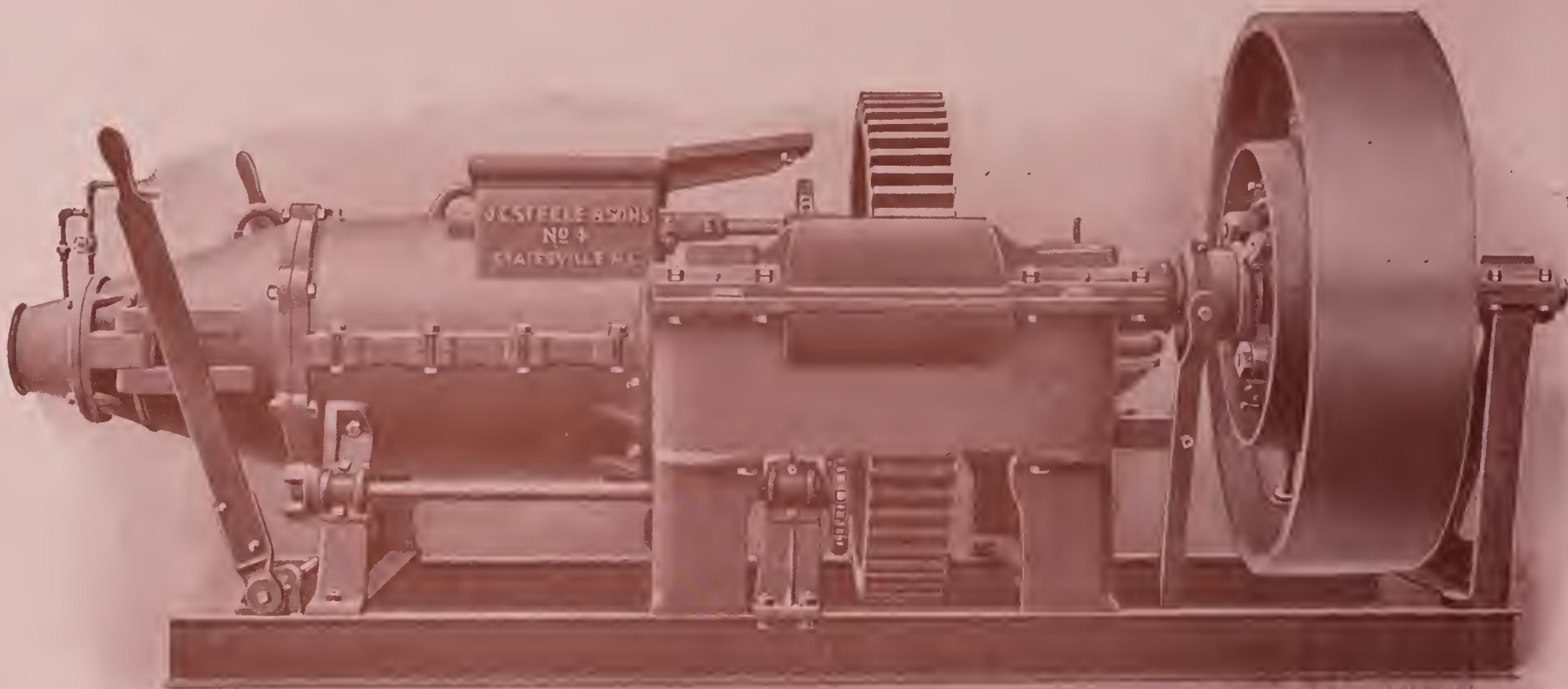
Is a Time Saver.

Is a Trouble Saver.

We also build Railroad Excavators and modify our designs to suit special conditions.

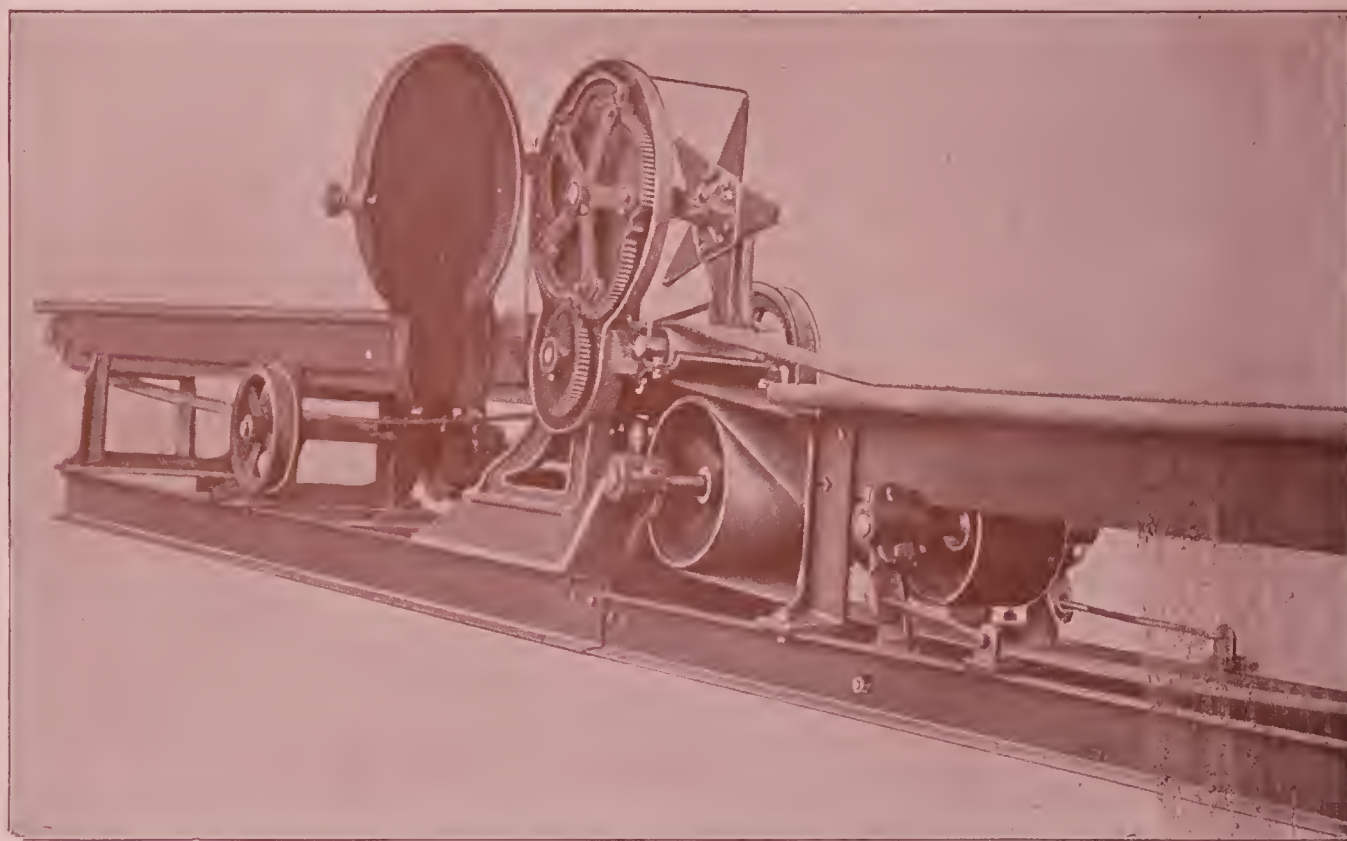
THE THEW AUTOMATIC SHOVEL COMPANY, Lorain, Ohio.

Ask the Man Who Owns One.



NO. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



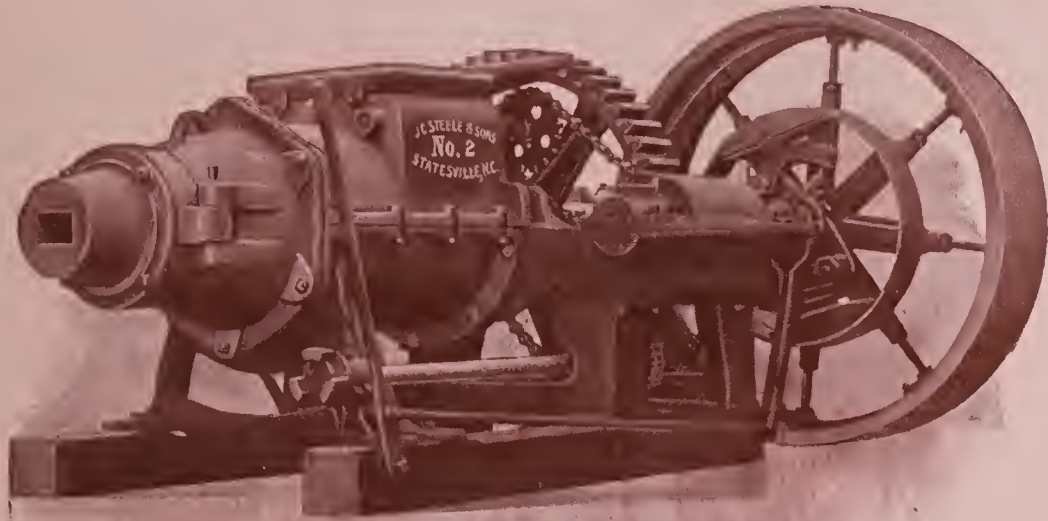
ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?

Ask for catalog.

J. C. STEELE & SONS,

Ask the Man Who Owns One.



NO. 2 BRICK MACHINE.

12,000 to 18,000 per day.

The most efficient small machine made. Will work clays that the ordinary machine will not work.

Snow Hill, Md., Oct. 17th, 1908.

Mess. J. C. Steele & Sons,
Statesville, N. C.

Dear Sirs:—

The No. 2 brick machine I received from you is doing good work. I make twenty thousand bricks per day with twelve men and three boys, and the cutter cuts the brick off square.

I am well pleased with this machine and anyone wanting a brick machine, would advise them to buy the Steele machine.

Respectfully,

(Signed)

W. L. PURNELL.

Our eighteen years' of experience and hard work enables us to get results.
Send for catalog.

Statesville, N. C.

"We Furnish Everything the Brickmaker Needs"

1909

1909

NO. 1 AUGER BRICK AND TILE MACHINE

WE EQUIP BRICK PLANTS COMPLETE

MARTIN'S STYLE "A"
BUILT RIGHT & LEFT

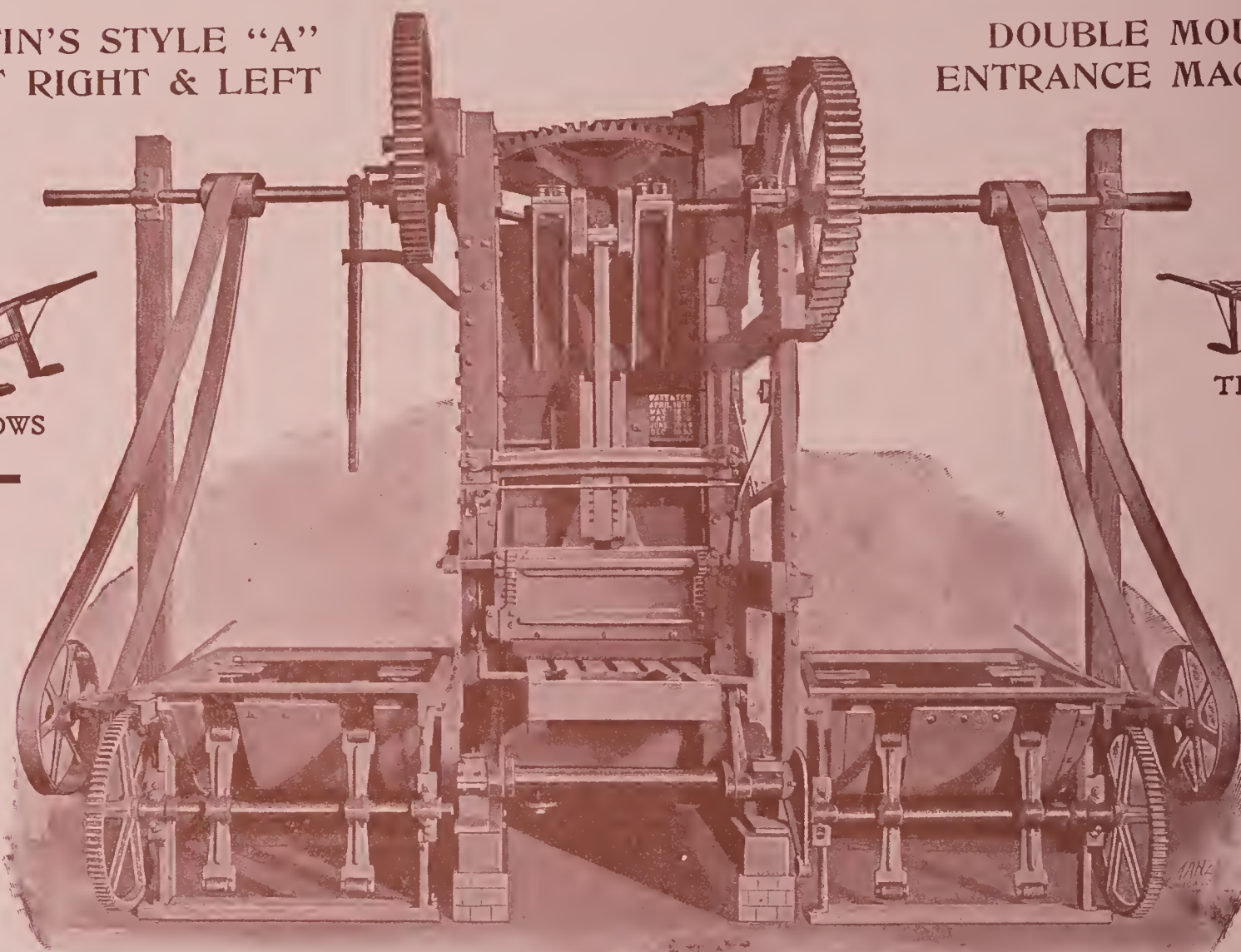
DOUBLE MOULD
ENTRANCE MACHINE



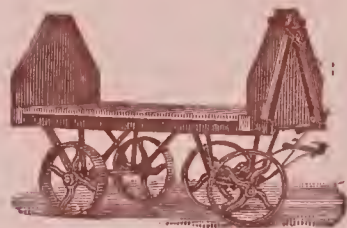
BARROWS



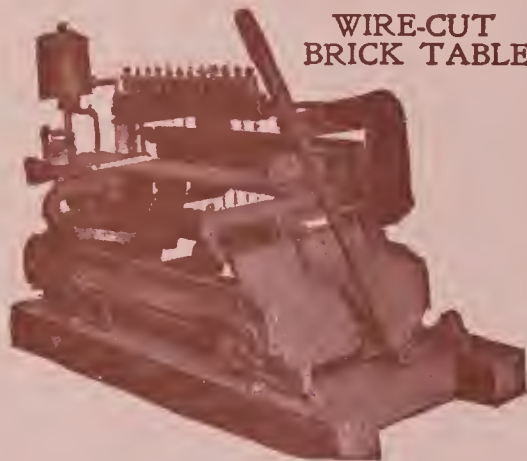
TRUCKS



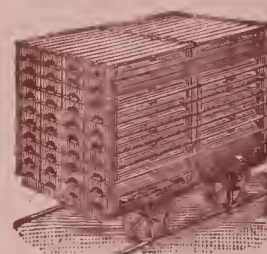
THE HENRY MARTIN BRICK MACHINE MFG. CO. = LANCASTER, PA.



DO YOU
HAVE
OUR
CATALOG
?



WIRE-CUT
BRICK TABLE



DRYER
CARS

LET US TALK BRICK
MACHINERY
WITH YOU
?

"We Furnish Everything the Brickmaker Needs"

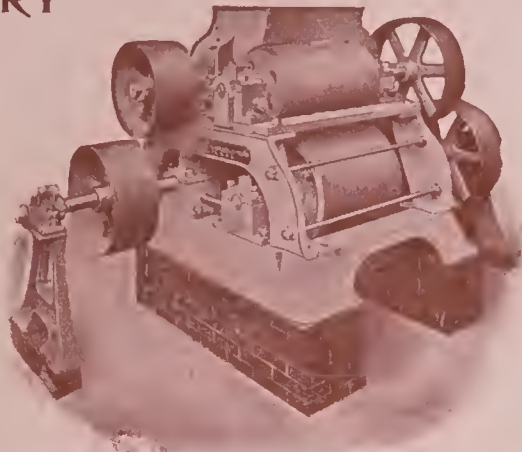
"We Furnish Everything the Brickmaker Needs"

CRUSHING
MACHINERY

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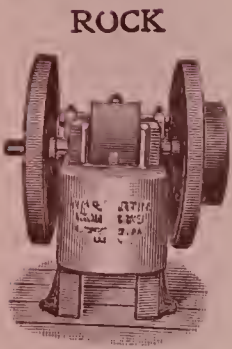
FIVE-FOOT DRY PAN



COMPOUND DISINTEGRATOR

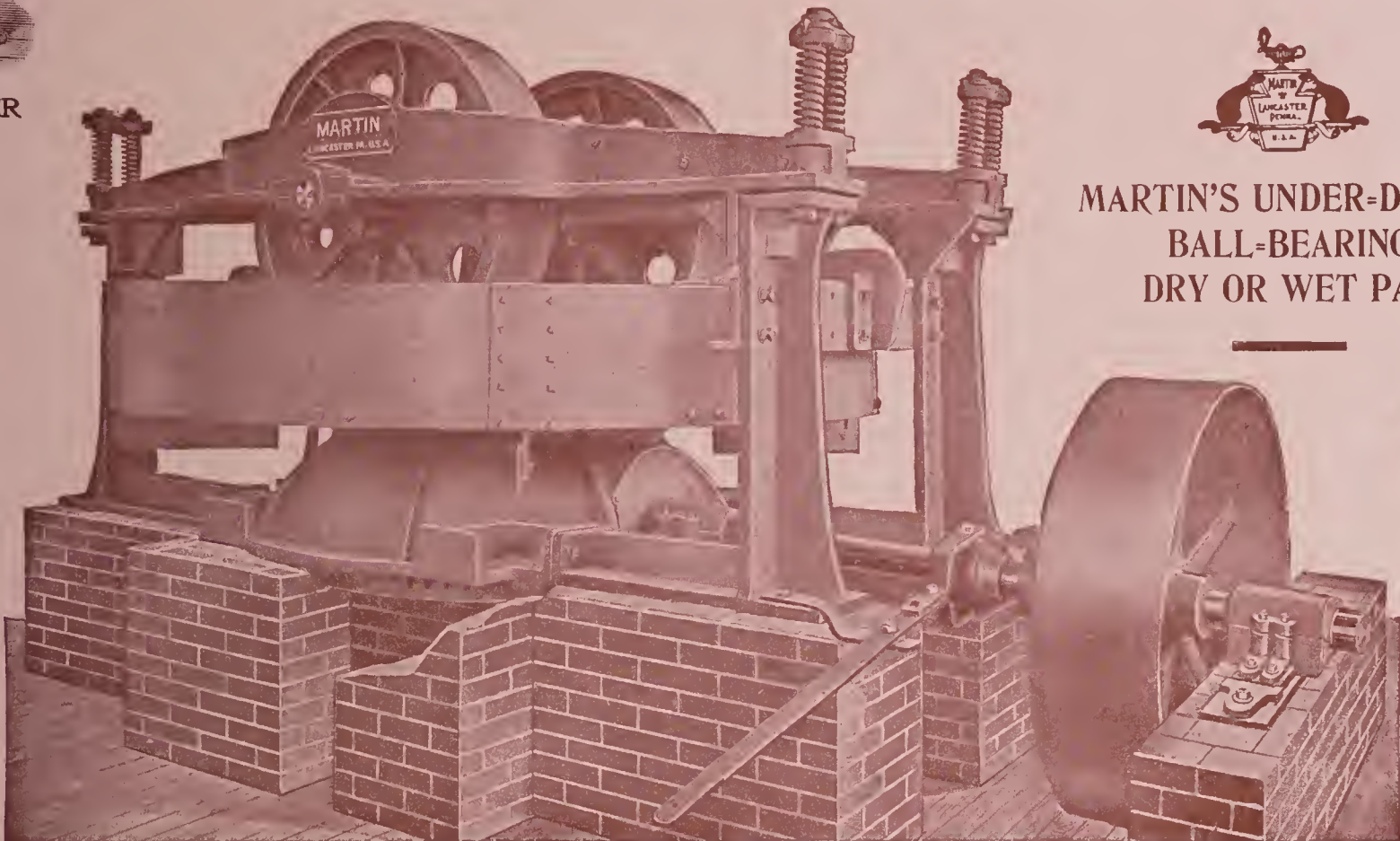


OUR CRUSHING MACHINERY=FULLY TESTED



ROCK

CRUSHER

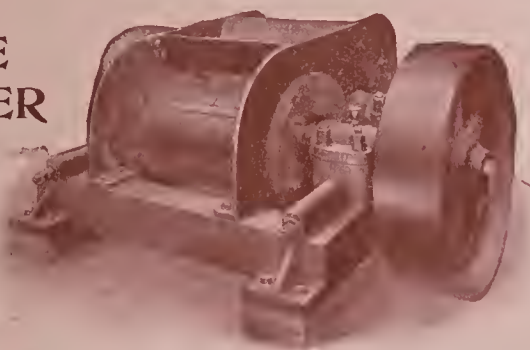


MARTIN'S UNDER-DRIVEN
BALL-BEARING
DRY OR WET PAN



THE HENRY MARTIN BRICK MACHINE MFG. CO.=LANCASTER, PA.

LET'S
FIGURE
TOGETHER



HIGH-SPEED DISINTEGRATOR

G
U
A
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D



FOUR-ROLL DISINTEGRATOR

COMPLETE
IN EVERY
DETAIL

DO YOU HAVE OUR CATALOGUE?

"We Furnish Everything the Brickmaker Needs"



INDIANA ELECTROTYPE Co.



DESIGNING
ENGRAVING
ELECTROTYPING

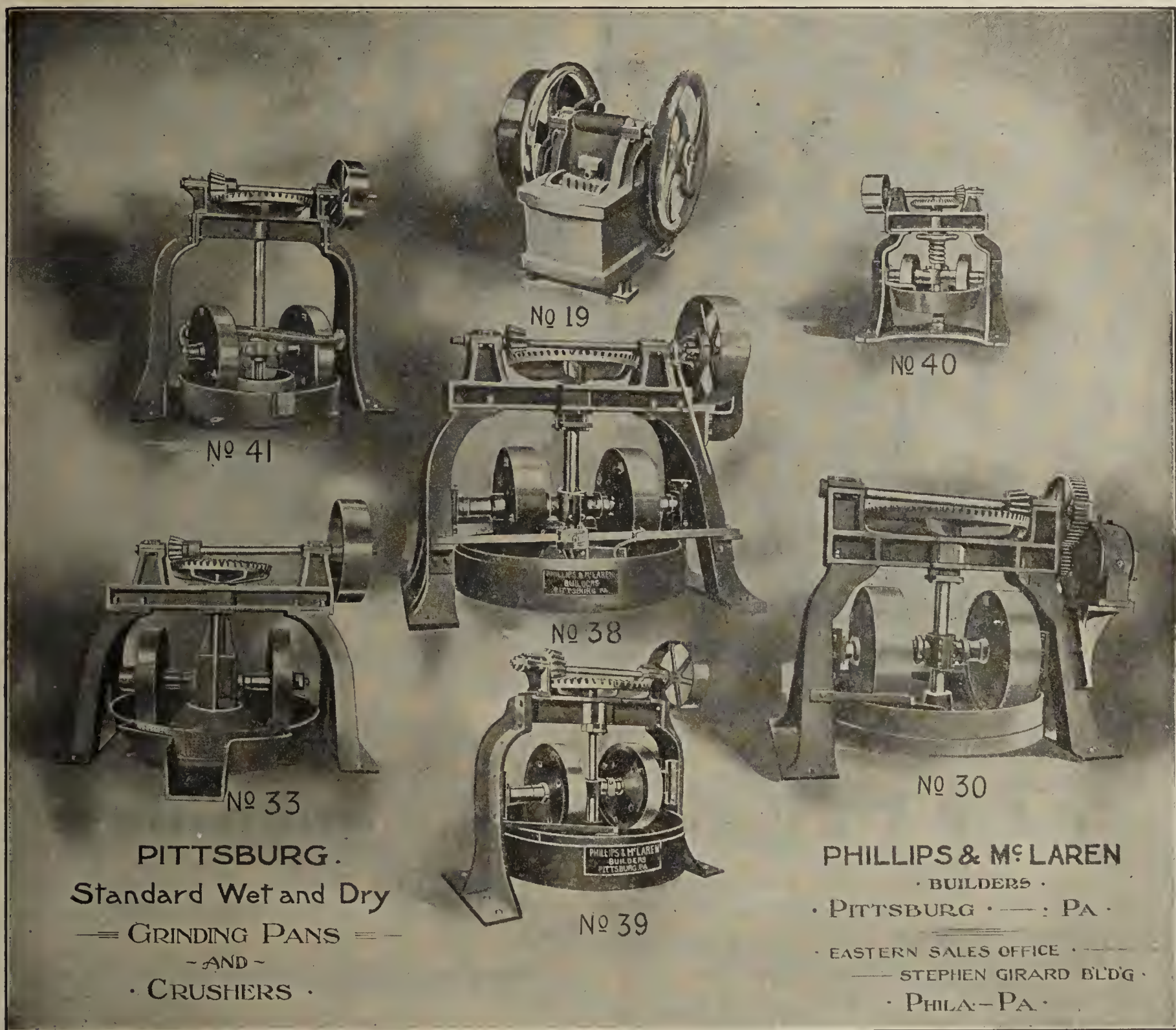
23 WEST PEARL ST
INDIANAPOLIS, IND.

PHILLIPS & McLAREN CO.,

Pittsburg, Pa.

Standard Wet and Dry Grinding Pans

This illustration is designed to show a few of our Pans, for WET and DRY Grinding, Revolving and Stationary, from 3½ ft. to 12 ft. in diameter. Made for grinding all kinds of materials for which Pans can be used. They are built for hard service, are extremely simple in design, heavy and powerful.



The illustration displays seven different models of industrial grinding pans and crushers, each with a unique design and labeled with a number. The machines are shown in various orientations, highlighting their heavy-duty construction and mechanical components like gears, rollers, and grinding surfaces. The labels are as follows:

- No 19: A large, complex machine with multiple rollers and a large flywheel.
- No 30: A machine with a large, curved grinding surface and a heavy frame.
- No 33: A machine with a large, curved grinding surface and a heavy frame.
- No 38: A machine with a large, curved grinding surface and a heavy frame.
- No 39: A machine with a large, curved grinding surface and a heavy frame.
- No 40: A machine with a large, curved grinding surface and a heavy frame.
- No 41: A machine with a large, curved grinding surface and a heavy frame.

PITTSBURG.
Standard Wet and Dry
— GRINDING PANS —
— AND —
• CRUSHERS •

PHILLIPS & McLAREN
• BUILDERS •
• PITTSBURG • — : PA •
• EASTERN SALES OFFICE • — —
— STEPHEN GIRARD BLDG •
• PHILA — PA •

If interested tell us what your material is and capacity desired, and we will quote you accordingly.

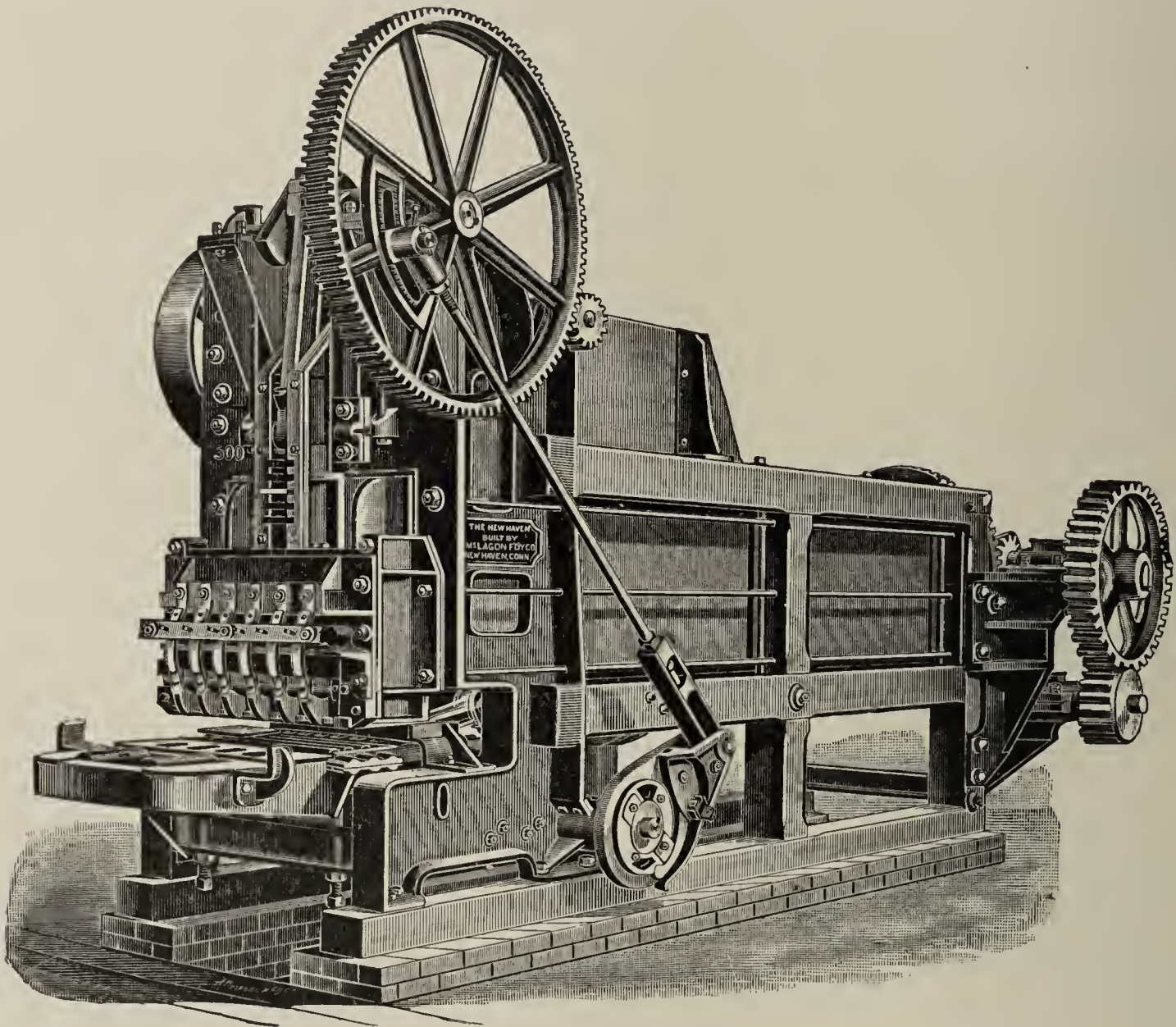
We make **Crushers** also.

Soft Clay Brick Machines

Are the only kind we build, and it's our aim to build them well. They are the reliable kind, with great strength placed just where it is most required.

Stout shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

♦ ♦ **THAT DON'T BREAK DOWN EVERY DAY.** ♦ ♦



"New Haven" Horizontal Brick Machine.

"New Haven" Brick Machines

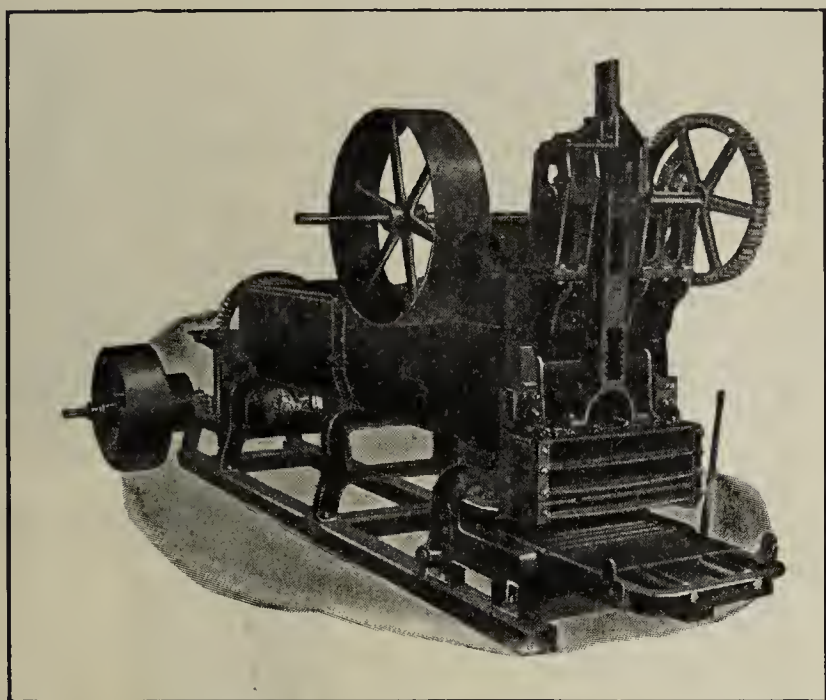
Came into existence some twenty years ago, and they came to stay. They have staid so well and are so well liked at home that three-fourths of all the brick made in New England are the product of "**New Haven**" Machines. They excel everything and

===== **For Hard Service Are Sure to Satisfy** =====

Where others fail. That is the reason all our machines are standing advertisements and why all our patrons recommend them. Such machines are worth investigating.

The EASTERN MACHINERY CO.,
NEW HAVEN, CONN.

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

**Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.**

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

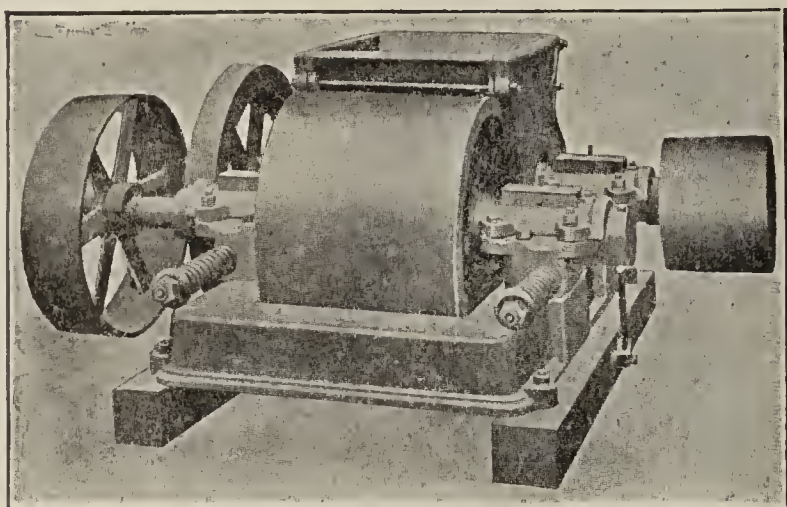
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



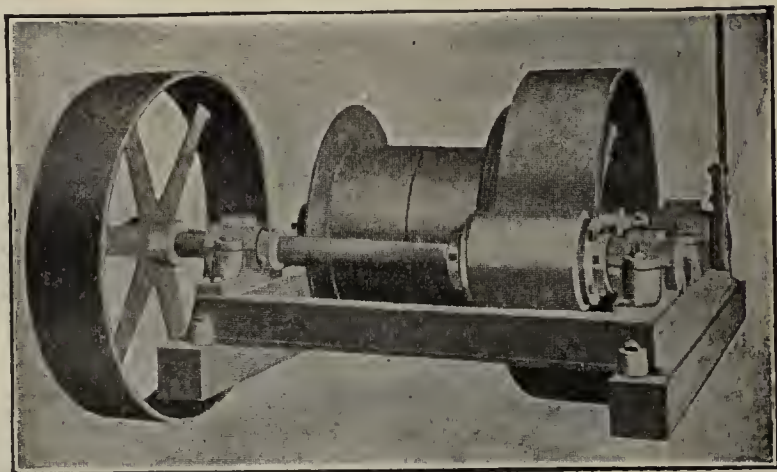
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

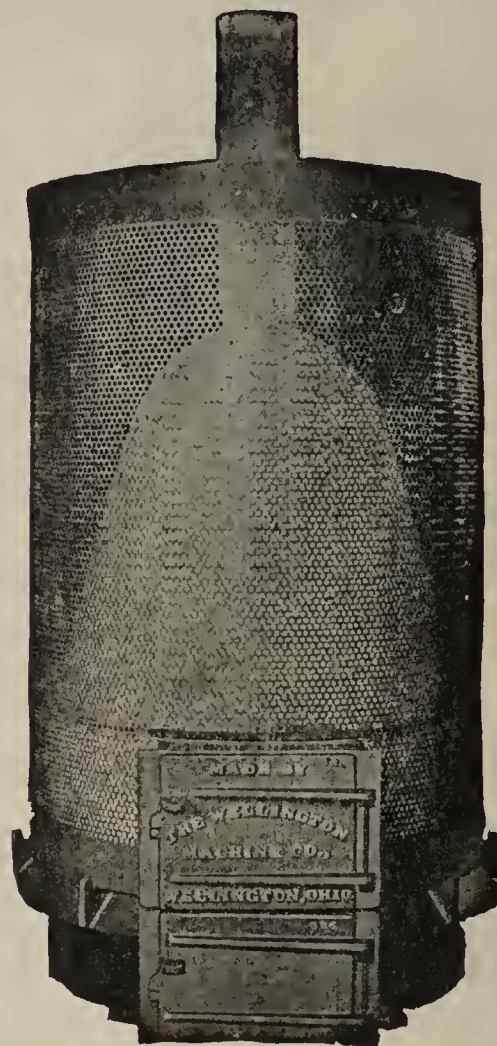
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1909 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

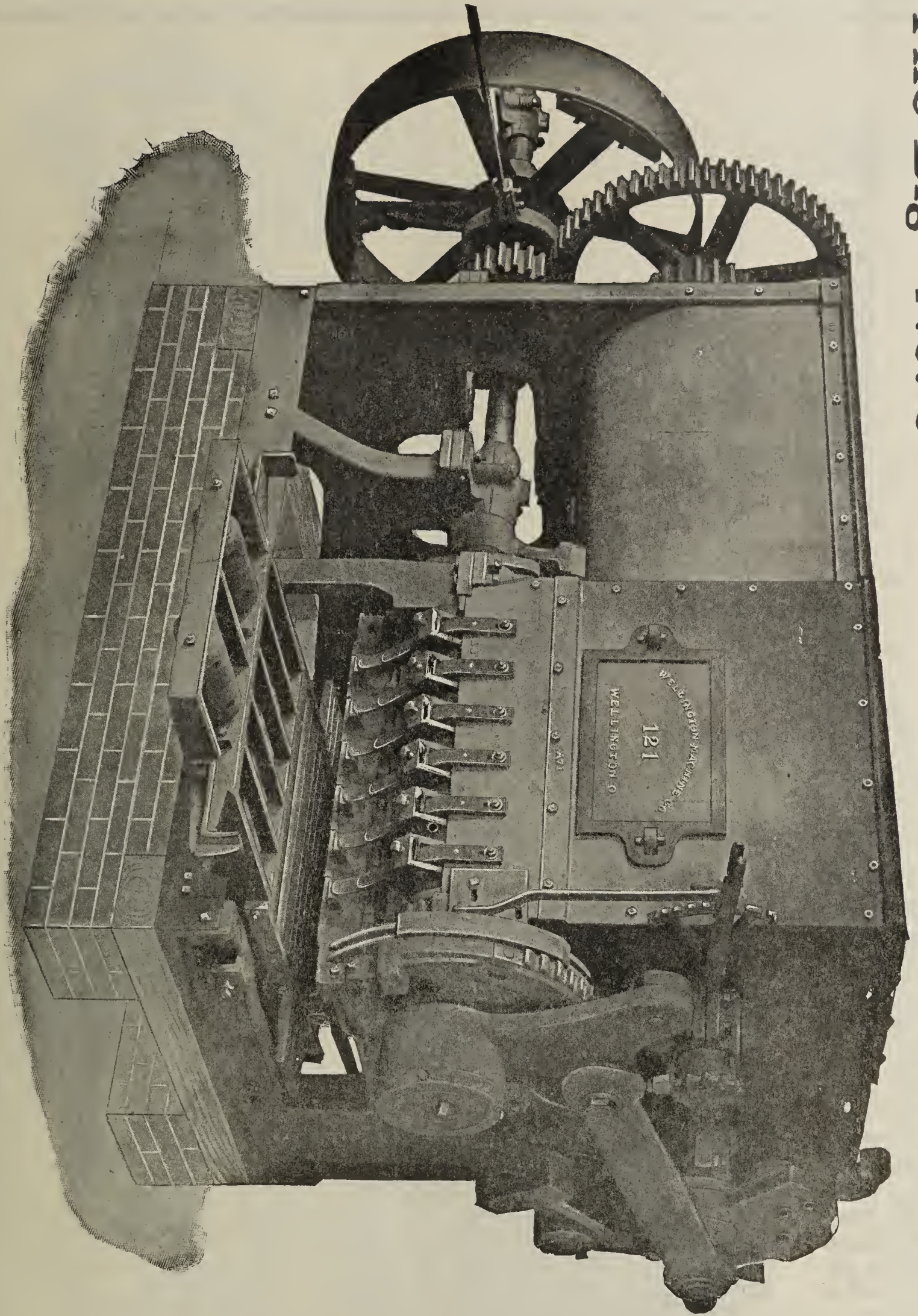
Indianapolis, Ind.

Mention The Clay-Worker.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

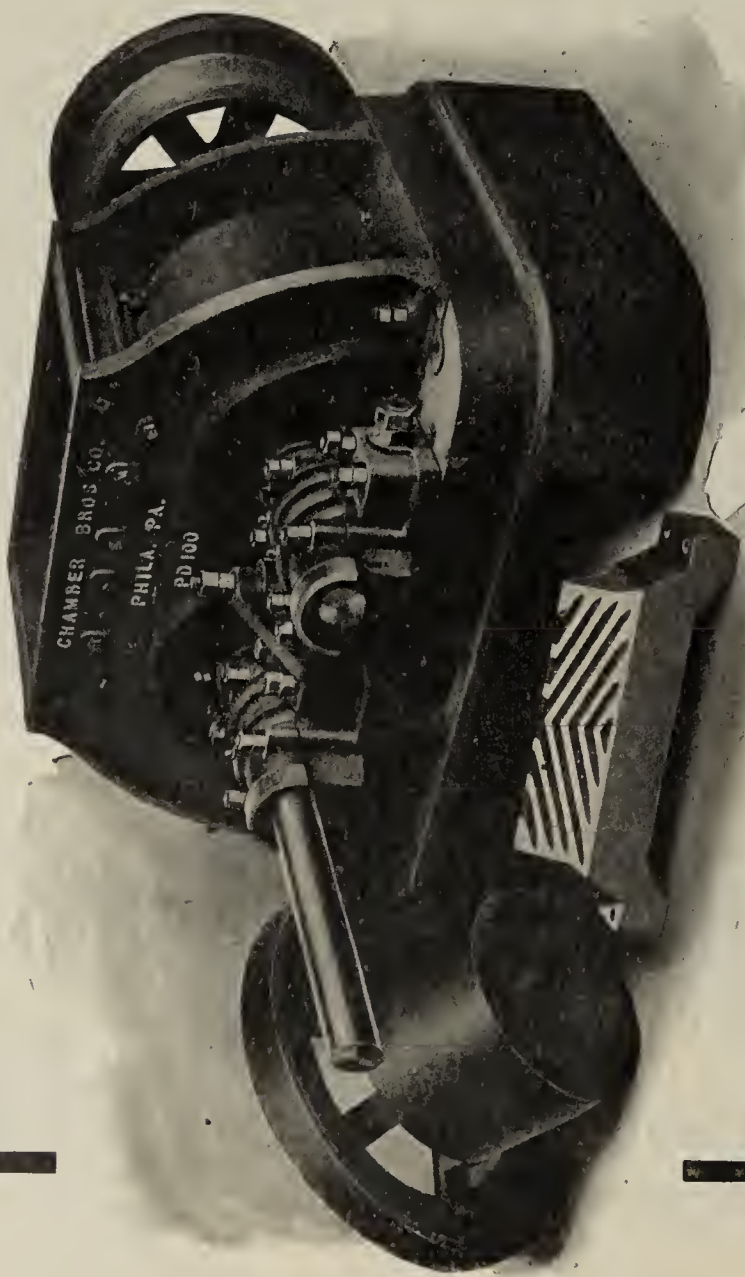
**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,
WELLINGTON,
OHIO.

Send for Catalogue.

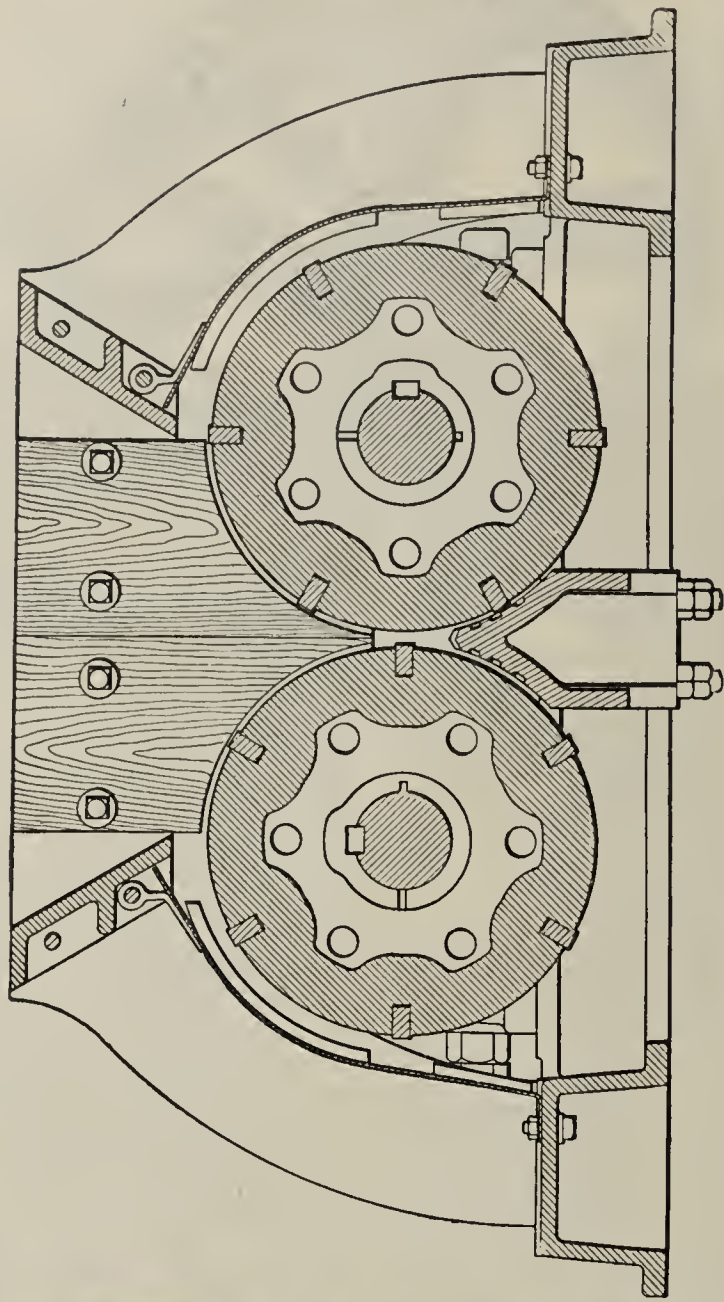
Mention the Clay-Worker.

Keystone Double Disintegrators.



No. 30 Size Keystone.

For Grinding Clays, Wet
or Dry, With or Without
Stones, Pieces of Ore, etc.



Patents Applied For.

Grinding Tests Made on
Full Size Machines for
Intending Customers.



CHAMBERS BROTHERS COMPANY,

PHILADELPHIA, PA.

CHICAGO, ILL.

Madden New Model Vertical Auger Machine

for

The Larger Sizes of

Drain Tile, Conduits,
Hollow Ware, etc.



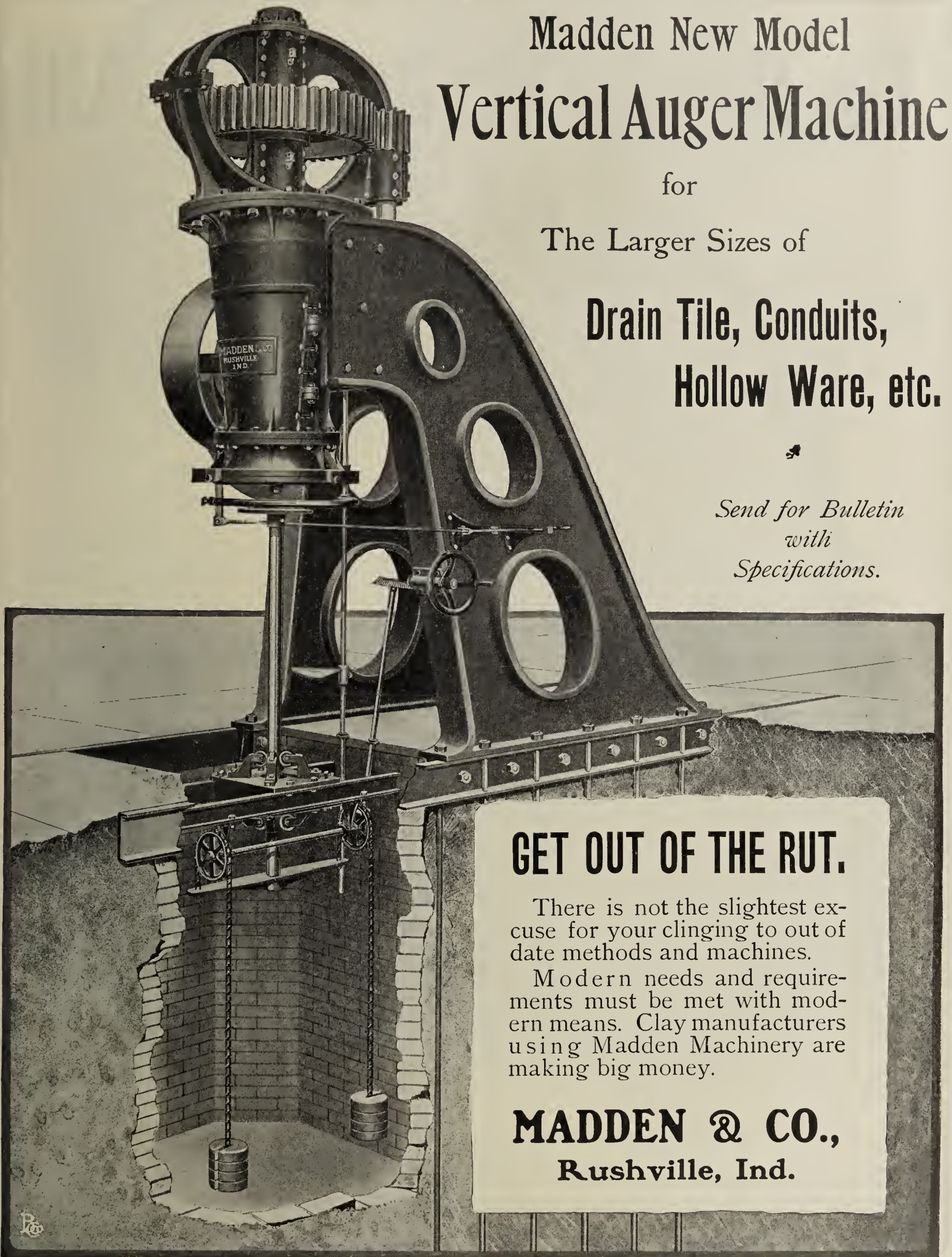
*Send for Bulletin
with
Specifications.*

GET OUT OF THE RUT.

There is not the slightest excuse for your clinging to out of date methods and machines.

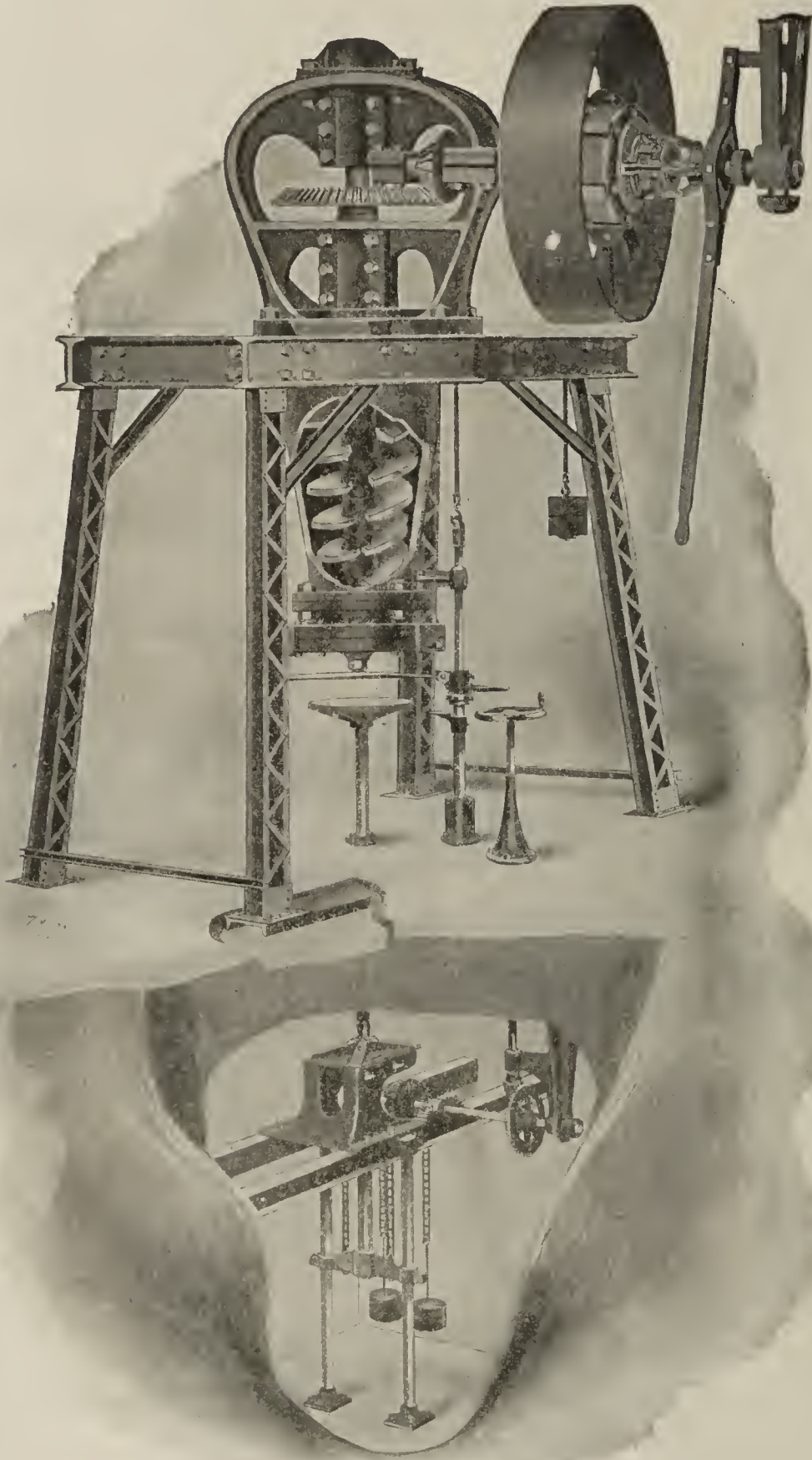
Modern needs and requirements must be met with modern means. Clay manufacturers using Madden Machinery are making big money.

MADDEN & CO.,
Rushville, Ind.



See our ads on following pages.

The Hoosier Vertical Tile Mill



*Another Design of
Auger Machine
for
Drain Tile, Conduits,
Hollow Ware,
etc.*



*Erected with either
Steel or Timber Sup-
ports, or without, if
desired.*



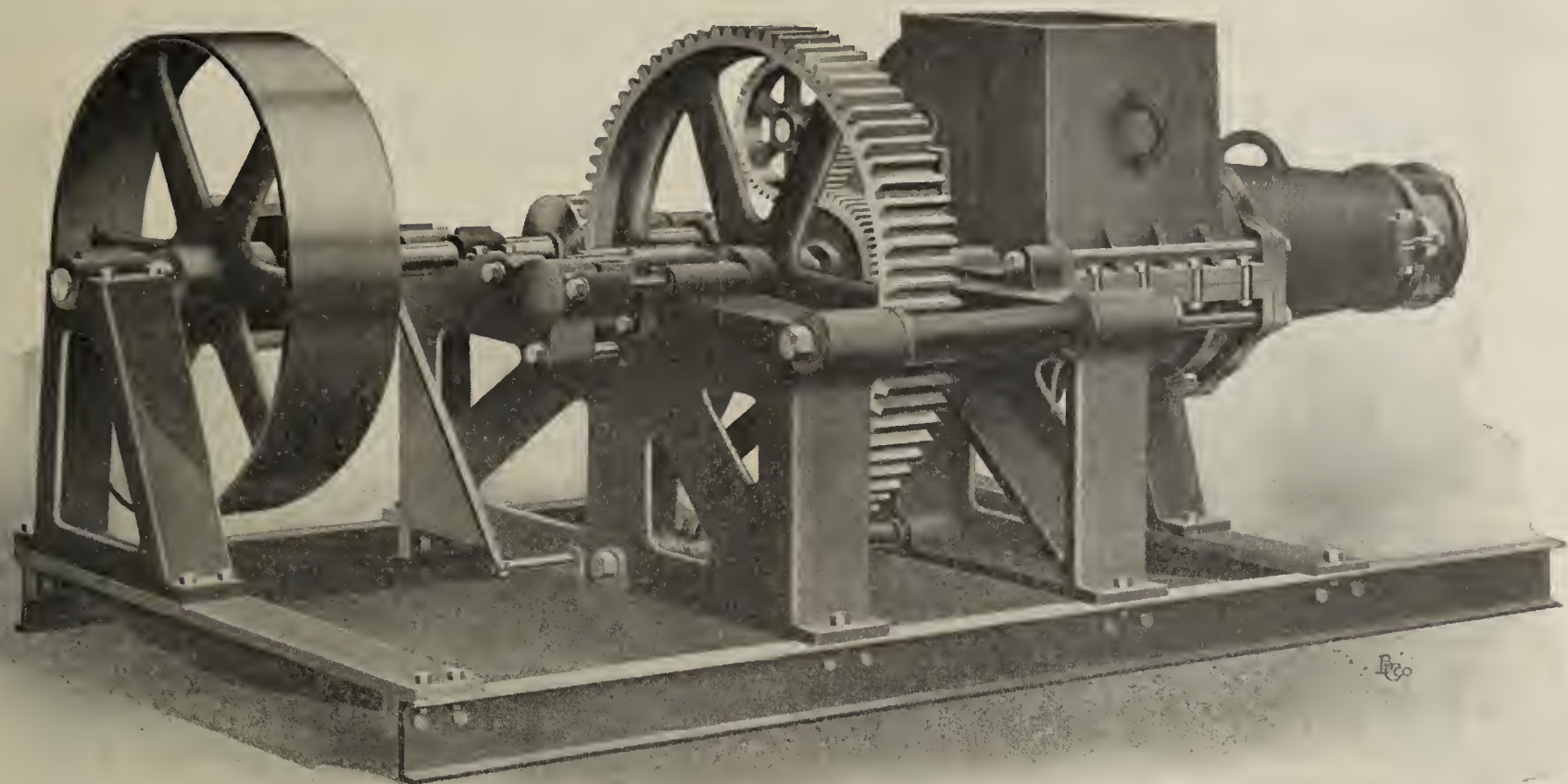
*STRONG,
LIGHT
RUNNING.*



*Tested Thirteen Years
in
Stubborn Clay.*

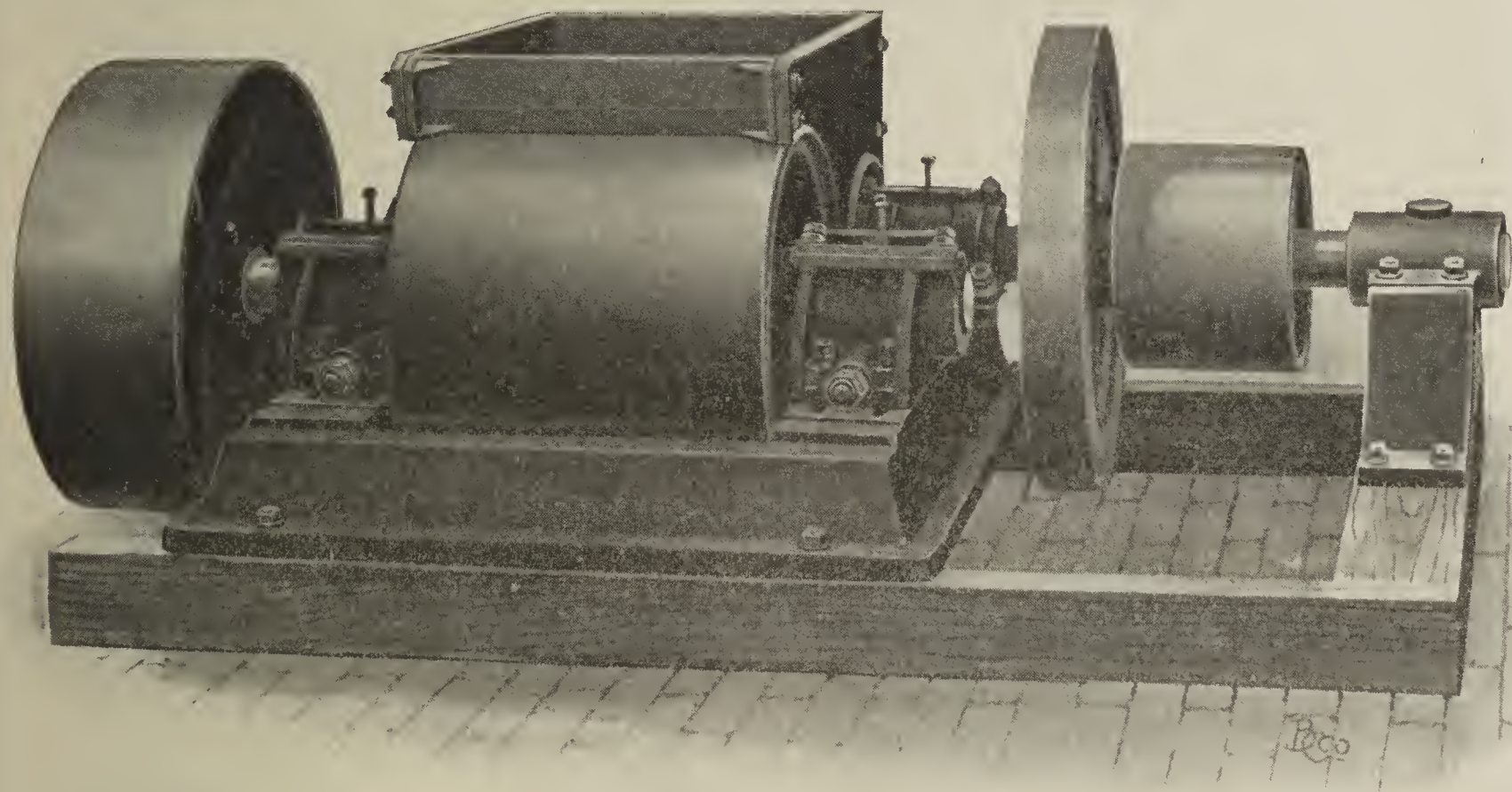
Full description and specifications in catalog. Address

MADDEN & CO., Rushville, Ind.



A MODERN VERSION OF A GOOD OLD TYPE.

Here is the Madden Horizontal Brick and Tile Machine in its Twentieth Century form, changed and improved to the minute. Note the large diameter and wide face of main gear. Hexagon hammered main shaft. Roller thrust bearing. Wedge adjustment in main shaft bearings. Bearings and caps planed to standard dimensions.



AN EASY LEADER IN DISINTEGRATORS.

The new No. 3 Disintegrator of Madden & Co. is an easy leader of all other machines of its size on the market. Note rigid design of Bed Plate, of liberal length. Bearings divided at an angle of 45°. Ring Oiler Type, lined with genuine copper hardened babbitt. Rolls—fast roll 14 x 24; feed roll 24 x 24. Shafts 4-in. diam.

MADDEN & CO., Rushville, Ind.

Mention The Clay-Worker.

GRUMIAUX



The Magazine Man LET ME TEACH YOU

The Magazine Subscription Game

A BUSINESS WITH A BIG FUTURE

How I Developed My Business From \$47
to \$400,000 a Year

The subscription agency business is just beginning to develop, and every man and woman can learn it by my complete instructions, personally conducted by mail. You can in your leisure hours conduct a mail-order business that is dignified and earn **large profits** by the **Grumiaux System**.

Begin in a small way and watch it grow. The principles upon which I built my business becomes yours and the benefits of my 22 years' experience—you need not make the mistakes I did—the elements of success as I discovered them, my ideas, my schemes, all become yours through the **Grumiaux System**.

Year after year, the renewal business increases profits and before you know it, you have a substantial business of your own. Start by working a few hours evenings.

Full particulars by mentioning this magazine.

Ask for Our Complete 64-Page
Catalog. It's Free.

We Can Save You Money

THE CLAY-WORKER.....	\$2.00	} Our Price,
Review of Reviews	3.00	
McClure's	1.50	
		\$4.10

THE CLAY-WORKER.....	\$2.00	} Our Price,
World's Work.	3.00	
Everybody's.	1.50	
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THE CLAY-WORKER

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THE CLAY-WORKER.....	\$2.00	} Our Price,
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THE CLAY-WORKER.....	\$2.00	} Our Price,
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World's Work.....	3.00	
Everybody's.....	1.50	\$4.85

Ask for Our Complete 64-Page
Catalog. It's free.

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The Grumiaux News and Subscription Co., Le Roy, N.Y.

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Good Literature....	.35	
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Paris Modes.....	.50	

THE CLAY-WORKER....	\$2.00	Our Price, \$3.60
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THE CLAY-WORKER....	\$2.00	Our Price, \$3.10
Pictorial Review.....	1.00	
Ladies World.....	.50	
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THE CLAY-WORKER....	\$2.00	Our Price, \$3.65
Designer or New Ideas.....	.50	
McClure's.....	1.50	
Modern Priscilla.....	.50	

GRUMIAUX



THE CLAY-WORKER

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National Fruit Grower.....	2.45
Nautilus.....	2.75
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School Century.....	3.35
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Surveyor.....	3.85
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Woman's World.....	2.35
Young Man in Business.....	2.45
World Evangel.....	2.60

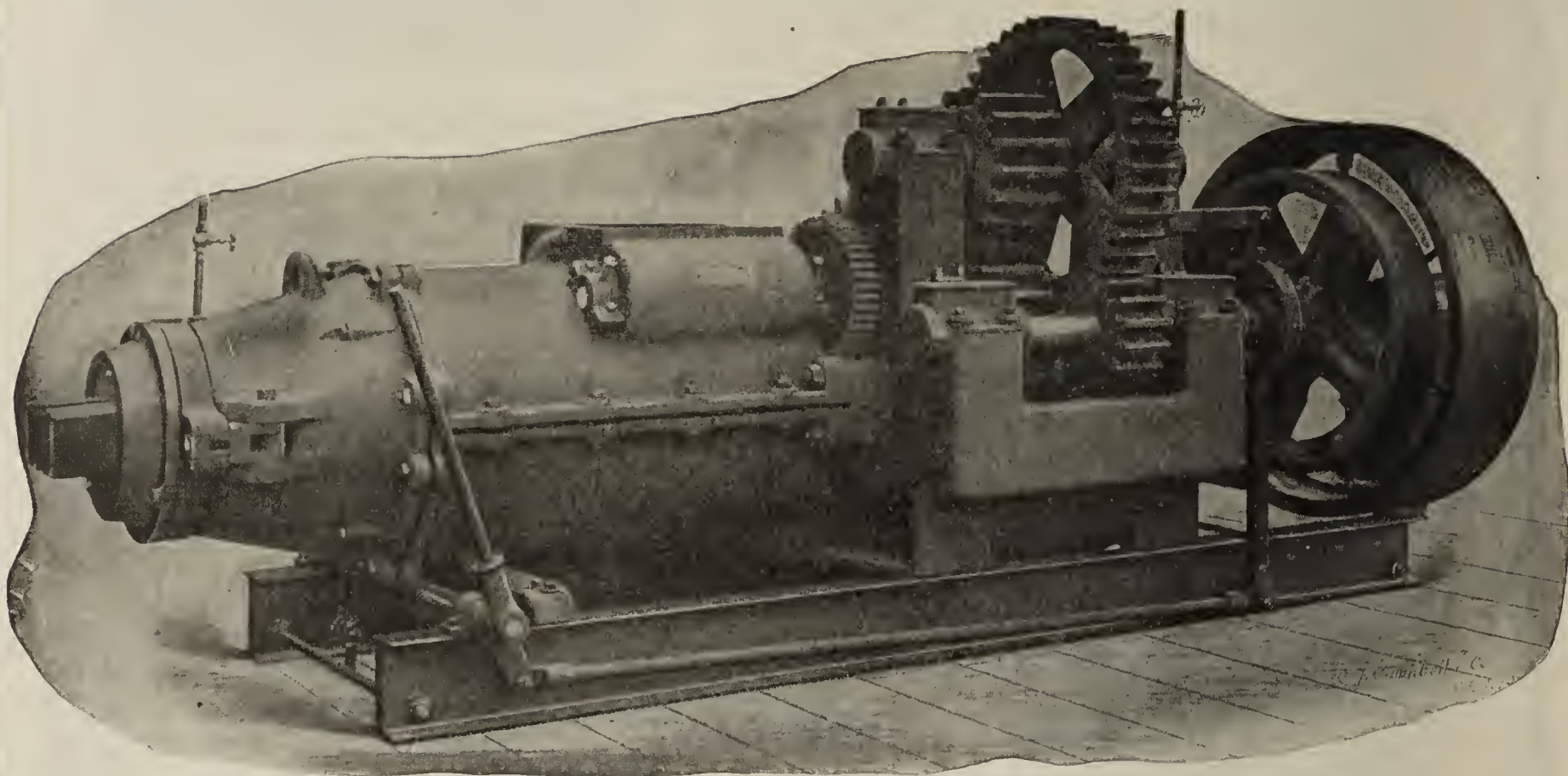
**Ask for Our Complete 64-Page
Catalog. It's Free.**

Address All Orders to

The Grumiaux News and Subscription Co., Le Roy, N.Y.

HORIZONTAL BRICK MACHINES.

Brewer patterns embody all that is good. They have weight and strength in excess of any other models on the market, their design is modern to the minute and their efficiency the highest.



Some Features of Brewer Construction.

Gear frames cast in one piece. Back thrust bearings self-oiling, self-aligning and adjustable so that wear upon the expressing screw may be taken up. Knives forged from hard, high carbon steel; each one adjustable for pitch and can be set out as it wears. Journals self-oiling. A feed-roll to keep the hopper clear. Mounting, upon steel I-beams, self-contained.

There are three sizes ranging in weight from 5,500 to 15,000 pounds. In capacity from 1,000 to 5,000 bricks per hour.

Our catalog shows a full line of stiff-mud clayworking machines. It will be mailed upon request.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.



The introduction of RAYMOND Machinery marks the beginning of the present era of improvement and perfection in clayworking methods, and their leadership has been most prominent in their persistent adherence to proven principles, as well as marketing new machines.

Practical Tests and Chemical Analyses.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG

"Smiles"

Exhibits

- 2040. Heavy Duty Dry Pan.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Conveyors.
- 2047. Four-Roll Combination Crusher.
- 2049. Niagara Hollow Ware Machine.
- 2052. Victor Repress.
- 2053. Bevel-Geared Pug Mills and Clay Granu-
lators.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Press Machinery.
- 2063. Raymond System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Daytonian Brick Machine.
- 2071. Standard Pug Mills.
- 2075. Universal Semi-Automatic Cutter.
- 2077. Radiated Heat Dryer.

"Old Methods Discarded"

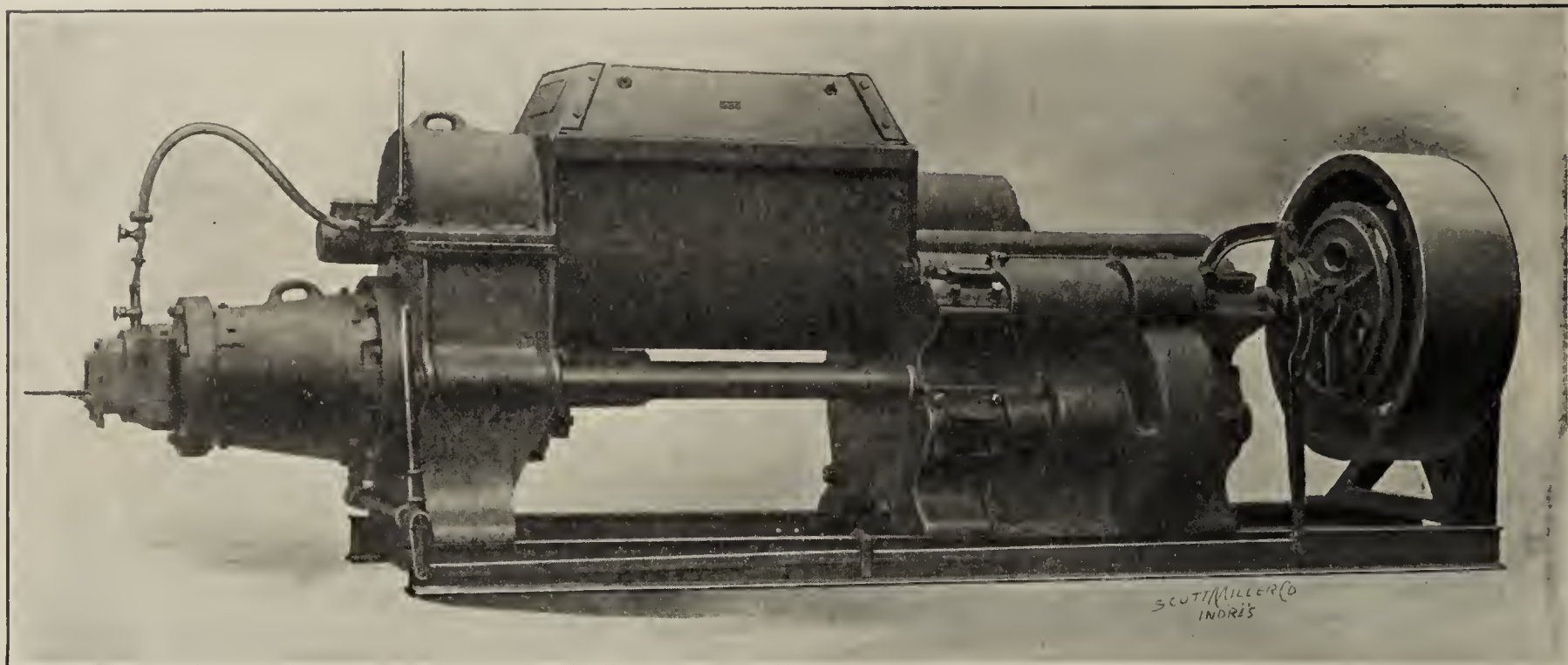
Exhibits

- 2078. Soft Mud Machinery.
- 2081. Automatic Wet Pan Emptier.
- 2083. No. 1 Rotary Automatic Cutter.
- 2084. Dryer Cars.
- 2085. Hand Dry Press.
- 2086. End-Cut Cutting Table.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.
- 2090. No. 2 Daytonian Brick Machine.
- 2091. Cup Elevators.
- 2092. Conical Roll Crusher.
- 2093. Piano Wire Screens.
- 2094. Single-Geared Pug Mill.
- 2095. No. 2 Rotary Automatic Cutter.
- 2096. "555" Brick Machine.
- 2097. Low Frame Dry Pan.

"Dry and Why"

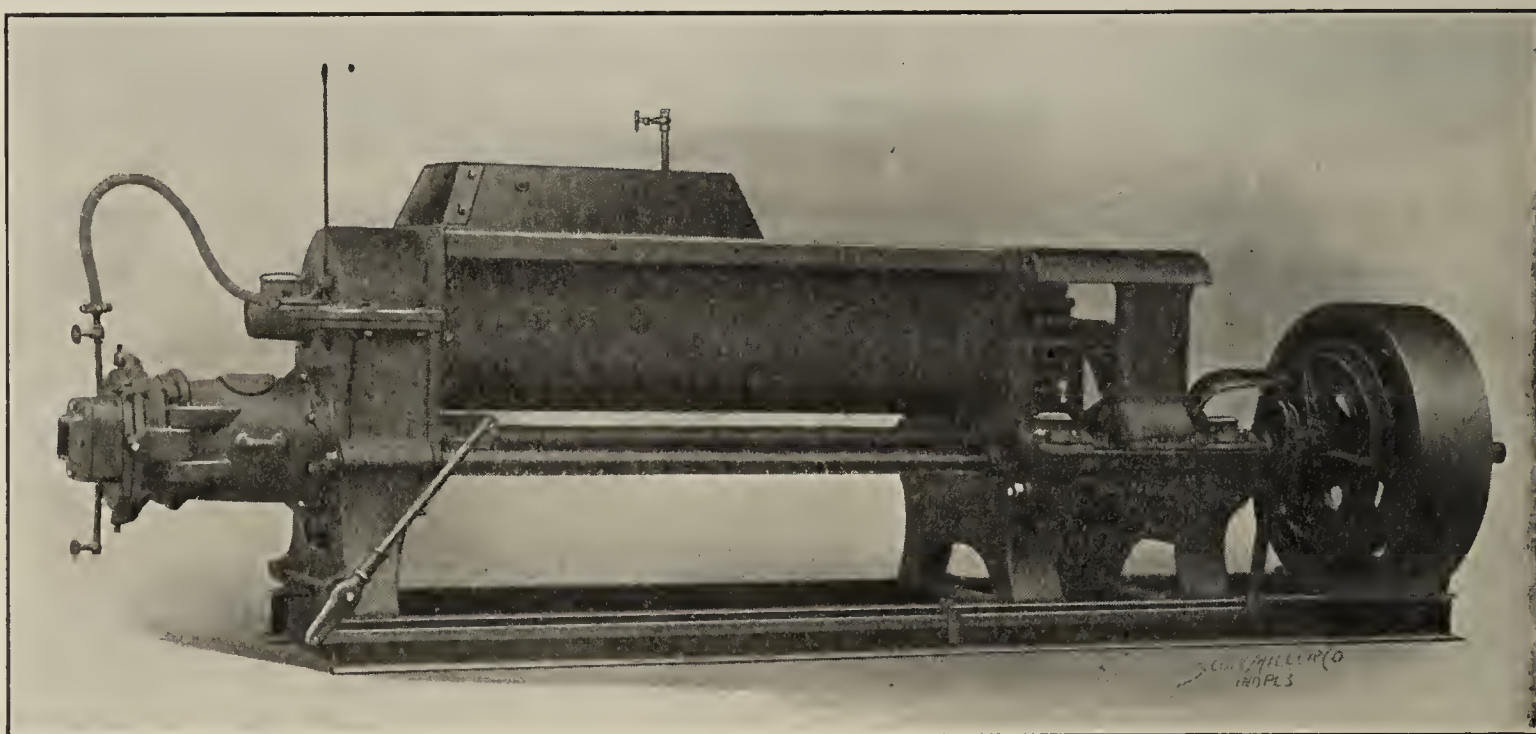
THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

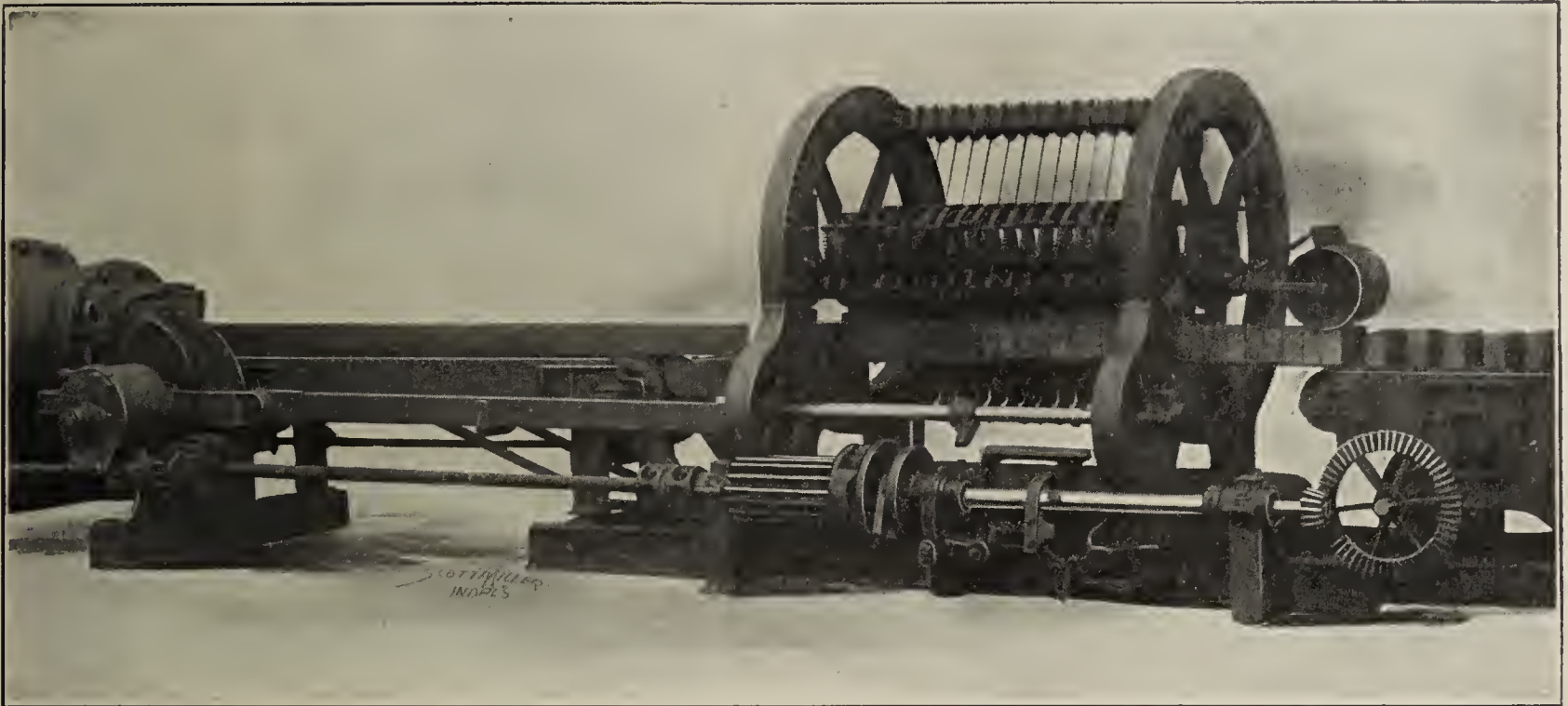
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

Galion, Ohio.

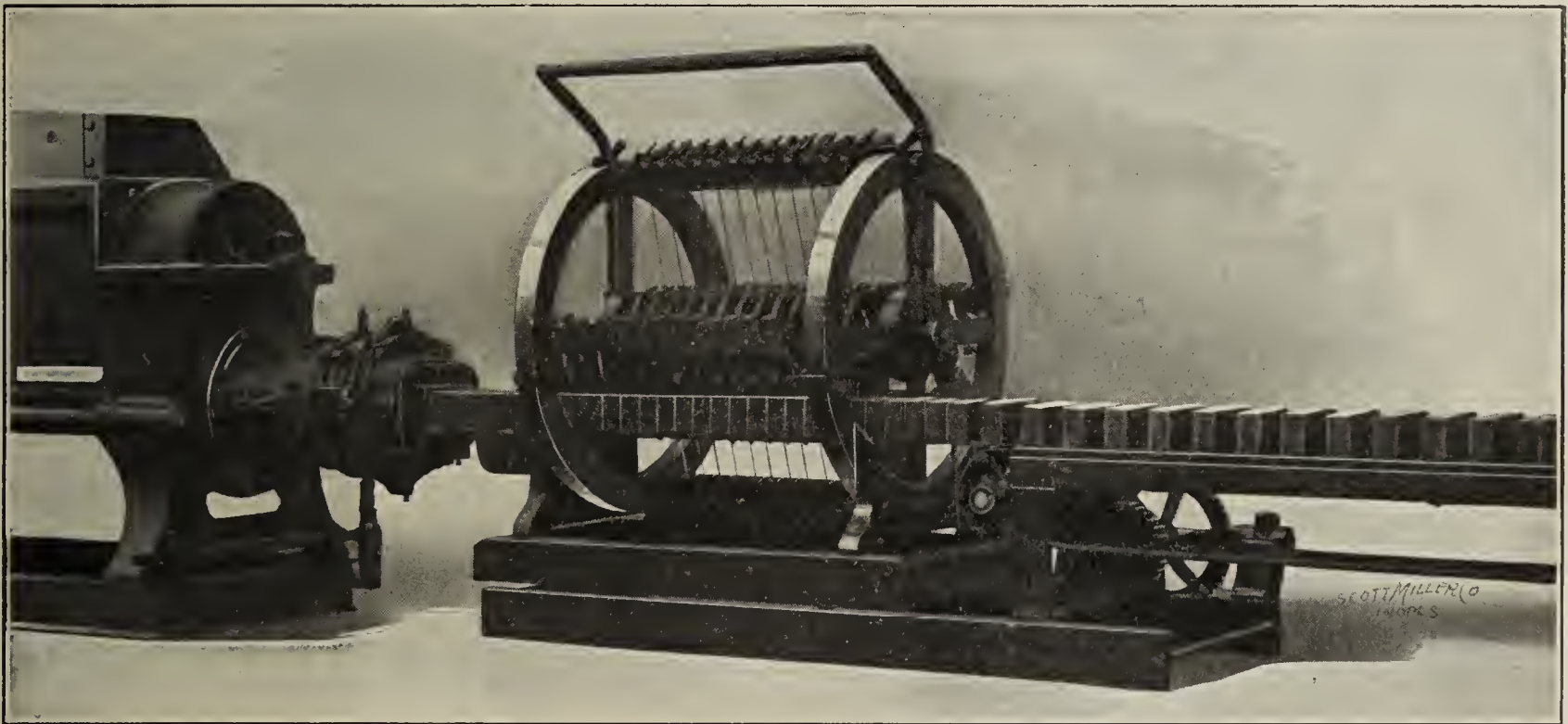
Write for Catalog.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing.

Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

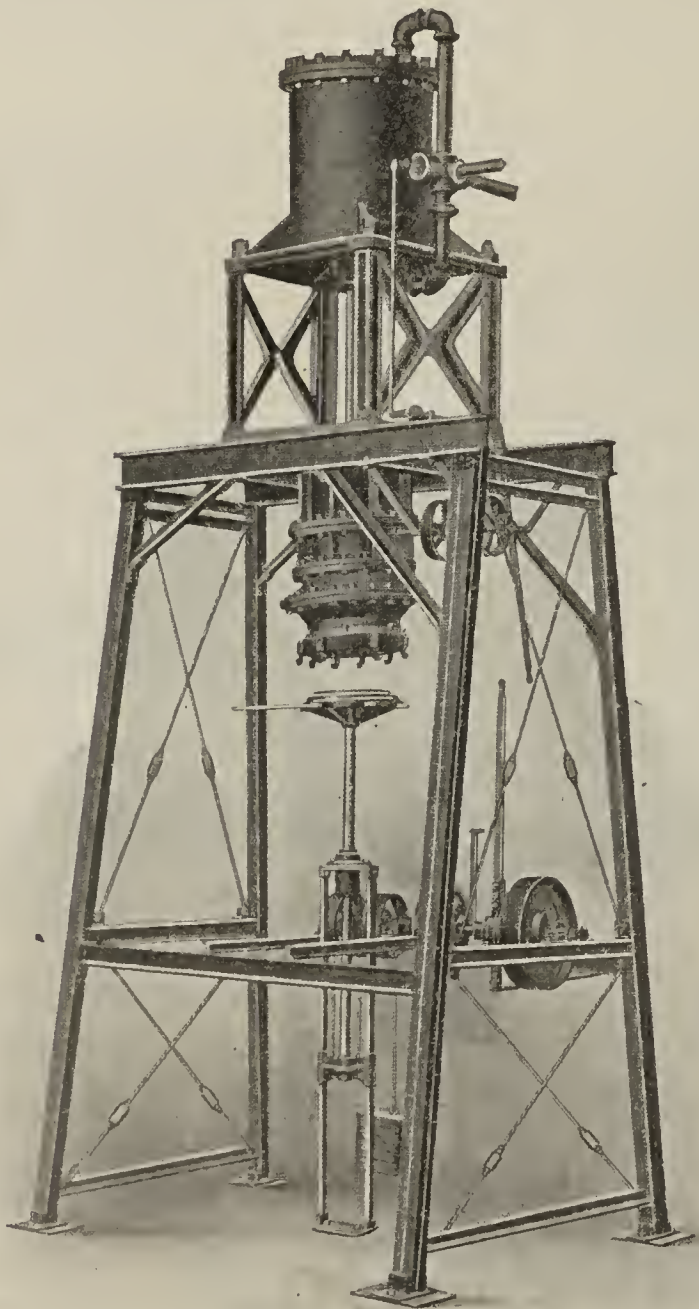
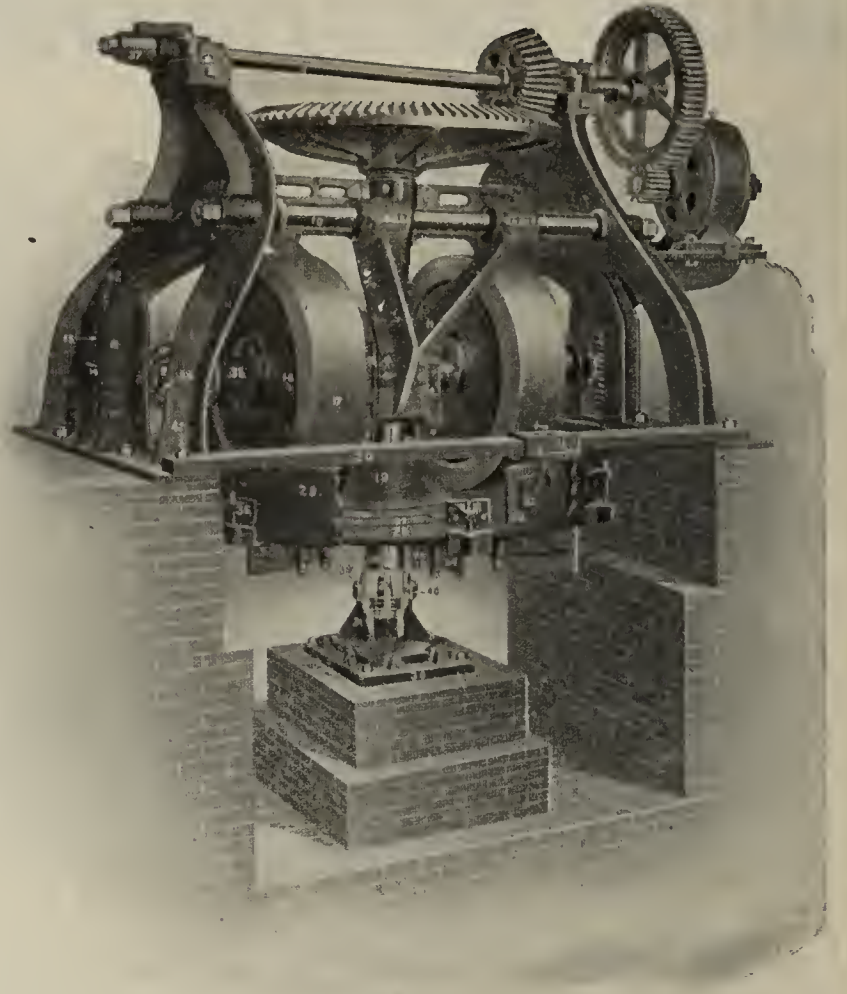
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

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PERFORATED STEEL FOR CLAY SCREENS.

Samples or blue prints with prices furnished on request.

For Chute or Gravity Screens, Shaking or Vibrating Screens, Revolving Screens, Dry Pan Screens.

For Cleaning and Grading Clay, Shale, Sand, Cement, Coal, Stone, Etc.

For Pallets or Trays, Car Bottoms, Drying Floors, Conveyor Bottoms, Separators, Etc.

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The Better the Dryer the Better the Brick,

consequently, if you install a

Rodgers Waste Heat Dryer

in your plant you will have the satisfaction of knowing that you have a Dryer better than which none is built and are obtaining Brick, better than which could not be manufactured from the clay of which your product is composed.

The Rodgers Dryer is the Dryer which has an UNBROKEN RECORD OF SUCCESS.

IT PAYS AT LAST TO GET THE
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Waste Heat Dryer Specialists,
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Largest Manufacturers of Brick Drying Equipment in the United States.

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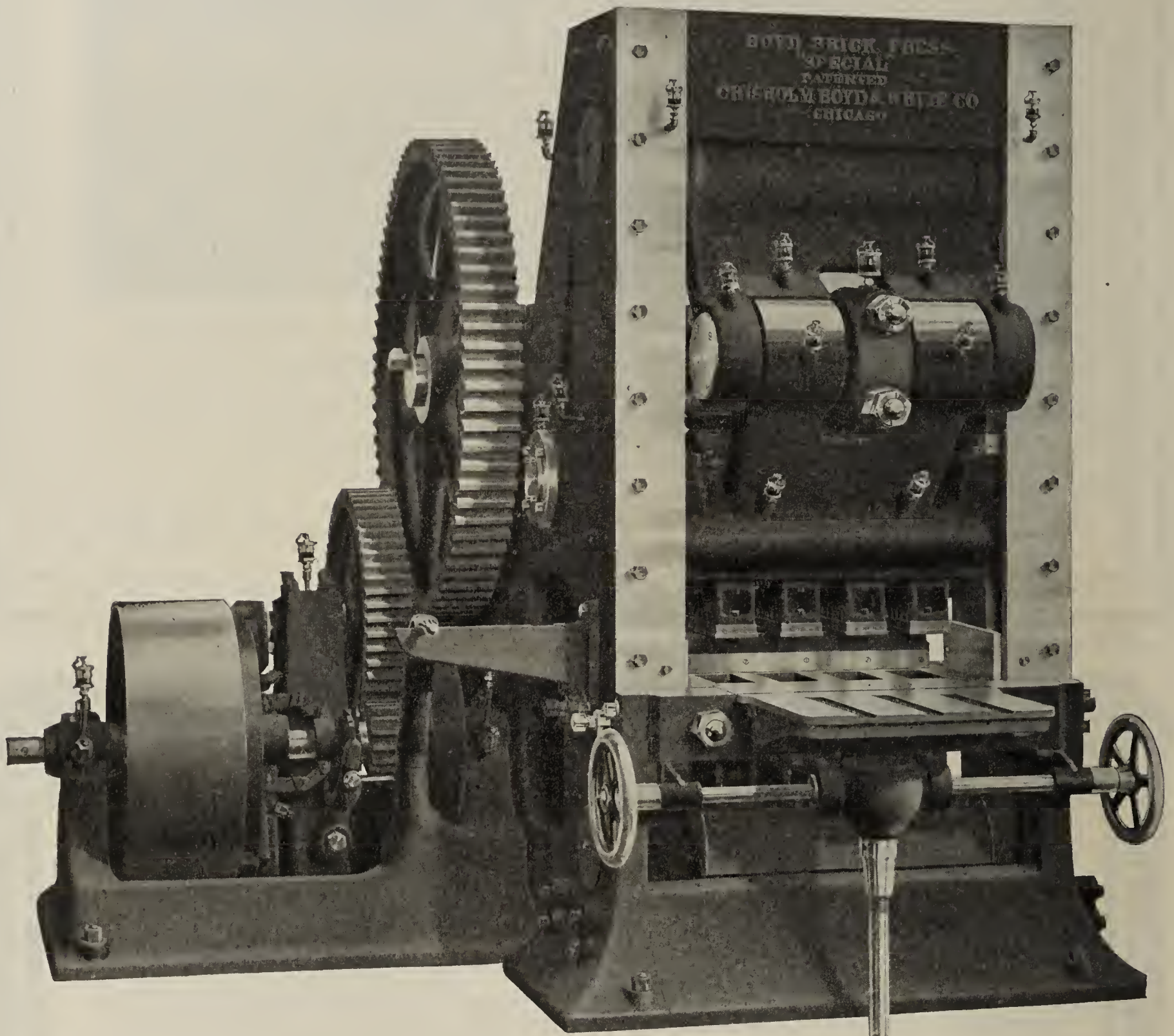
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Built in Two, Four and Six-Mold Sizes.

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BRICK PLANTS designed and complete machinery equipment furnished.

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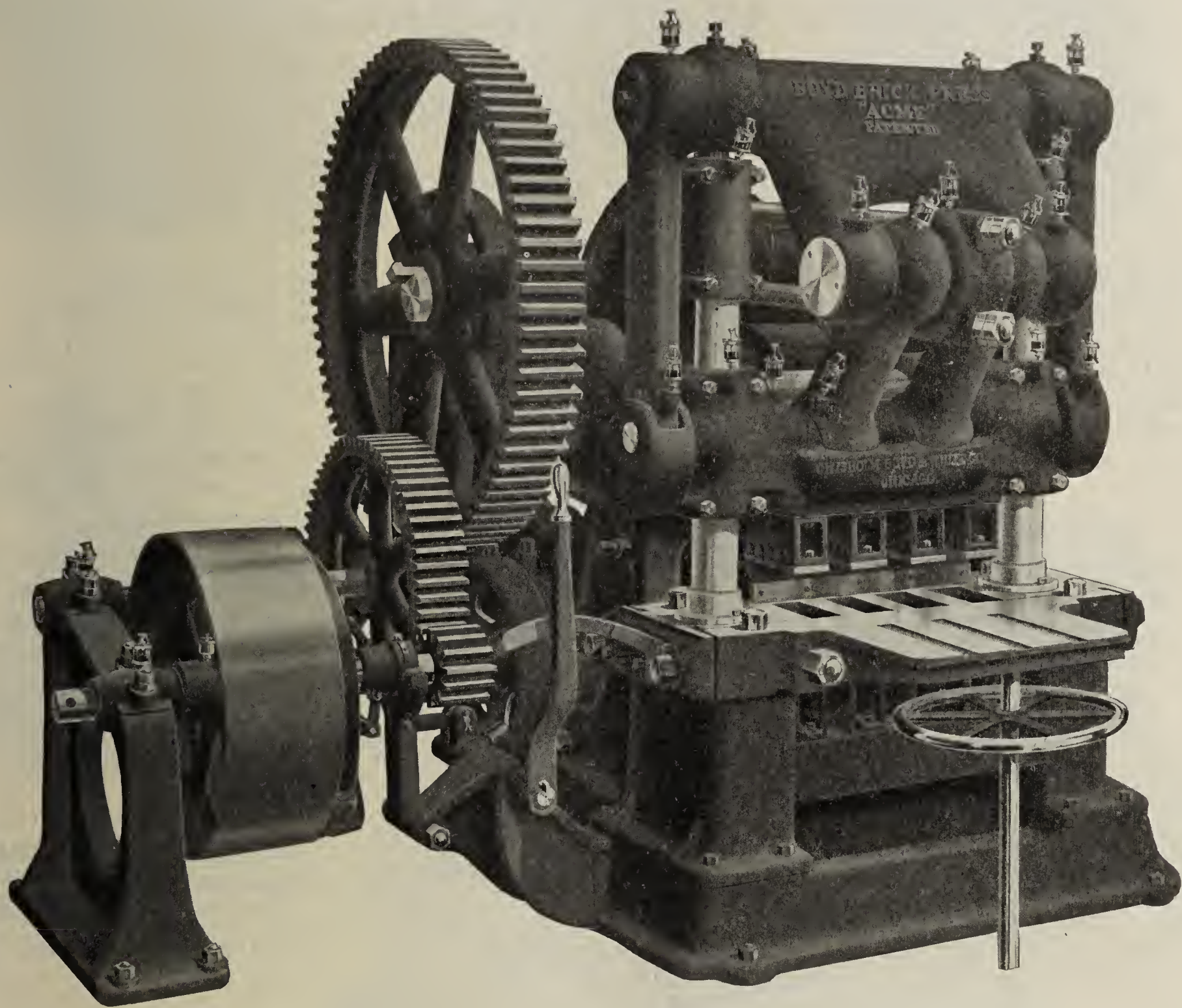
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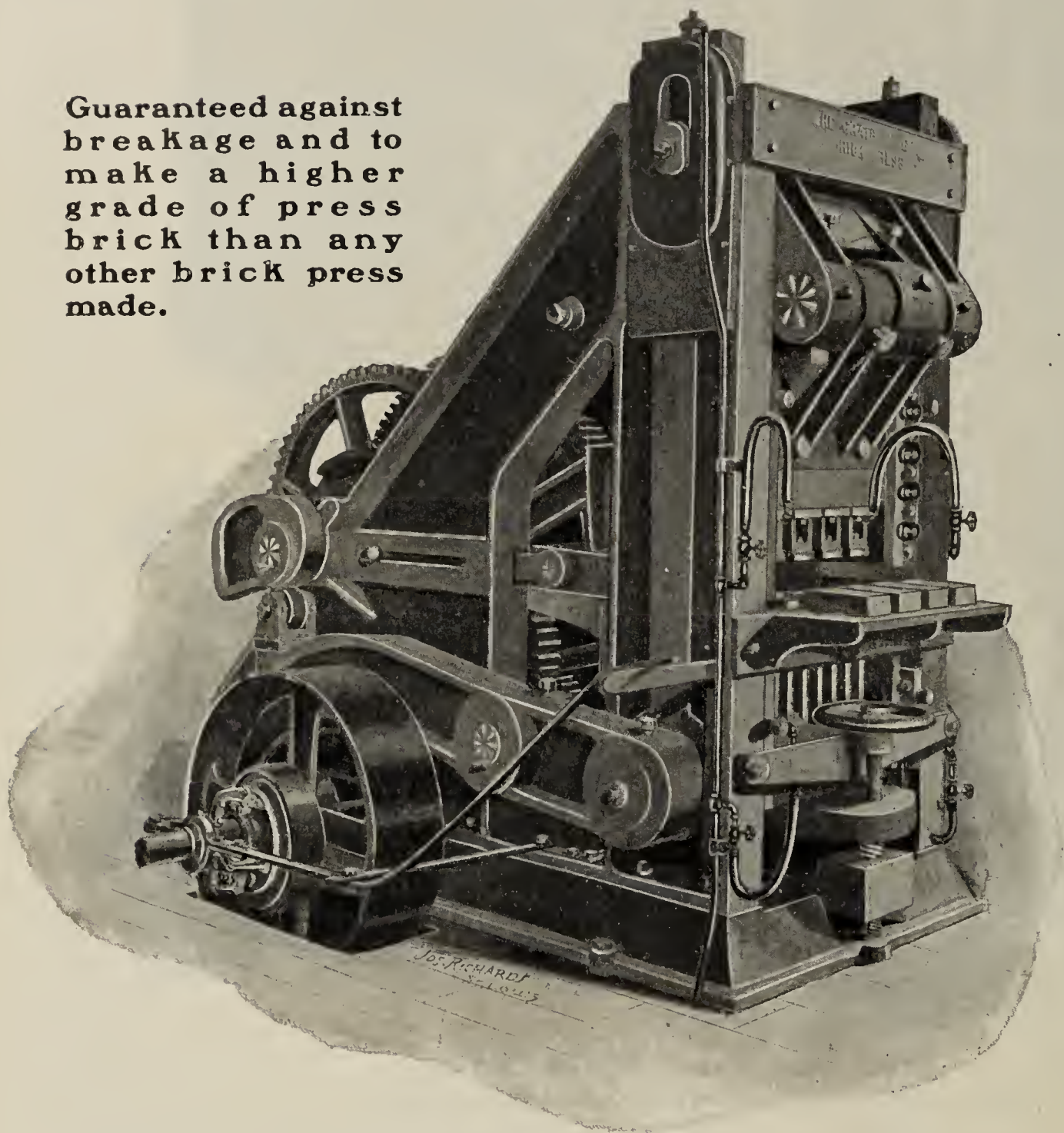
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THE ONLY PERFECT BRICK PRESS

For SAND=LIME and DRY CLAY BRICK of Unequaled Quality.

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Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



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Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

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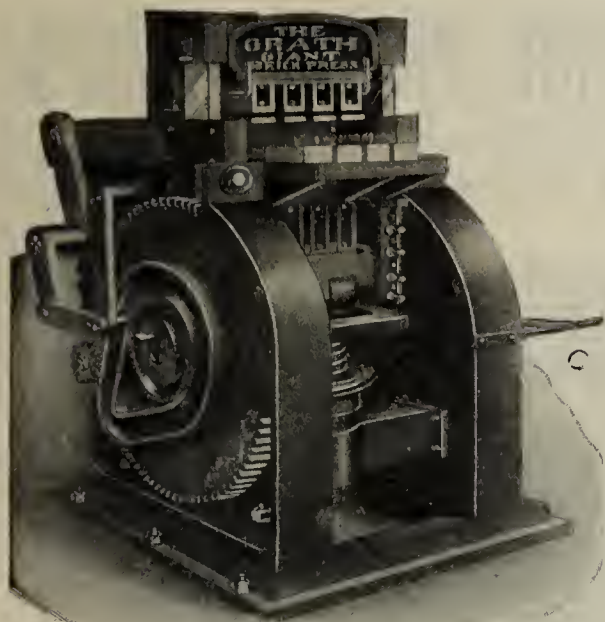
Simplest in Construction, Most Powerful in Action and Guaranteed Against Breakage. All parts above floor level and easy to get at.

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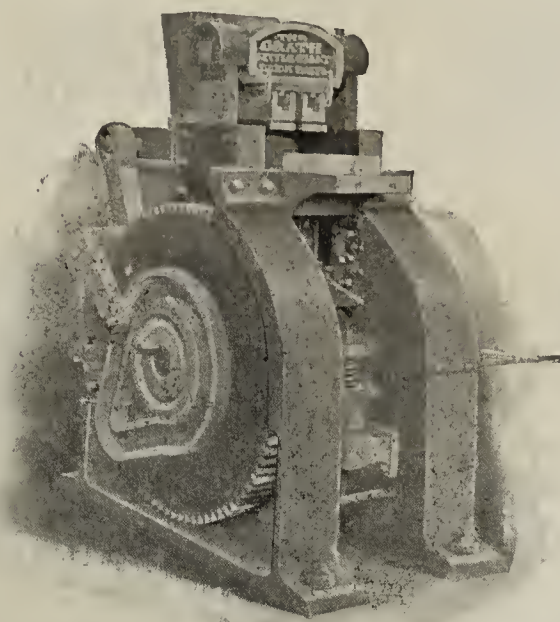
CENTURY BLDG.

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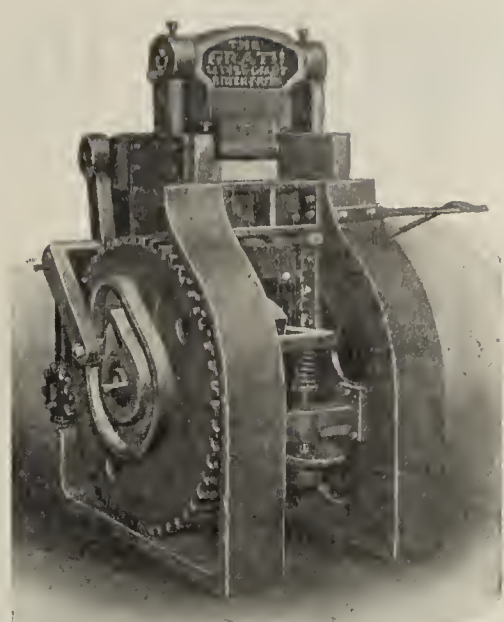
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BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



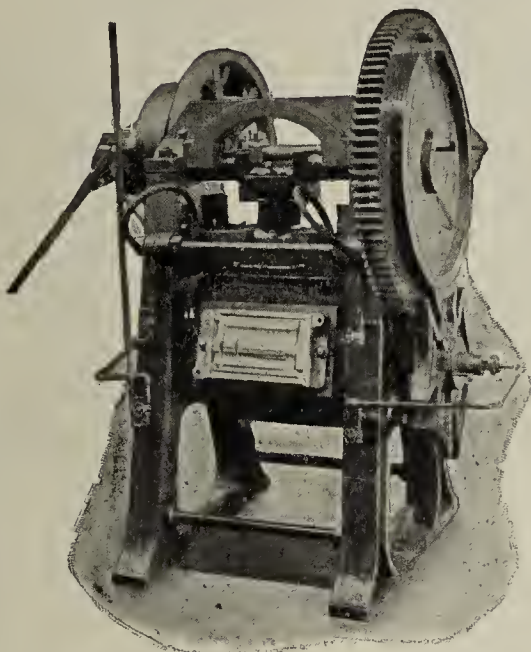
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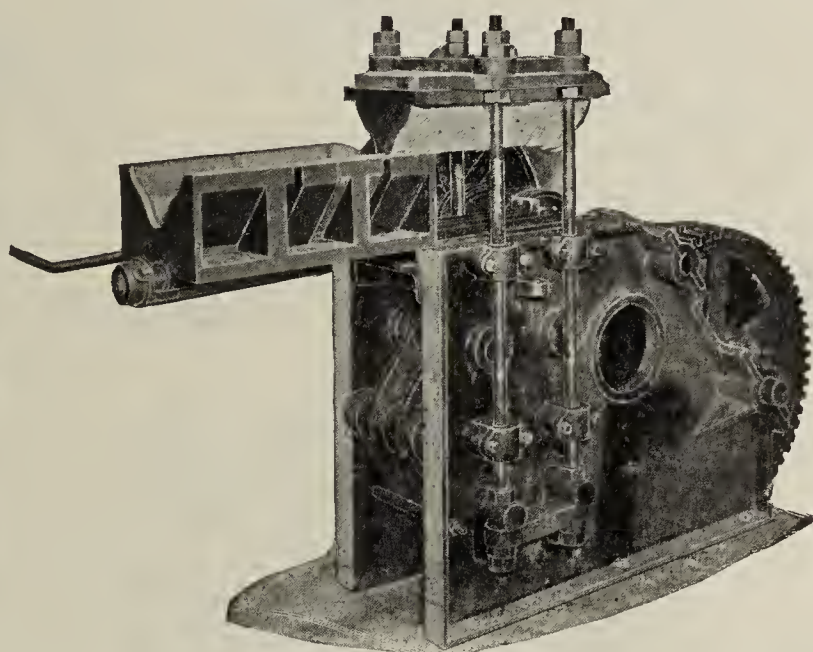
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From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.

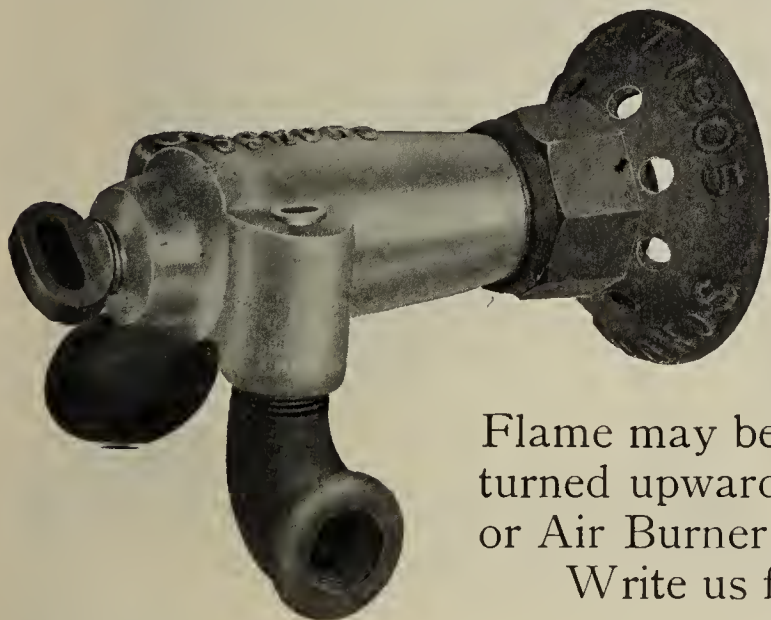


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Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



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No Roofing Tile Plant
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For Plaster or Metal Dies.
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Especially designed for burning Brick, Tile, Terra
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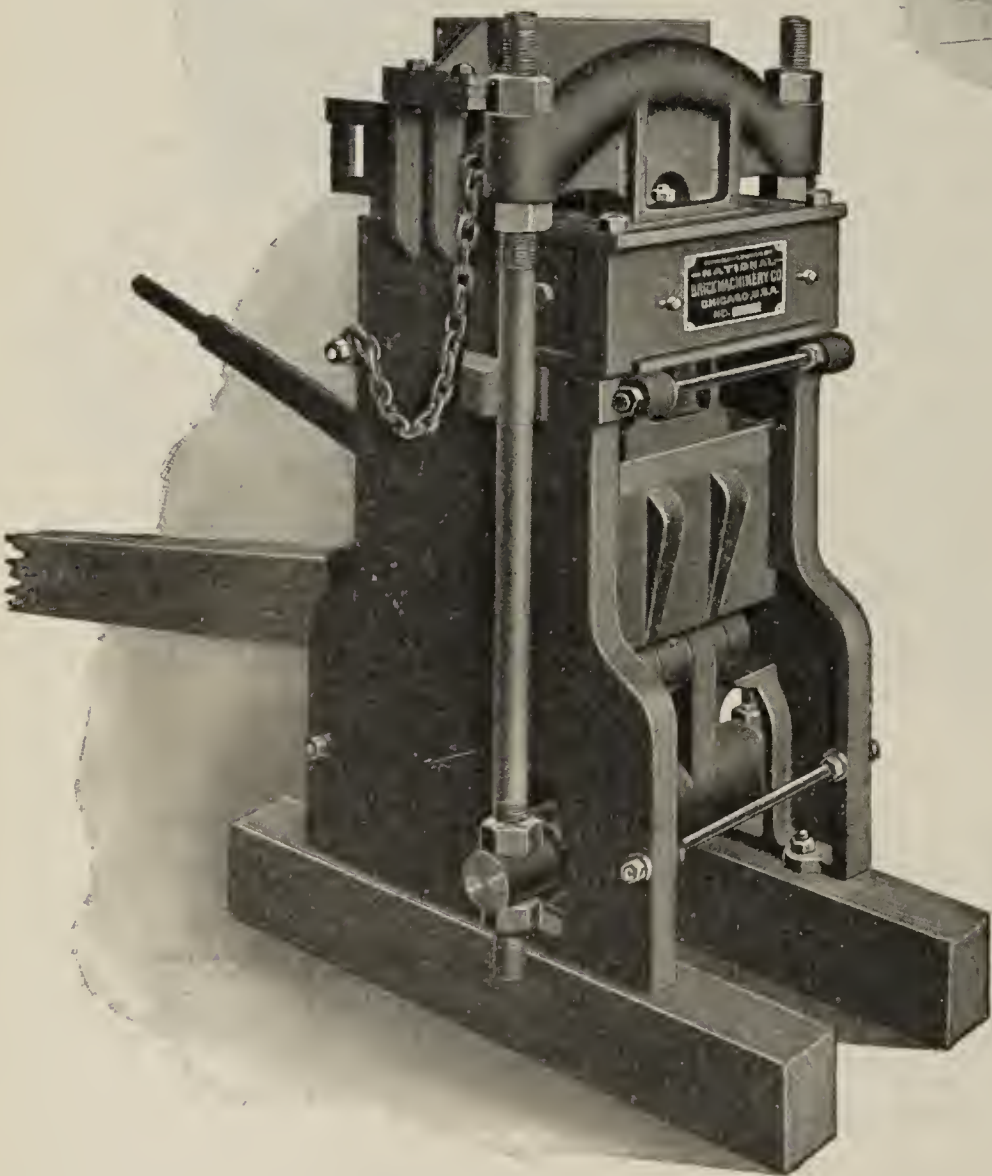
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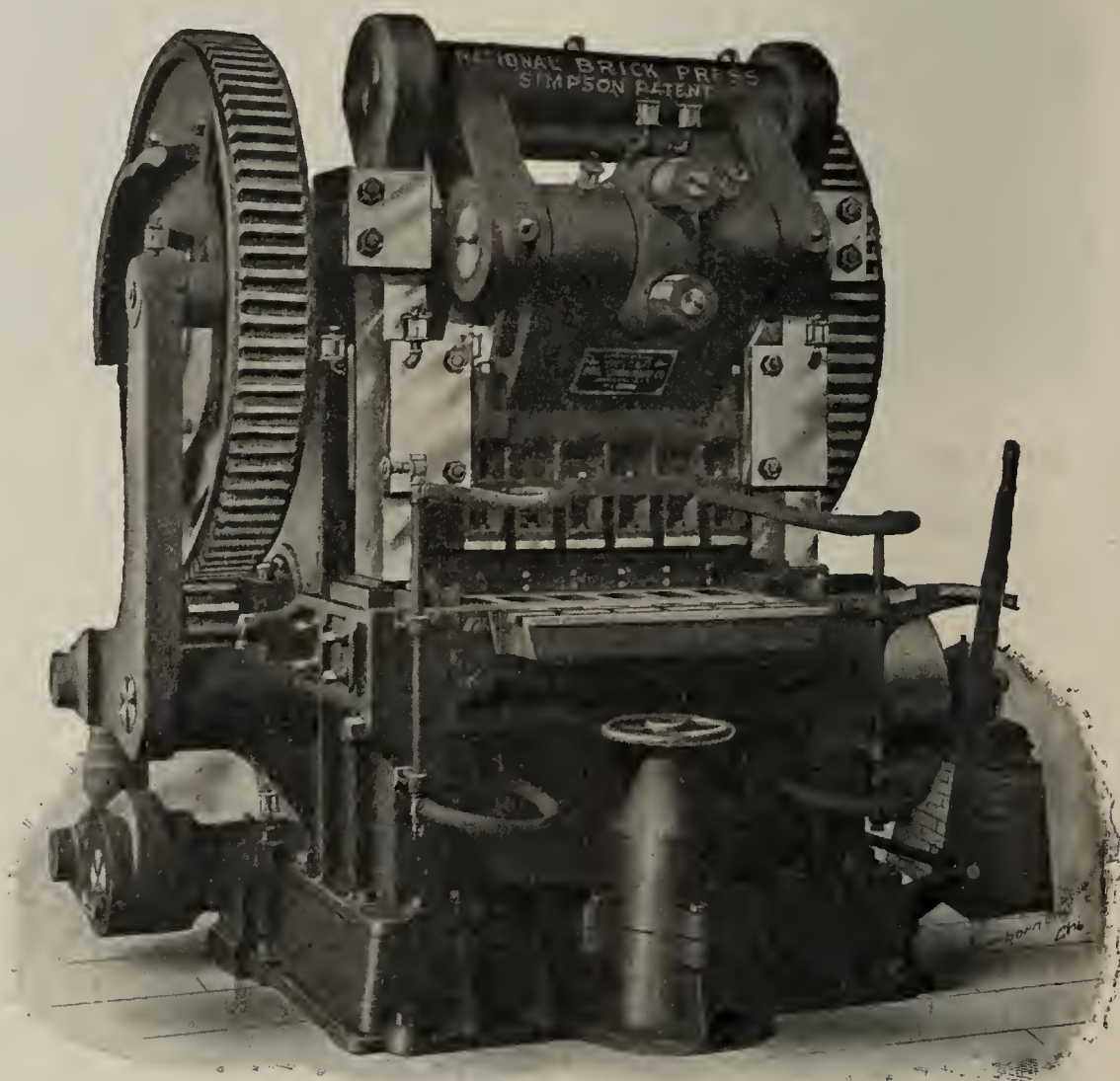
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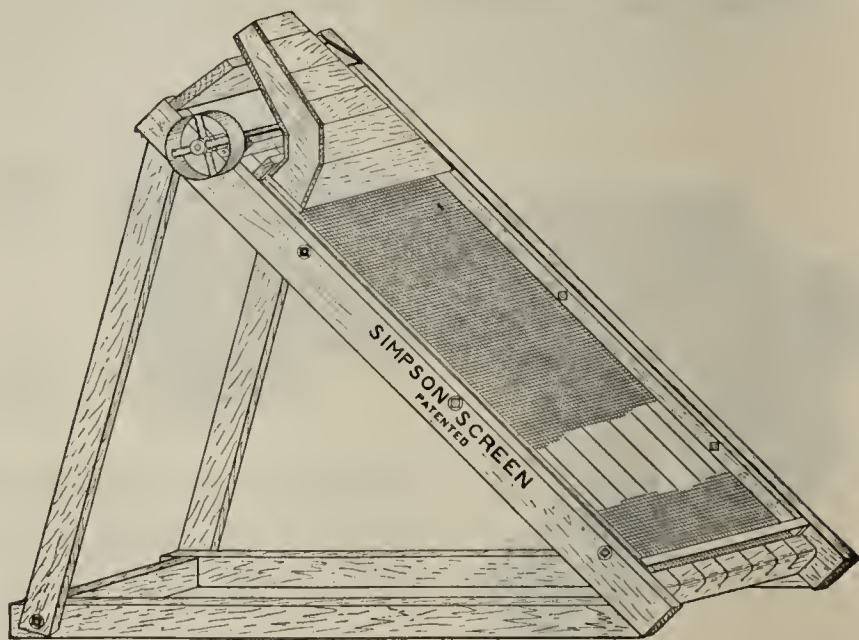


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Built in Four, Five and Six-Mold Sizes.



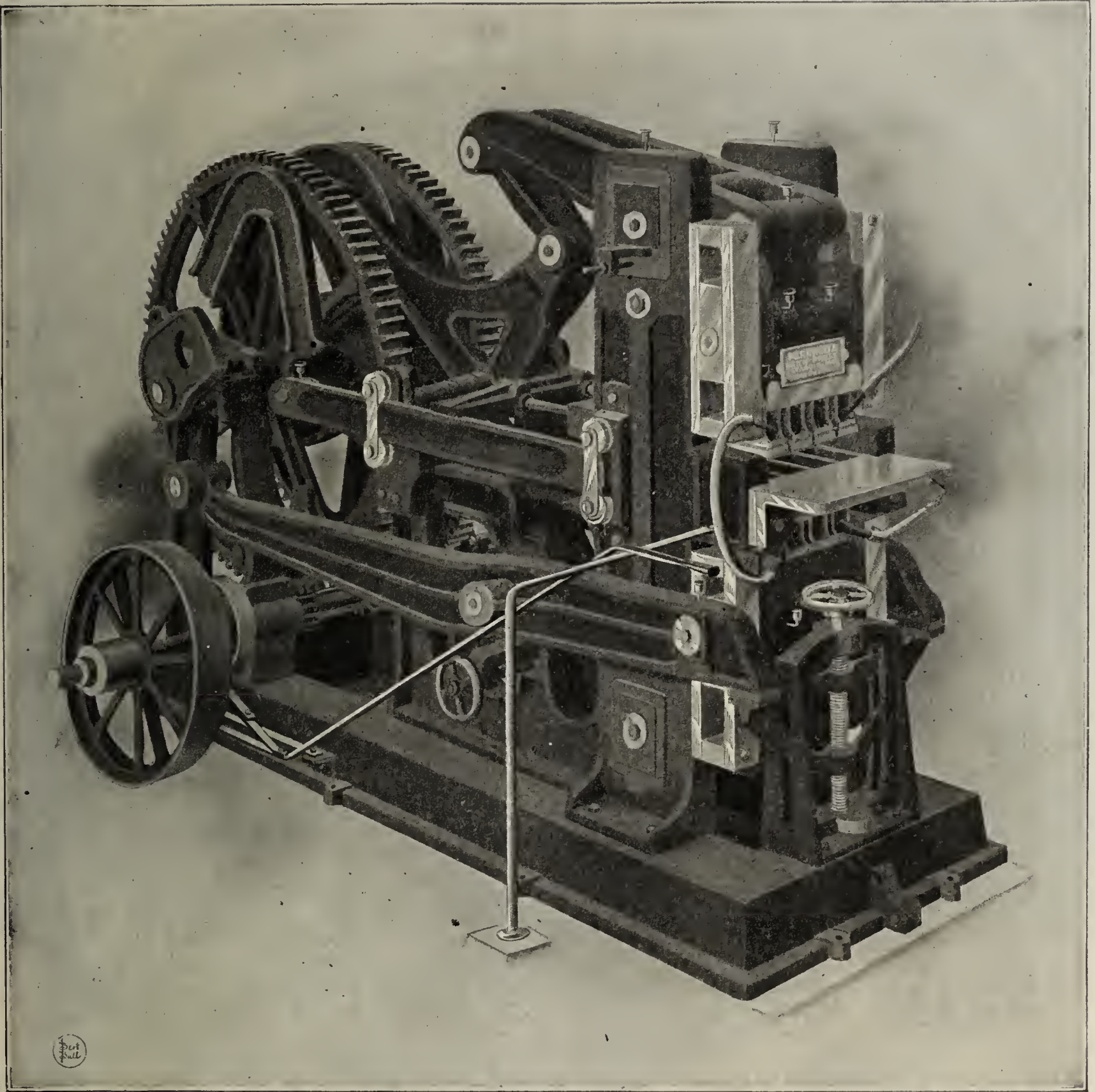
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National Brick Machinery Co.,
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The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

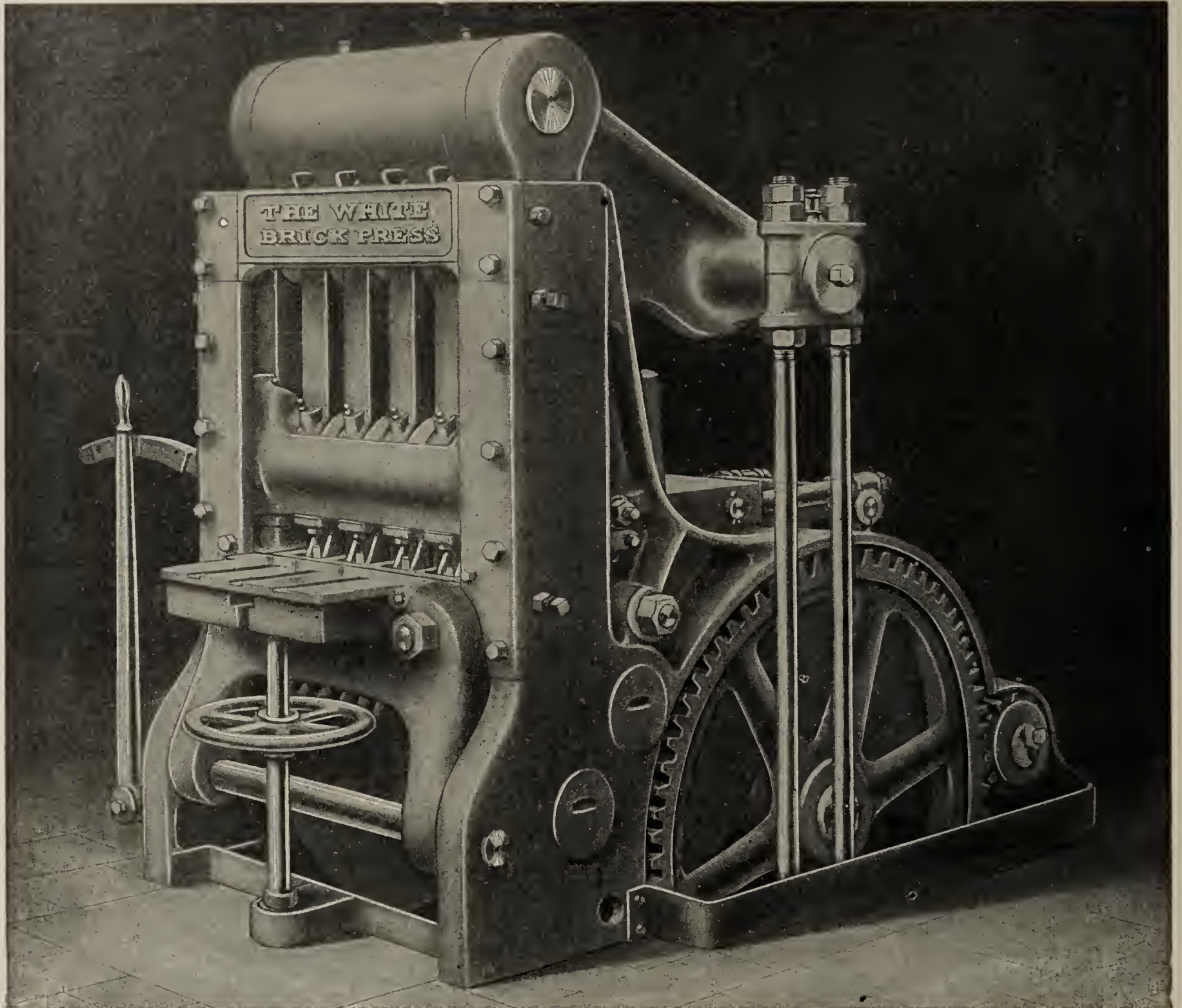


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

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Always Worth More Than You Pay For It



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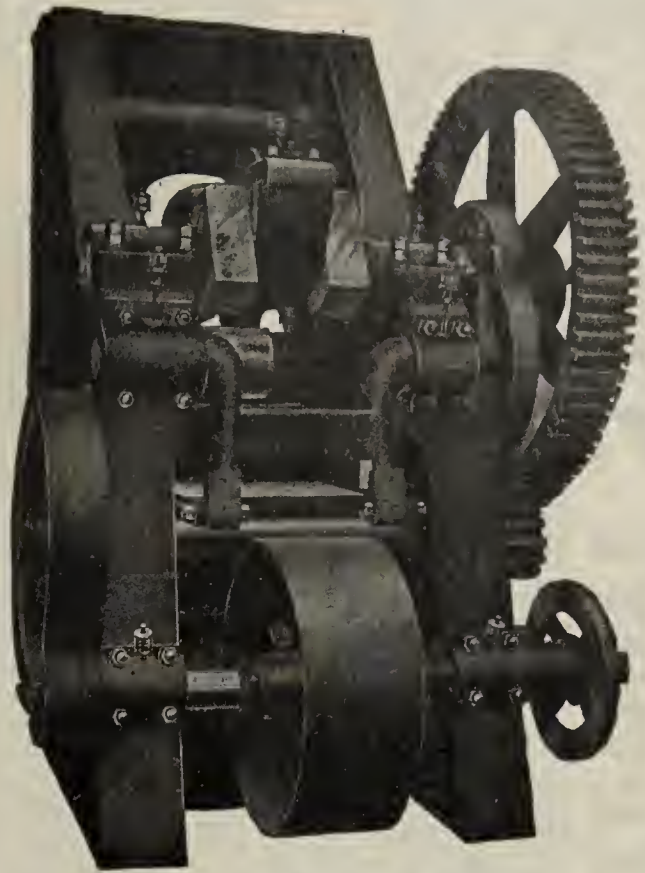
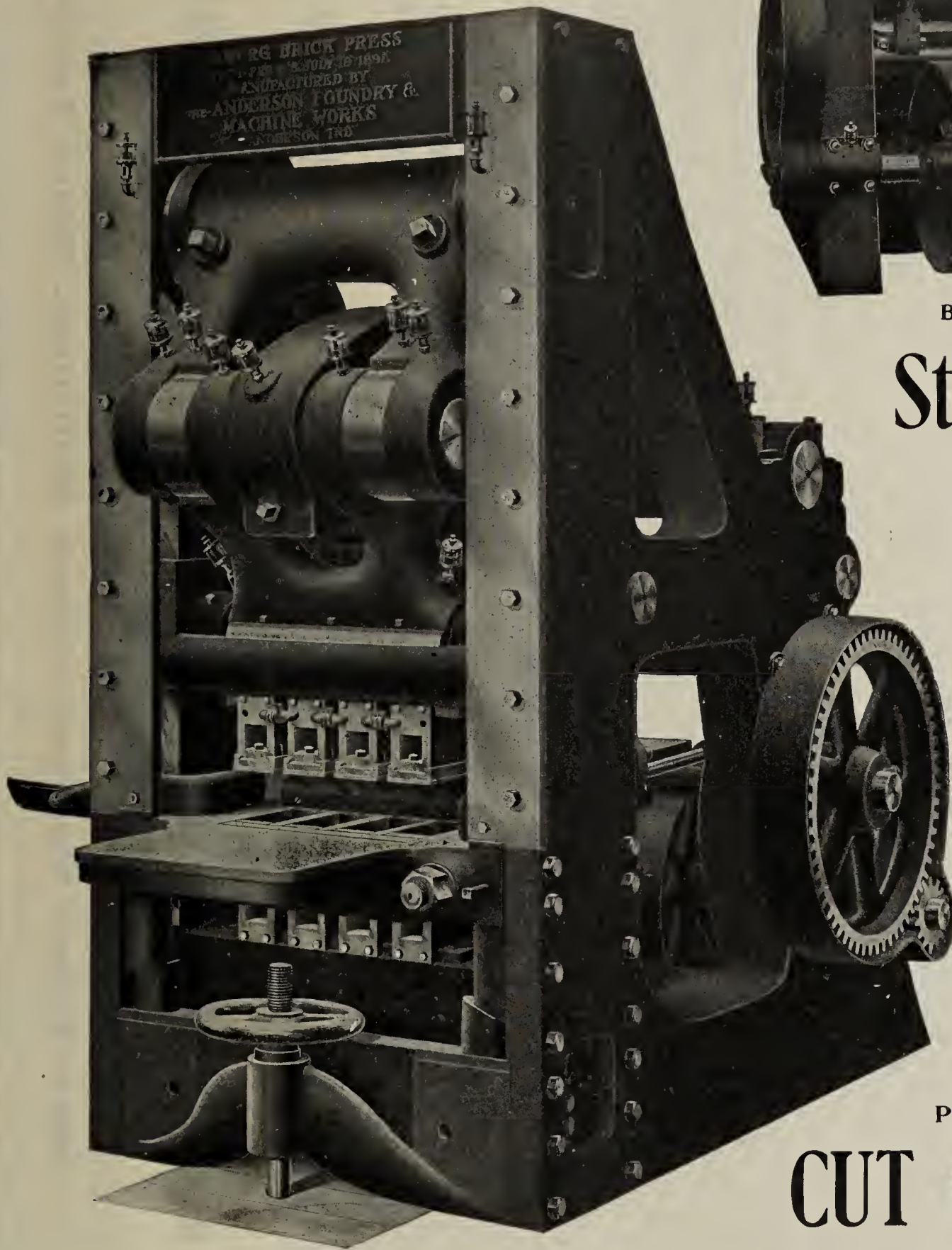
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New Model Berg Brick Press



Back View.

Still in the
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Further
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Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

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Do you know that more than likely you are losing money? Do you know that you might get more efficiency from your labor and machines than you are getting at present? It's the practical features of a brick plant in which we are interested. Our consultant can come to your yard, put on his jeans, and after spending several days rubbing up against conditions as they actually exist, he ought to be able to give you a few practical points in a written report which would save you thousands of dollars.

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United States Engineering Company

Formerly Luce Engineering Company

1814 Third National Bank Building, Saint Louis.

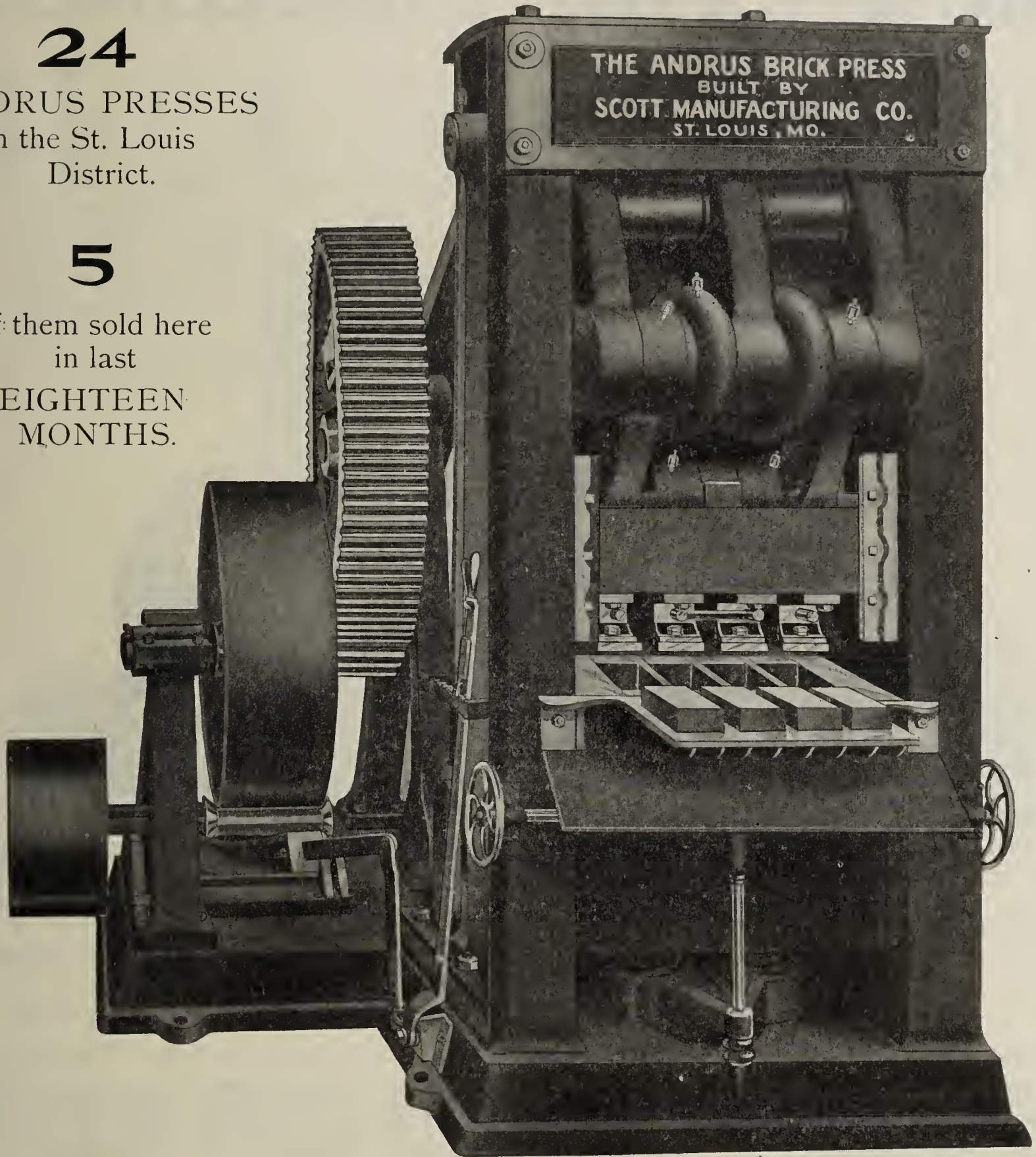
The Andrus Brick Press.

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ANDRUS PRESSES
in the St. Louis
District.

5

of them sold here
in last
EIGHTEEN
MONTHS.



The Press That Scott Builds.

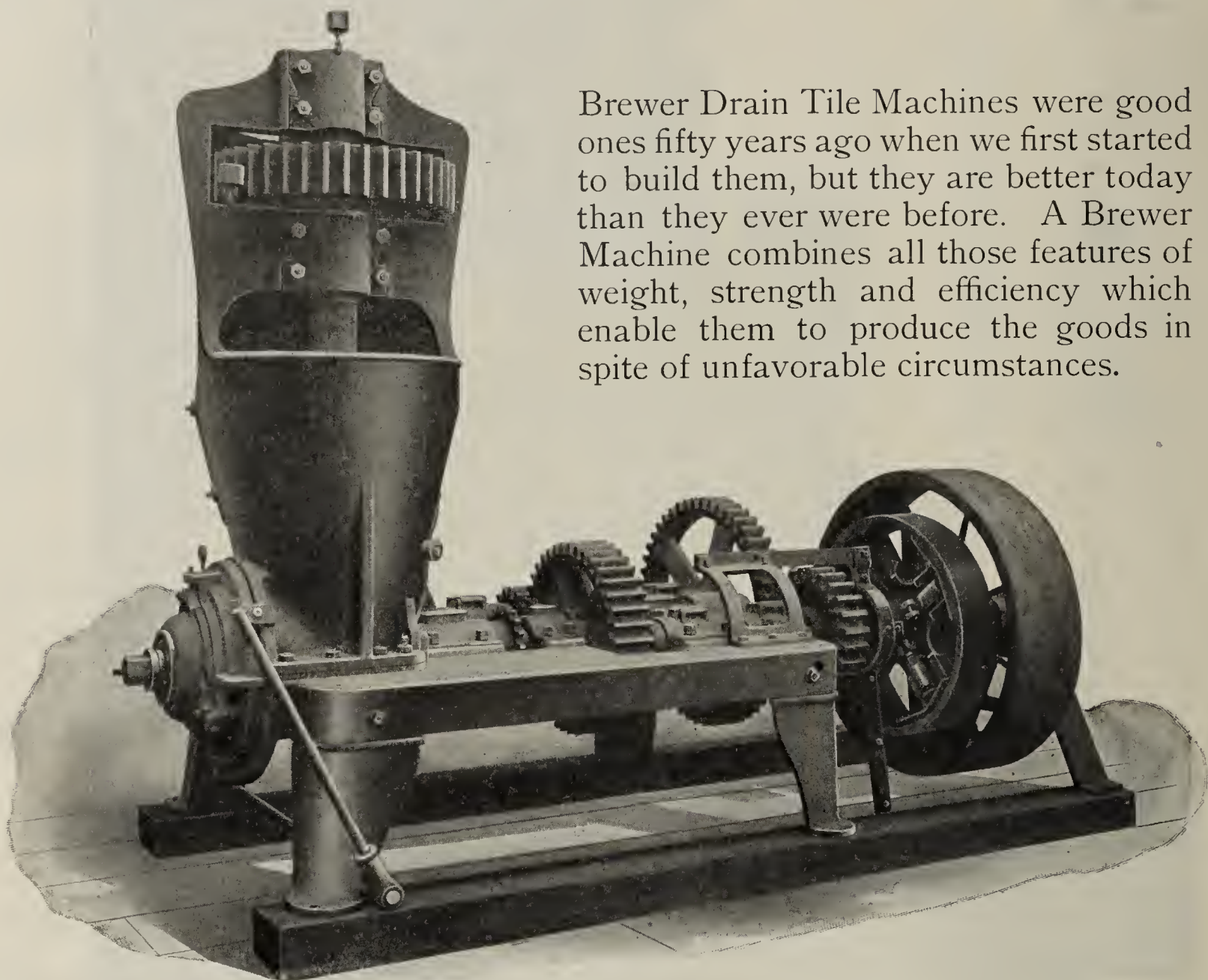
Come and see the Andrus Press making face brick, common brick, fire brick and shale brick right here at home.

Scott Manufacturing Company,

1812 Third National Bank Bldg.

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Brewer Drain Tile Machines were good ones fifty years ago when we first started to build them, but they are better today than they ever were before. A Brewer Machine combines all those features of weight, strength and efficiency which enable them to produce the goods in spite of unfavorable circumstances.

We Build Three Sizes

ranging in capacity from 1,000 4-inch tile per hour to as many as can be handled by any present day method. The knives on the vertical shafts are forged from hard, high-carbon steel. The augers and casings are of white-iron. The back-thrust bearings of auger shaft are self-oiling and self-aligning. The up-thrust bearings are of the Marine pattern. The vertical cylinders are cast in one piece. Gears, wide face. Journals, long. Shafts, heavy.

We will be glad to send you our catalog which shows a full line of clayworking machines.

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It's Good.

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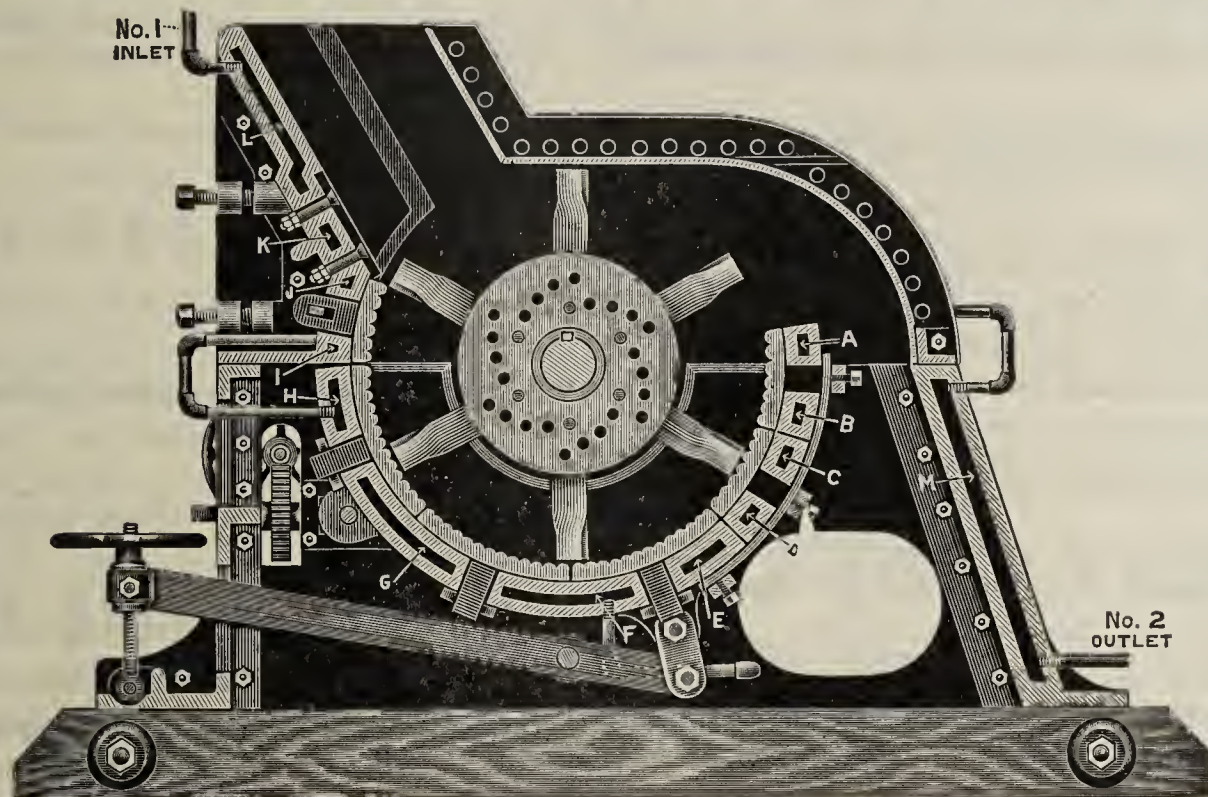
Tecumseh, Michigan.

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JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

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Old Colony Building, Chicago.

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Manufacturer of

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Street Paving **Brick and Block.**
Samples on Application.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

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Vitrified Shale and Fire Clay Paving Bricks and Blocks.
Burned in Yates' Patent Kiln.

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Highly Vitrified by Natural Gas.

Made from same shale as our well-known Kushequa Paving Blocks.

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THE DECKMAN-DUTY BRICK CO.,

Manufacturers of

High Grade Paving Brick.

Factories at Collinwood, Malvern and Carrollton, Ohio.

Main Office, Rose Building. **CLEVELAND, OHIO.**

Thurber Vitrified Paving Brick
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Made of the finest shale, absolutely free from lime.

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A valuable treatise on the manufacture and use of
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How to Properly Construct Brick Streets.

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Successors to
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Sewer and Hard Building Brick,

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS,
"SPECIALS," for crossings on macadam streets, GUTTER BLOCKS,
COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the
heaviest traffic of Indianapolis, Terre Haute, East St. Louis and
dozens of other large cities of Indiana and Illinois. We ask inves-
tigation and comparison by those seeking the best paving material.
Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Cen-
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Prices and samples sent on application.

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Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DE-
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Fire Clays, Terra Cotta Clays, Kao-
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Have been in the business for TWENTY-FOUR
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MANUFACTURERS OF

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The Purington Paving Brick Co.,

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HAS the largest and best equipped plant in the United States for the manufacture
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IF YOU are interested in the subject of brick drying, you are entitled to a copy—and it is no less entitled to a careful reading by you.

This new Catalog is a fine example of printing craftsmanship; a book of sixty-four pages, substantially and handsomely bound with embossed cover; printed on the finest of enameled paper, in two colors throughout.

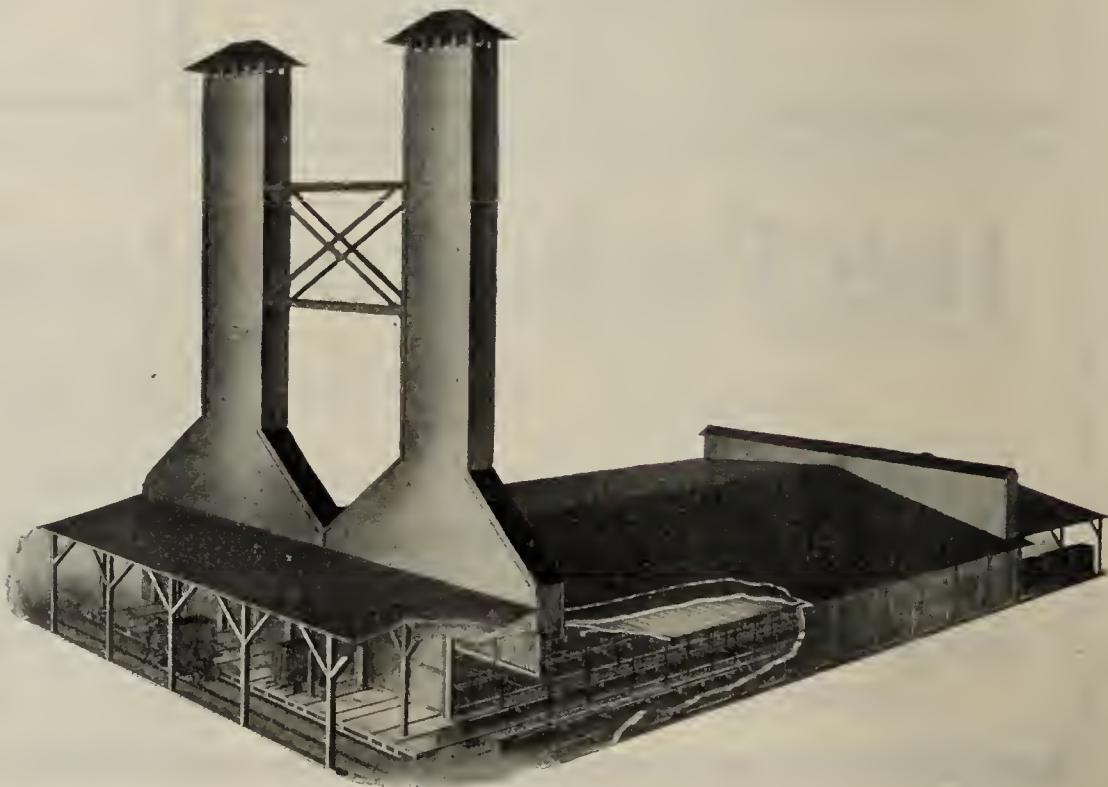
It contains a complete detail description of The Standard Drying Process and Equipment, with twenty-one illustrations in halftone.

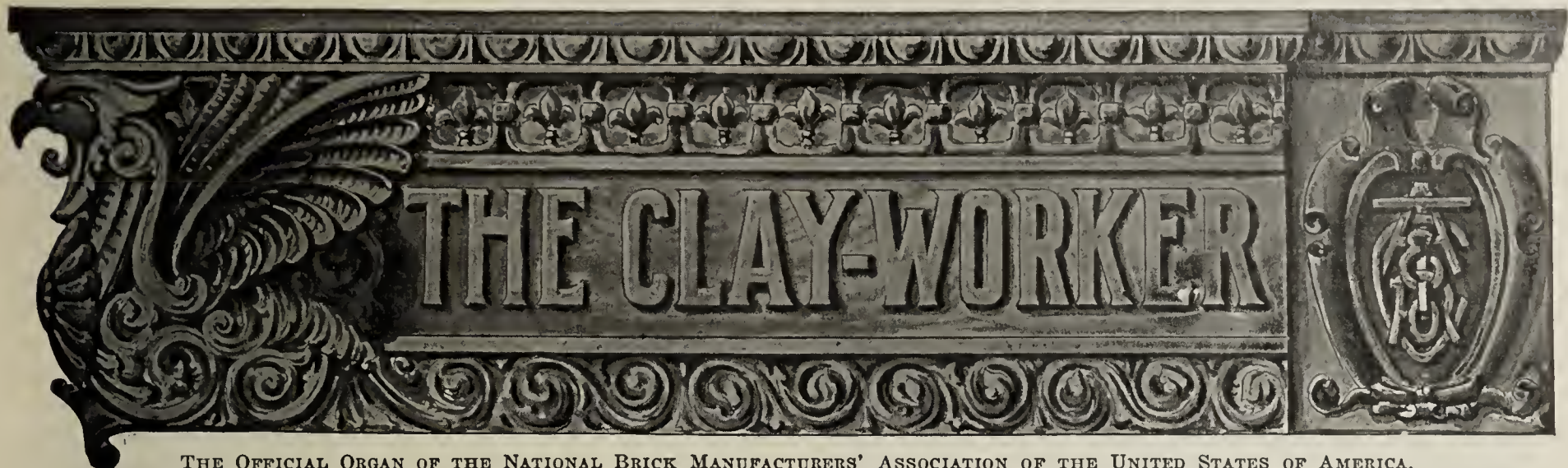
Also a list of users of The Standard Brick Drier, together with letters from many of the leading brick manufacturers everywhere, in which they tell of their experiences with The Standard and other drying systems.

*Simply drop us a line today,
and your copy of the new Catalog
will reach you by return mail.*

The Standard Dry Kiln Co.

647 South Pennsylvania St., Indianapolis, Ind.





THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LI.

INDIANAPOLIS, IND., FEBRUARY, 1909.

No. 2.



OFFICIAL REPORT OF THE TWENTY-THIRD ANNUAL
CONVENTION OF THE NATIONAL BRICK MANU-
FACTURERS' ASSOCIATION, HELD AT ROCHESTER, N. Y., FEBRUARY 3, 4 AND 5, 1909.

THE PREDICTION that the Rochester convention would be "the best ever" was fully realized. The attendance was up to expectation, the last delegate to register receiving badge No. 438. The sessions were exceptionally interesting, and as a whole, better attended than ever before. This was due in a large measure to the admirable facilities afforded by the splendid Convention Hall, which was not only large, but perfectly lighted, heated and ventilated. The seating arrangements were most comfortable, and the combination of exhibition room and convention hall in one proved most advantageous both to exhibitors and to delegates. The social functions were most enjoyable. The local committee covered themselves with glory by the painstaking manner in which they looked after the comforts and pleasures of the visitors. As pacemakers, the Rochester contingent have few equals. The week was most strenuous from Monday to Saturday, and it was indeed a happy, though weary, lot of mortals that said reluctant good-byes at its close.

Many of the old guard, heeding the Secretary's admonition to "come early and stay late," arrived on Sunday, and on the following day the hotel lobby took on real convention appearances, the members of the National Paving Brick Manufacturers' Association appearing apparently in full force, bedecked with the badge of membership, a button

showing an attractive bit of brick pavement, circling which in white letters on a red background was the name of the Association. For the benefit of the possessors of these buttons who may not know, be it said that the manly figure to the left is no less an individual than Will P. Blair, the founder of the organization. The N. P. B. M. A. is a working organization, and the members spent little time in lobby chats, but repaired early to the Blue Room of the Seneca, which for two days was the scene of almost continuous deliberations, touching on nearly every phase of the paving brick interests. The growing confidence of American municipalities in the work of the N. P. B. M. A. as an organization, in its endeavor to secure the highest perfection in the construction of brick streets, was evidenced by the presence of several municipal officers from various cities who sat with the delegates throughout the sessions. The paving brick manufacturers even held the boards Monday evening, when Mr. Blair delivered an illustrated lecture, showing by means of excellent stereopticon views the advantages of good construction in the laying of brick pavements.

The American Ceramic Society rendezvoused and deliberated in the parlors of the Powers Hotel. A novel departure was made in their program, two sessions being held in separate rooms at the same time. Notwithstanding this division, the number of papers presented and the discussions following same occupied all the time at their disposal, and they were scarcely able to complete their labors in time to adjourn at the appointed time, Wednesday noon.

Judging from the interest manifested, the most important event of the N. B. M. A. Convention was the organization of a Publicity Club, through which it is hoped to provide ways and means for the advertising and promotion of clay products for structural work. By this means it is expected to demonstrate to the building public the superior character of brick, tile, terra cotta, etc., and

thereby to increase the consumption of these materials.

The organization, which is headed by R. G. Eisenhart, of Horseheads, N. Y., will follow lines similar to those that have proven so successful and beneficial to the paving brick interests. It is believed in time that every building brick



President M. E. Gregory,
Corning, N. Y.

manufacturer in the country, and those connected with the allied interests as well, will profit very largely by the work of the Publicity Club of the N. B. M. A. It is to be known as the Clay Products Association of America, and it is believed that the basis on which the club is to be maintained is such that every manufacturer in the country will be benefited in proportion to the capacity and output of his plant, and whether that is large or small, his contribution for its support will be arranged for with absolute fairness to the small manufacturer as well as the large.

Another movement which aroused almost as much enthusiasm was that in the interest of the school of bricklaying which has been established at the Winona Technical Institute, Indianapolis, Ind., and which was given material aid by voluntary subscriptions at the Columbus convention. The report of progress made by the school during the past year by Mr. O. C. Pierson, director of the school, was so encouraging and the importance of sustaining and enlarging the school so apparent, that it was unanimously voted to request the members of the N. B. M. A. to contribute \$5.00 each, for the permanent establishment of the school, which has already proven its ability to turn out skilled, competent bricklayers in from six to nine months. If the

hidden, cleanse the thoughts of our minds and the affections of our hearts by the inspiration and presence of Thy holy spirit and goodness and truth, that we may perfectly love Thee and worthily magnify Thy glorious name, who has called us to glory and honor and immortality. Accept the thanksgiving of our hearts as of our lips for all our good gifts to us. Command Thy blessing upon those of us gathered here, and upon the interests dear to them, and to the friends near to us and dear to them, and may none of us ever be absent from Thy loving care. We beseech Thee to give wisdom to all of our deliberations, and grant us protection that our lives may be precious in Thy sight.

Let Thy blessing rest upon this city and those in authority in it, and upon all our republic, with its vast richness of opportunity and of capacity and of resources. Hear us while together we pray the prayer which our Savior taught us: Our Father which art in Heaven, hallowed be Thy name. Thy kingdom come, thy will be done on earth as it is in Heaven. Give us this day our daily bread, and forgive us our debts as we forgive our debtors. Lead us not into temptation, but deliver us from evil, for Thine is the kingdom and the power and the glory, forever. Amen.

President Gregory: It gives me great pleasure to in-



First Vice-President W. P. Blair,
Indianapolis, Ind.



President-elect Lemon Parker,
St. Louis, Mo.



Second Vice-President C. M. Crook,
Youngstown, Ohio.

members respond to this call as it is thought they will, the school will become a great and lasting help to every brick manufacturer in the land. Members are not only requested to assist in financing the school, but also to aid it by sending pupils. Young men of good habits desiring to learn a trade will be welcome from whatever section of the country they may come, and if they are intelligent and industrious their success in acquiring a splendid trade is assured.

Other interesting events not scheduled on the regular program occurred and are recorded in the following full report.

FIRST SESSION.

Wednesday, 3:00 p. m., February 3, 1909.

President M. E. Gregory: Gentlemen, the convention will come to order. In accordance with our usual custom, we will open our sessions with prayer, and I take pleasure in introducing the Rev. C. C. Albertson, of Rochester, N. Y., who will invoke Divine blessing.

The Opening Prayer.

Rev. C. C. Albertson: Oh, God, unto whom all hearts are open, and all desires known, and from whom no secrets are

introduce to you the Hon. Hiram H. Edgerton, the Mayor of Rochester, who has a few words to say to you. (Applause.)

Welcome to Rochester.

Hon. Hiram H. Edgerton: Mr. President, Ladies and Gentlemen: It is a pleasure for me to be here today, and welcome in behalf of the city of Rochester, and personally, the delegates of this National Brick Manufacturers' Association. In some instances it is a performance of duty, but today it is quite different. I see in this audience men who have been my associates in business and otherwise during almost a lifetime, and so I feel you are more closely associated with me than most conventions, for, like myself, you have done your part toward the civic beautifying and improvement and the material welfare and construction of the localities in which you live, and of the whole country as well.

Rochester extends a hearty greeting to all visitors, and particularly of this class. We are very proud of our city, we are proud of our business men and the great industries which they have inaugurated and so successfully carried on. We are proud of everything that goes to make up our city, of our public buildings, and you may notice the ab-

sence of your largest competitor, concrete (applause), which has not reached this city as extensively as it has some of the other cities, and I hope it will be a long, long time coming (applause).

As chief executive of the city, I offer to you the freedom of our city. We have no walls, or keys, or locks, or gates. Everything is open. You will find our people hospitable, with a kindly feeling toward you all. I trust your deliberations here will be profitable and pleasant and that you will all come again. (Loud applause.)

President Gregory: I will call on our friend, Mr. Charles A. Bloomfield, of Metuchen, N. J., to respond to the Mayor's hearty welcome.

Mr. Bloomfield's Response to the Mayor's Welcome.

Charles A. Bloomfield: Mr. Mayor, on behalf of the National Brick Manufacturers' Association, I desire to express our thanks and our appreciation, not only to you personally, but to you as the chief magistrate of this great commonwealth, for the warm welcome we have received. We realize that we are in the third city of this great Empire state, a city in beauty second to no other; a city in commercial progress far exceeding what we might expect from one of about 225,000 inhabitants, a city of great progress, and to one who has for many years lived in the city of New York, and

which is destined to become one of the greatest manufacturing cities in this country, owing to its nearness to its supply of raw materials and the largest markets. With its natural advantages and the push and progressiveness of its people, it is bound to become one of the leading cities of this country.

During the past year seven of our members have been called from their earthly labors. Among these I might mention W. H. Brush, the eleventh president of this association, and one who for several years was a faithful worker. The entire membership of this association was shocked shortly after our last convention to hear of the death of our dear old friend, H. C. Dunn, who was loved by everyone who knew him. While the others may not have been so well known to us, yet they will be missed by the circle of friends who knew them best.

As we scan the pages of history made by our association in the twenty-three years of its existence, we find its annals resplendent with the best thoughts of our ablest and most honored members.

The wisdom, however, of emphasizing at these annual meetings the aims of our association and of calling attention to what it is doing to realize the highest ideas of its officers and members, can not be questioned. At such times we pause to reflect upon the efforts of the past, and the reflection inspires new zeal and energy for the future. That this energy and zeal are of the right sort and not merely of the moment, is proven by the continued progress and success of this association and its individual members.

I believe there are a great many men in this room today who owe their success to this association. And while we have learned to make better brick, we have learned to know our neighbor and competitor better, and most of us have come to the conclusion that we are not in business to make brick alone, but a few honest dollars as well.

In any backward glance at the period since our last annual convention, one must be convinced of the recovery of the business



Third Vice-President C. A. Bloomfield,
Metuchen, N. J.



Secretary Theo. A. Randall,
Indianapolis, Ind.



Treasurer John W. Sibley,
Birmingham, Ala.

knows something of its environments and habitations, as I have, there is one thing about your city that is very pleasing, and that is the absence of the tenement houses, which defile and disgrace the city of New York. Your mechanics, your common laborers, are housed in comfortable individual homes, one of the greatest blessings that can come to any community.

Mr. Mayor, the greatest compliment that one man could pay another man, when I was a boy, was to say that he was a "brick," and we of this National Brick Manufacturers' Association appreciate that we have today met in the chief magistrate of this city a "brick" of full size and of good make. (Applause and laughter.)

Secretary Randall: In order to relieve the President's modesty somewhat, I will announce the next number on the program. "The President's Annual Address," M. E. Gregory, Corning, N. Y. (Applause.)

PRESIDENT GREGORY'S ANNUAL ADDRESS.

Ladies and Gentlemen:

I would be lacking in appreciation indeed were I unmindful of the honor which is mine in presiding over this convention at its twenty-third convocation. I rejoice in the privilege of welcoming this association to the Empire State, whose interests and whose honor and whose destiny are so dear to us all, and the beautiful city of Rochester, the center of centers, a live metropolitan city,

world from conditions which at that time seemed to threaten its very foundation. To say that our business escaped entirely from the effects of the depression would be to misstate the facts, as the building records of the country show a falling off in the volume of operations in nearly every city. This has affected the common brick trade to no small degree, while, on the other hand, there were more paving brick used last year for street paving than ever before. This is due to the superiority of brick over all other materials for road building, and the efforts made by the National Paving Brick Manufacturers' Association to promote and bring out the merits of brick for paving.

I feel that I would be doing an injustice if I did not at this time touch upon the accomplishments and possibilities of the trade-school and its importance. Since our last convention, at which Dr. Dickey addressed us, it has been my privilege to visit his school, which has established a course in bricklaying, and has already turned out several full-fledged bricklayers. To visit this school and see the work actually done by boys in a few weeks causes one to wonder why there are not more such schools in our land. If such were the case, many a young man would be saved from a life of drudgery to one of independence.

The paramount subject for our consideration at this time, it seems to me is, How shall we best promote our business? If we will look around we will find that every line of business is being pushed to its limit by advertising, etc., while the brick business, which is one of the leading industries, has never been pushed in any way by those most directly interested. The fact that large quantities of brick have been used for building purposes has not been brought about by its manufacturers, but by the superior merit of brick as a building material. Our most zealous competitors, the cement people, spend thousands of dollars annually advertising. They fill the magazines with cuts of cement buildings, etc., and

send out books of plans as premiums, with papers, explaining the merits of concrete.

This all impresses and appeals to the people, while many of the manufacturers of the best and most desirable building material known are not willing to contribute to pay the expenses of our Publicity Committee, who have been striving so creditably to expound the merits of brick to the public. I trust this condition may be fully realized and met at this time.

In relinquishing the duties as your presiding officer, I wish to say that I am deeply grateful for the honor and friendly support accorded me during the year by the membership at large. It will always be a pleasure to me to recall the experiences of the year, and to realize that I have been accorded the highest honor which, in my opinion, can come to a member of this association. (Applause.)

President Gregory: We will now hear the report of our Treasurer, Mr. John W. Sibley, Birmingham, Ala. (Applause.)

TREASURER SIBLEY'S REPORT.

Mr. President and Gentlemen of the Convention:

I hand you herewith a statement of receipts and disbursements for the year just ended.

The continued downward tendency of the surplus reminds me of a story of the Civil War that I heard recently: It seems that at the fall of Richmond, a negro body servant of a Confederate officer was captured by some Federals, and Gen. Grant happened to be passing. The old darky inquired who it was, and, upon being told, called out: "Ginnul Grant, whar is you gwine?" The General paused, looked at him and said: "I am on my way to Petersburg, or heaven, or hell—maybe." The old darky put on a serious expression, and said: "Ginnul, you can't git to Peters-

RECAPITULATION.

Balance in treasury, account 1907.....	\$541.33
Total expenditures	\$2,231.40
Total receipts	2,106.00
Excess of expenditures.....	125.40

Balance in treasury as above..... \$415.93

Respectfully submitted,

JOHN W. SIBLEY,
Treasurer.

(Applause.)

J. W. Robb, Clinton, Ind.: Mr. President, I move the report be accepted and placed on file.

Motion seconded by Lemon Parker, St. Louis, and carried.

President Gregory: The next in order is the election and installation of officers. Nomination for President is now in order.

Election of Officers.

Mr. Bloomfield: Mr. President and gentlemen of the convention—As I look back, it is many, many years since I first had the privilege of joining this association. The years have gone by, and I have received a great deal of knowledge from these conventions which has been useful to me, but above all there has come to me in these years warm friendships, friendships that have been renewed from year to year, the recollections of which have brought much

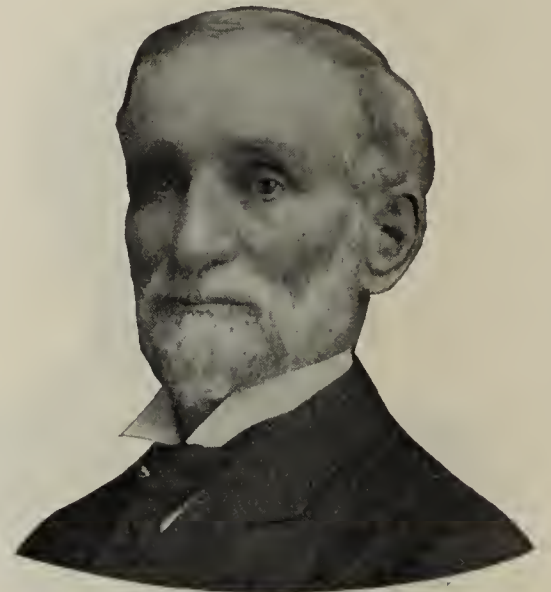
MEMBERS OF ROCHESTER ENTERTAINMENT COMMITTEE



W. H. H. Rogers,
President Local Association.



E. J. Burke,
Chairman Finance Committee.



V. F. Whitmore,
Chairman Executive Committee.

burg cause Ginnul Lee's down dar, and as for hebbin, Mars Stonewall Jackson, he up dar, and I knows you can't go dar; and look hyar, Ginnul Grant, you better be kerful whar you gwine."

So if we wish to preserve our surplus and save my reputation as a humorist, we must be careful where we are going. But to return to serious business, notwithstanding our disbursements the past year exceeded the receipts by \$125.40, it is gratifying to report a balance of \$415.93 still in the treasury.

Receipts and disbursements account of the Twenty-second Annual Convention of the National Brick Manufacturers' Association:

RECEIPTS.

Balance in treasury, account 1907.....	\$541.33
Membership fees, 102 at \$5.00, account 1908. \$ 510.00	
Membership fees, 528 at \$3.00, account 1908. 1,584.00	
Pamphlets, reports, etc., sold.....	12.00
	<u>2,106.00</u>
Total receipts.....	\$2,647.33

DISBURSEMENTS.

PAID FOR—	
Allowance for clerk hire, per voucher.....	\$300.00
Programs, mailing, etc., per voucher.....	133.80
Convention Report, mailing, etc., per voucher.	263.45
Numerical Roster, per voucher.....	57.75
Miscellaneous printing, etc., per voucher....	217.90
Report of Committee on Technical Investiga-	
tion, per voucher.....	271.24
Convention expenses, per voucher.....	145.50
Postage, exchange, expressage, per voucher..	221.30
Cablegram to W. D. Gates, per voucher.....	8.96
Engrossing certificates, per voucher.....	10.50
Ohio State University, scholarship, per voucher	250.00
Assistant secretary, per voucher.....	100.00
Secretary's traveling expenses, per voucher..	250.00

Total disbursements.....\$2,231.40
Balance in treasury.....\$415.93

pleasure during all these years. I remember about ten years ago when a gentleman joined this association, and he took his seat for the first time in convention beside me, and a friendship was formed on that occasion which has been cemented during the succeeding years, until now I doubt if anything could interfere with that friendship. I take great pleasure in presenting to this convention today for the high position of President of this association, the name of Mr. Lemon Parker, of St. Louis, Mo. (applause), a gentleman who has made a record for himself as being at the head of his profession. I name Mr. Lemon Parker for President of the National Brick Manufacturers' Association for the ensuing year. (Applause.)

President Gregory: If there are no further nominations, I declare the nominations closed, and if there are no objections, I will authorize the Secretary to cast the unanimous vote of this convention for Mr. Lemon Parker, of St. Louis, Mo., for President for the ensuing year.

Secretary Randall: The ballot has been cast.

President Gregory: I declare Mr. Parker duly elected, and nominations are now in order for First Vice-President.

L. L. Stephenson, Birmingham, Ala.: Mr. President, I desire to place in nomination for the position of First Vice-President one who has been a member of this association and identified with the business so long that he does not

need a formal introduction, or any eulogy, and if you were not by this time all so well acquainted with him I might be tempted to ask pardon for placing him in nomination. I nominate Mr. Will P. Blair, of Indianapolis, and I think he is well enough known to you to need no further words on my part. (Applause.)

Mr. John Miller, Washington, D. C.: I second Mr. Blair's nomination.

J. Fred Smith, Omaha, Neb.: I move the nominations be closed and the Secretary be instructed to cast the unanimous ballot for Mr. Blair for First Vice-President.

Seconded by Mr. Miller and carried.

President Gregory: The Secretary has cast the ballot, and I declare Mr. Blair duly elected. Nominations for Second Vice-President are now in order.

Mr. William Conway, Philadelphia, Pa.: I desire to place in nomination for the office of Second Vice-President one who when I mention his name you will all recognize as a friend. He is the kind of a fellow who when you take hold of his hand you know you have a friend, whether you meet him in the convention or in his home. He is one of the leading men of his craft, a man who has helped build up the interests of this industry. He is a man who I assure

you have paid me in presenting my name for Third Vice-President of this Association. There are several reasons why I should not accept the nomination. It is a stepping stone to the Presidency of the association, an honor of which any member of the association might be proud, and I take great pleasure in presenting to you for your consideration a gentleman who has been a member of this association for a good many years. He always attends the conventions; he comes early and stays late; you can call on him in any emergency. I think when I present his name for Third Vice-President, you will be pleased to vote for him. I believe every member of this association who is acquainted with him will take as great pleasure in voting for him as I take in presenting his name. Mr. Charles A. Bloomfield, Metuchen, N. J. (Applause.)

Mr. Eisenhart: Do I understand that Mr. Rogers absolutely declines the nomination?

Mr. Rogers: Yes, I wish that to be distinctly understood.

Mr. Eisenhart: As Mr. Rogers has declined, I take great pleasure in seconding the nomination of Mr. Bloomfield, and move the nominations be closed, and the Secretary cast

WHO WERE CONSPICUOUS CONVENTION WEEK.



W. H. Vicinus, the Megaphone Man,
Chairman Entertainment Committee.



H. G. Whitmore,
Chairman Reception Committee.



W. H. Gorsline,
Entertainment Committee.

you you will all be proud to have a member of the Executive Committee. I nominate Mr. C. M. Crook, of Youngstown, Ohio. (Applause.)

Mr. Bloomfield: I move the nominations be closed and we follow the same course as heretofore, allowing the Secretary to cast the unanimous ballot for Mr. C. M. Crook.

Motion seconded and carried.

President Gregory: Secretary Randall has cast the ballot, and Mr. C. M. Crook, of Youngstown, Ohio, has been elected Second Vice-President for the ensuing year. We have exhausted the list of old and true, and now we must elect a Third Vice-President. Nominations are now in order.

R. G. Eisenhart, Horseheads, N. Y.: Rochester is by no means the greatest brickmaking center we have in this our great Empire state, but Rochester does have a lot of the best men, the most up-to-date brickmakers we have in this great Empire state, men who have started at the bottom and made a great success, not only in the brickmaking business, but in all their undertakings. It is such men as this that we want on our Executive Committee. I nominate for Third Vice-President Mr. W. H. H. Rogers, of Rochester, N. Y. (Applause.)

W. H. H. Rogers, Rochester, N. Y.: Mr. President and gentlemen of the convention: I realize the compliment that

the unanimous ballot for Mr. C. A. Bloomfield for Third Vice-President.

Motion seconded and carried.

President Gregory: Mr. Randall has cast the ballot, and Mr. Bloomfield is now elected Third Vice-President for the ensuing year. This closes the election, and we are now ready for the installation.

Several Voices: What about the Secretary and Treasurer? (Laughter.)

President Gregory: We have been electing these fellows so long that I took it for granted they would be re-elected, so what is the use of taking up the time (laughter), but if you insist, all right. Who will you have for Secretary?

Mr. Bloomfield: I nominate for Secretary of this association for the ensuing year, Mr. Theodore A. Randall, of Indianapolis (applause), and while I am about it, I would also nominate Mr. John W. Sibley, of Birmingham, Ala., for Treasurer, and so finish up the job. (Applause and laughter.)

Mr. W. H. H. Rogers: I take great pleasure in seconding the nomination of Mr. Randall for Secretary, and Mr. Sibley for Treasurer. (Applause.)

President Gregory: While this is a little out of order, we will let it go at that and consider the nominations closed, and, inasmuch as the Secretary is so very modest, I will ask

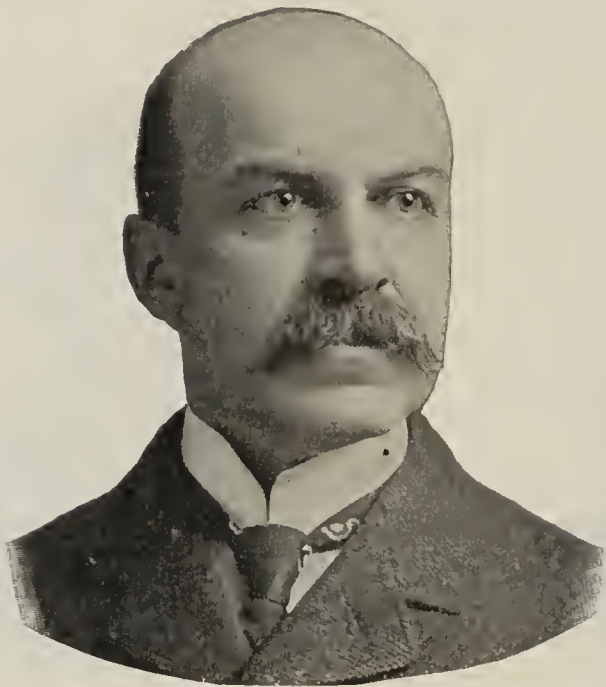
Miss Wallace, our Assistant Secretary, to cast the unanimous ballot for Mr. Randall for Secretary and Mr. Sibley for Treasurer. (Applause.) Miss Wallace advises me that she has cast the ballot, and you have elected these two men for another year. I will ask Mr. Randall to announce the next order of program.

Secretary Randall: That closes the list of regular officers, but we have another election to consider, that is, a member of the Committee on Technical Investigation. The members of this committee are: Prof. Edward Orton, permanent secretary; W. D. Richardson, whose term expires in 1912; Anthony Ittner, whose term expires in 1911; D. V. Purington, whose term expires next year, and C. A. Bloomfield, whose term expires now. These members are elected for a period of three years.

J. Fred Smith: I nominate Mr. Bloomfield to succeed himself.

Mr. Miller: I second the nomination.

President Gregory: If there are no further nominations, we will consider the nominations closed, and ask Mr. Randall to cast the unanimous ballot for Mr. Bloomfield. The next in order is installation of officers, and I will appoint as a committee to escort the newly-elected officers to the platform, William Conway, E. S. Morse, and W. S. Purington.



R. G. Eisenhart, Horseheads, N. Y.

The committee escorted President-elect Parker to the platform amidst great applause.

Installation of Officers.

President Gregory: I take great pleasure in introducing to the convention our new President. (Applause.)

President Parker: Gentlemen of the convention, and ladies, too, I thank you most cordially for the honor you have conferred on me, and I am sure I will have your hearty co-operation during this convention, and, by working together, we will make this one of the most successful years we have had. This is our twenty-third convention, and the outlook is good for a record attendance. I understand there are 360 names enrolled, which is good for the opening session. In looking over the program, I find we have many papers of unusual interest. I joined this association about ten years ago, and I have not missed a meeting since my first one. I consider these meetings have been of inestimable value; they have brought me in contact with men who have a common interest with me, and enabled me to keep pace with the improvements constantly going on. I am sure it will not be out of place for me to acknowledge the warm and hearty hospitality of the Rochester brothers, and the personal attention and delightful efforts on the part of the Entertainment Committee in our behalf. Gentlemen, I again thank you for the great honor you have conferred on me. (Applause.)

President Gregory: I take pleasure in introducing Mr. Will P. Blair, of Indianapolis, your First Vice-President.

Vice-President W. P. Blair: Mr. President, ladies and gentlemen, members of this association—It is not worth while for me to undertake to express to you my sincere appreciation of the honor that I have received at your hands. I sincerely thank you, and I only wish to stop long enough to say that I feel all the more the honor for the reason that in the midst of the cry that is going up all over this country, and I may say the alarm that is going up from one end of the land to the other for the preservation and conservation of the natural resources of the country, we have not heard one word from anyone anywhere that the resources of which we are engaged in the manufacture needs any preservation or conservation. It is without limit, and it depends on us to see that the growth of the clayworking industry of this country is advanced from day to day, as I believe it will be, until it becomes one of the most important industries throughout the country, and that burned clay products shall take the place of many, many things in the material welfare of the country that are now passing and are about to be wiped out of existence, by reason of the supply being exhausted, but the supply of clay is inexhaustible and unlimited. This association is the nucleus around which this industry must gather to become one of the most important industries of the entire country. I thank you. (Applause.)

President Gregory: It gives me no little pleasure to introduce to you your Second Vice-President, Mr. C. M. Crook, of Youngstown, Ohio. (Applause.)

Vice-President C. M. Crook: Mr. Chairman, ladies and gentlemen—It is perhaps unnecessary for me to say that I very deeply appreciate the honor that you have shown me. While I can not give you the humorous stories of our Treasurer, nor the flow of words of a good many of our members as the papers are presented, nor have I the lubricating qualities of our Secretary, yet, as I said to you a year ago, if an intense interest in the clayworking industry is a qualification, I feel I am qualified for this office, and I assure you you can call on me just as far as I can grant for any information, or for anything for the good of the association. Again I thank you most kindly. (Applause.)

President Gregory: It gives me great pleasure to introduce our old friend, Mr. Bloomfield, whom I have known for so many, many years, as your Third Vice-President.

Vice-President C. A. Bloomfield: Mr. President, ladies and gentlemen of the convention—I thank you from the bottom of my heart for the honor you have conferred on me today. I will try to prove myself worthy of such an honor. I will not occupy any of your time, for you have important and interesting papers before you, which are decidedly of more importance than anything I could say to you. Again I thank you. (Applause.)

President Gregory: Now, Mr. President, it gives me pleasure to turn the gavel over to you, and I trust the sessions may be profitable, and that our association may make great progress during your administration.

Mr. E. S. Morse, Washington, D. C.: Are you not going to install your Secretary and Treasurer? (Laughter.)

President Gregory: This is another one on me; I forgot those fellows again. (Laughter.)

President Parker: Gentlemen, I take pleasure in introducing to you our good friend and worthy Secretary, Mr. Randall. (Applause.)

Secretary Randall: Mr. President, ladies and gentlemen—I, too, am very thankful for this honor. In the language of one of our noted comedians, "I thank you for my wife, I thank you for my children, I thank you for myself, and for the whole blamed family." (Laughter.) I heard a story the other day which was absolutely new to me, and when I looked around and saw the exhibits, some of which were new to us, I felt somewhat like the little girl, whose mother was telling her, as mothers will, of heaven, with the golden-

paved streets and all the beautiful things, and the little girl said, "Mamma, does God own all those beautiful things?" Her mother said, "Yes, child," and the little girl said, "Mamma, where does God get all these dandy things; did He buy them at a bargain sale?" (Laughter.) I hope these exhibits will prove more beneficial to the members looking for new devices, etc., than the usual bargain sale purchases do to the household. (Laughter and applause.)

President Parker: I think the convention would like to hear from our Treasurer, Mr. Sibley. (Applause.)

Mr. John W. Sibley: Mr. President, ladies and gentlemen—This is so sudden and unexpected (laughter) that I am at a loss for words to express my gratification for the continued esteem and confidence in me. I am reminded of another one of my darkey fellows, of whom I have told you so much. At a well-known watering place there was a darkey bootblack, and one of those famous Kentucky colonels, who was sporting around in a suit of white duck, which caught the darkey's fancy and excited his envy, especially the white duck trousers, and he began to scheme a way in which he might get possession of these trousers, and the next day when the colonel went down to have his shoes shined, the darkey put a big sploch of shoe polish on the bench on which the old gentleman sat down. He shined his shoes, and when he got up the darkey said in amazement, "Why boss, jes look, you done ruined dem trousers; some lazy, honery, good-for-nothing nigger has left some of his things lying around here, and der's your trousers all ruined." The colonel looked at his trousers and said, "Well, Sam, do you think you can clean them; if you do, come on up to my room and get them." "Oh yes, sir, yes, sir, I think I can clean dem up for you in good shape, and you will nebber know the difference." An hour or two afterward the darkey returned minus the trousers, and he said, "Boss, I done tried everything cleaning dem trousers, but I just can't do it." The colonel said, "Did you try gasoline?" "Yes, sir, boss, I done tried benzine and gasoline, and everything I could think of, and that stain just stays there." "Well," the colonel said, "did you try ammonia?" "No, sir, boss, I an't tried dem on me yet, but I most know they will fit." (Laughter and applause.)

President Parker: The next in order is the report of the Committee on Publicity, by Mr. Parker B. Fiske, New York City, chairman.

Mr. Parker B. Fiske, New York City: Mr. President, ladies and gentlemen—It seems rather out of place after the felicities we have been enjoying, to come down to such a dry subject as publicity. Speaking of breaking it gently reminds me of a little story I heard once of a man who had been working very hard, and was on the point of nervous prostration. He was advised by his doctor that he must leave home, leave his business, and go away for a month or two at least, where he could not hear anything about home or business. So he proceeded to take a trip to the backwoods of Maine, where he enjoyed himself very much, and seemingly recovered his health. So he decided to come home, and sent word to his faithful man to meet him at the station. On arriving at the station he was surprised to notice that the man had a strange team, but he got into the buggy and started out toward home, and he said, "How are things at home, Hiram, all right?" "Oh, yes, sir, all right." After a while he said, "I notice the old dog, Jack, isn't here." "No, sir, no, sir, we have lost Jack." "Well, well, that is too bad; what happened to Jack?" "Well, sir, he died from eating too much horse flesh." "Why, how did that happen?" "Well, you see, he was burrowing around in the ruins and he came across old Dan, who was buried there, and he ate too much horse flesh." "Why, what happened to Dan?" "Well, you see, Dan was burned up when the barn burned." "What, is the barn burned down?" "Oh, yes, I done forgot to tell you that the barn burned." "Well, that is too bad; how did the barn catch fire?" "Well, you see, the wind was blowing from the northwest the day the house burned, so the barn caught fire." "You mean to

say the house is burned down?" "Oh, yes, sir, yes, sir, I forgot to tell you that the house burned." "Well, I am surprised; how did the house catch fire?" "Well, you see, when we laid out your mother-in-law we put her close to the window, and the lace curtains caught fire from the candles." "Well, you don't mean to say that mother-in-law is dead?" "Yes, sir, yes, sir, I forgot to tell you that your mother-in-law is dead." "Well, I am sorry to hear that; what was the matter with mother-in-law?" "Well, sir, you see she died from the shock." "Shock, what shock?" "Well, sir, from the shock when your wife ran away with the butler." (Laughter and applause.) Now to business.

REPORT OF THE COMMITTEE ON PUBLICITY.

Mr. President and Gentlemen of the Convention:

Your Committee on Publicity begs to report as follows:

The committee met at Hotel Willard, Washington, D. C., on April 15 and 16, 1908, for the purpose of investigating the continuance of proper Government tests on burned clay wares, and the question of ways and means of securing the necessary publicity of the merits of burned clay structural material.

The committee devoted its principal attention to the question of publicity, and several sessions were devoted to the discussion of this important subject.

It was recognized at the very start that the amount of work which the committee could accomplish, as well as the general scope and character of this work and the plan of operation, must be determined largely by the amount of money which the association would provide, and in the absence of any knowledge of



J. Parker B. Fiske, New York City.

this important detail, the discussions at the Washington meeting were more or less of a general character. It was realized that the details of actual work of this committee must be done largely by one or two men, and the committee, therefore, decided to place the matter in the hands of its chairman and the secretary of the National Brick Manufacturers' Association, with instructions to proceed with the work in accordance with their best judgment, and with the amount of money which might be subscribed by the association.

Acting on these instructions, a meeting of the sub-committee was held in New York shortly after the Washington meeting. A general plan of publicity was decided upon, and a letter was drafted to the members of the association, detailing some of the proposed work, and asking for a subscription of \$2.00 from each member. As the committee had no special stationery, and it was desirable to issue a letter at once, the same was printed on the chairman's business letter heads and sent out, under date of May 5th, to 629 members.

The sub-committee felt confident that a general response would result. Two hundred and thirteen answers were received to this letter, which was a response of about one-third. This was somewhat discouraging, but, feeling that the failure to respond must have been due to mere oversight, the sub-committee sent out a second letter, under date of June 22d, on special stationery provided for the purpose. This second letter was an urgent appeal for money. This letter brought fifty-two replies.

On August 23d the secretary of the association sent out a third letter. On December 17th the total number of replies received to the three letters above mentioned having amounted to 265, a fourth and final letter was sent out, reciting briefly some of the work which had been accomplished, and giving examples of some of the articles which had been published in the daily newspapers and the monthly magazines on the dangers of concrete construction, and the enormous destruction of property going on in this country by fire, on artistic brick work, etc., etc. The

letter made a final appeal for the \$2.00 subscription, and resulted in eleven replies.

The sum total of the money received by this committee is \$555.30, from 277 members, out of a total of 629, in accordance with the treasurer's report, appended hereto: that is to say, 44 per cent. of the total membership of this association have responded to some one of the four letters sent out by your committee, and 56 per cent. have made no reply whatever.

It must be evident to this association that very little real publicity work could be accomplished with a small amount of money at our command, that is to say, little compared with the amount of valuable work which might be done, and which the case really demands.

Notwithstanding the lack of money, however, the committee feels that it has at least made a beginning.

A very large number of articles have been prepared and sent out to over 150 newspapers in this country. These articles have dwelt upon the folly of burnable construction, on the dangers of improper concrete construction, on the artistic possibilities of good brick work and kindred topics having a bearing upon our craft. A number of very readable and forcible illustrated articles have appeared in some of the leading magazines, particularly on the subject of "Fire Prevention," and, altogether, it is certain that some word about the virtues of burned clay has reached a very considerable per cent. of the reading public. Not all the credit for this work can be claimed by your committee, as other forces have been at work, and the general interest in this subject has laid at the foundation of some of this writing, but we have been able to give this movement a considerable impetus by our efforts, and every one of the few dollars which has been subscribed by this association will, in our opinion, bring forth fruit a hundred fold.

While a reasonable beginning has thus been made along certain lines of publicity, the work accomplished has been so trifling as compared with the possibilities of the case as to make your committee feel that this association has almost entirely wasted the



S. B. Dobbs, Philadelphia.

opportunities of the year, and, were it not for the fact that most of those members who responded to our appeal for money evinced the greatest interest, in fact, we may say the greatest enthusiasm over this proposition, we should feel thoroughly discouraged.

The fact that many members, however, have written us the most encouraging letters, and have expressed a desire to back up a proper movement with liberal funds, leads us to feel that it is worth while to make another and a still more vigorous campaign on this important subject.

At a recent meeting of your committee it was therefore decided to lay before you the following plan of publicity for the ensuing year.

The field for burned clay products is so wide and so diversified, and the membership of this association is so scattered and so varied in its interests, that your committee feels it can best accomplish forceful work by concentrating its efforts upon a certain limited campaign, and, if successful, can thereafter branch out into wider fields.

The moderate priced private house seems to us to be the most promising object of attack at the present time. Not only is the aggregate amount of construction in this form a very large proportion of the total construction for the year, thereby assuring us of a large field for conquest, but the whole country is waking up to the subject of better homes. The older forms of wooden construction are becoming more expensive, as well as less desirable in the public mind, on account of their extravagance in repairs and their dangers from fire, and the public mind is, therefore, prepared to receive with interest and appreciation the story of a better material. As recited later in this report, the cement man has been keen to this situation, and today, by his campaign of publicity among the people, is reaping most of the benefit, resulting from the change from wood to something better, while the brick man, simply because the public does not know the virtues of his ware, is getting only a small proportion.

The problem to which your committee invites your attention at this time is this: How can we so teach the people that when

they build they will use brick in preference to every other structural material?

In our opinion, this must be done in both of the following methods: First, by stimulating the interest already existing among our architects in brick construction, and second, by an intelligent and forcible appeal to the home builder himself.

Our people are daily becoming better informed upon the subject of building construction, particularly as to residences. No better illustration of this fact can be cited than the advertising pages of our monthly magazines, which are filled with interesting illustrations and data on all kinds and sorts of things pertaining to the building of a home. Plumbing, heating, lighting, interior finish, shingle stain, and a thousand and one similar features are being exploited at a cost of hundreds of thousands of dollars, and the fact that money is being continuously spent in this way is proof that "it pays to advertise."

The country house and garden is today supporting a large number of magnificent publications, such as *Country Life in America*, *American Homes and Gardens*, etc., etc., simply because the people are getting daily more interested in these things.

To interest the public in brick construction, we must have creditable and attractive literature. How can this best be obtained? We can, as individual manufacturers, each prepare and distribute in our own markets, catalogs or pamphlets illustrating attractive houses which have been erected under our notice in brick, but the aggregate of individual effort which would be effective in a large measure would be enormously expensive. Let us, therefore, avail ourselves of the benefits of concerted effort; let this association prepare for distribution by its members to the public a book containing the best brick construction in this country as applied to the country house, illustrated by attractive photographs of executed work and designs by competent architects of houses which can be constructed for a fixed sum, and let this book contain a few interesting and powerful articles setting forth the reasons why brick is the most economical and the most artistic, and, therefore, the best material to use. With this subject in view, the natural question arises: How can such a book be obtained? It is doubtful if the association can create such a book within its own membership. We are brickmakers, and we pride ourselves upon our ability to produce good brick, but we are not architects; and as such a book should be prepared from an architectural point of view, let us take expert advice and employ expert talent.

This brings us to the consideration of the relation of the architect to this movement.

Suppose that this association were to conduct, through the medium of some high-grade architectural paper like *The American Architect*, or *The Brick Builder*, a competition among the architects of the country for a design of a modern-priced brick house, offering the sum of \$1,000, divided into first, second and third cash prizes. What result could be obtained by such procedure?

We have taken expert advice on this question, and have consulted the publishers of two of the leading architectural publications of the country, which have conducted through their medlums a number of successful competitions of a similar character.

Such a competition would probably bring forth anywhere from two to three hundred excellent designs in brick; designs setting forth the best talents of some of the brightest architectural minds of the country, these designs being judged and approved by a committee of high-grade, well-known architects, who would undoubtedly be willing to give their service in this connection.

Such a competition would not only furnish this association with the best possible tools for the reaping of a profitable harvest among the people themselves, but it would stimulate the interest in brick construction in thousands of architectural offices in the country, would direct the attention of thousands of architects to the virtues of brick, and, in its reflex action, would inevitably result in the unconscious co-operation of the architect himself in favor of our material, when a client comes to him with doubts as to the best material to use.

If we are going before the people with the story of brick, let that story be clothed in the best possible language and illustrated by the best designs which it is possible for us to obtain. A poor tool, even in the hands of a skilled workman, results in an imperfect product, and similarly we can only hope to produce the greatest possible results by utilizing in the work of this character the best designs which it is possible to create.

Reverting once more to our work among the public. From among the designs of good brick houses obtained by such a competition, a book could be prepared embodying a reasonable number of the best designs; accompanying these designs might be reliable estimates of the cost of construction. Preface these designs with a few powerful, logical and readable pages of argument, place these books in the hands of those who are selling burned clay against the competition of wooden or concrete construction, and you have armed the brickmaking craft for its commercial warfare in a way which has never yet been done.

It may be questioned: How can the brickmaker get this publication into the hands of the man who is studying materials long in advance of his actual decision to build, and therefore, in advance of his selection of an architect. The answer to this question, in our minds, is a simple one. Let the association advertise that it has this book for distribution, exactly as the cement man, the shingle stain man, and the plumbing, and the plumbing fixture man advertises his catalogues. Put into the advertising pages of the best monthly magazines and the best country life papers, a small attractive advertisement, and we venture to predict that thousands of inquiring minds will respond.

The committee speaks somewhat advisedly on this point, for it has been informed upon good authority that a certain well-known manufacturer of cement has advertised in this manner and in one

particular instance received the astonishing number of two thousand answers to a certain advertisement.

But such a program as we are here proposing will cost a very considerable sum of money, and if we succeed in this report in convincing the members of this association that this work should be undertaken, the natural question arises: How can the money be obtained?

To conduct a proper competition, to print in proper fashion the requisite number of books, to advertise these books so that the necessary distribution may be obtained, and pay the cost of distribution, will cost a sum of not less than \$10,000.00. It is useless for us to undertake this work in a half-hearted fashion. A small sum of money will accomplish nothing, and unless this association is ready to devote itself to this problem in a business way, the quicker we return to our clay banks and pugmills, and let the public buy what it will, the better.

In order to crystallize this movement into something tangible your committee proposes the following method of operation:

Empower your Publicity Committee to solicit membership to a Publicity Club, the membership fees of which shall be \$50.00; the club to become operative only upon the condition that the sum of \$10,000.00 is subscribed. Let this club be duly organized into a business organization with a president, secretary and treasurer. Let this club conduct a competition as above outlined; publish a book; advertise its book and distribute this book to the public, and let the secretary of this club upon sending out a copy of this book to a given inquirer, notify the members of the club who are located in the inquirer's market, that Mr. So and So has written in for a copy of this book and is therefore a possible purchaser of brick.

By this method we can stimulate the interests of the architect in building of brick. We can place in the hands of prospective builders our best arguments, and we can, by some system of notification, enable the members of this club to get in touch with possible customers.

We have not attempted to work out the fine details of such an organization, but we believe they can be worked out in a systematic and businesslike fashion, and we believe those members of this association who are interested in this proposition, not only from a sentimental standpoint, but as a matter of business, can secure a very liberal return on this investment.

In closing we wish to call to your attention the fact that we are not proposing any radical or untried methods.

The cement man, who is our keenest and most active competitor for the business which is resulting from a change of sentiment against wood in favor of a better material, is using virtually these methods today. The committee has secured copies of cement literature and has them here for your inspection. This literature consists not only of essays and papers on all sorts and kinds of questions connected with cement construction, but it contains just the kind of a book on country houses, the result of the same kind of a competition which we have outlined, and if cement with all its inherent defects and all its objections, paramount among which is the almost total lack of artistic effect, has been able to create for itself a most enviable position in the building world, how much greater result can the brick maker obtain with a material which is more fireproof, which is more permanent, which is more economical in the matter of repairs, and, above all, which is of such surpassing artistic merit.

Respectfully submitted,

J. PARKER B. FISKE, *Chairman*,
CHARLES A. BLOOMFIELD,
WILL P. BLAIR,
W. D. GATES,
JOHN W. SIBLEY.

M. E. GREGORY, }
T. A. RANDALL, } *Members Ex-Officio.*

FINANCIAL STATEMENT PUBLICITY COMMITTEE N. B. M. A.

RECEIPTS.

Received from members of the N. B. M. A.....	\$539.30
Received from non-members.....	16.00
Total receipts	\$555.30

DISBURSEMENTS.

Paid Publicity Manager.....	\$420.32
Paid for circular letters, postage, etc., etc.....	132.98
Total disbursements	\$553.30
Balance on hand	\$ 2.00

(Applause.)

Importance of Publicity Work.

President Parker: You have heard the report of Mr. Fiske on behalf of the Publicity Committee. It is evident that it will take activity and knowledge and money to produce the results that he contemplates. What is the pleasure of the convention in regard to it? Are there any gentlemen who would like to say anything on this subject?

Secretary Randall: Mr. President—I will get into the breach and say for one, I have not the unholy fear of concrete and cement that a good many of the clay manufacturers seem to have. I do not believe that there will be a time within the life of any man present, that there will not

be from year to year more clay products used right along regularly as we increase in wealth and population. I do not think the cement products are going to run burned clay off of the earth at all, and yet, as a matter of keeping abreast of the times, as a matter of holding up and supporting our own interests, this matter ought to be gone into earnestly and carefully, and these suggestions of the committee ought to be carried out. A few months ago, I, with another member of our Executive Committee, visited Baltimore. Four or five members of this committee had the work of this committee sufficiently at heart to pay railroad fare and hotel bills for a week—it cost everyone of us anywhere from \$10.00 to \$15.00 a day. The member of the Executive Committee to whom I refer, Mr. Gates, and myself had been granted the honor of an interview with the President of the United States in connection with this work, but we had to wait over a day in order to see him, so we went to Baltimore and looked over the burned district. We were standing in the center of the town, and I said to Mr. Gates, "Look down this street and see how many buildings there are built of other materials than brick." And he looked down the street and counted the new buildings which had been erected since the fire, until he could not distinguish one from another, and he could pick out no other material than brick. There in Baltimore were buildings built of brick from all sections of this country, of every color almost, but they were brick. Look around your own locality, and you will find that brick has made as much progress, and is holding its own in the prog-



C. L. Merrick, Syracuse.

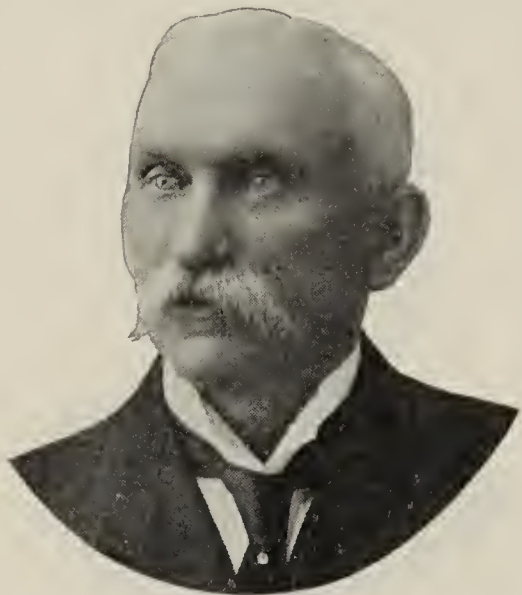
ress of the country. Just the same, we will do well to consider this matter carefully. I believe the committee has mapped out a policy, which, if followed, will extend the use of clay ware and burned clay material very materially in building lines, but you have got to support them, not only with your voice, but you have got to provide ways and means of carrying on this work; and it will pay you, and pay you big. I was in hopes that this report would prove a live wire and waken you thoroughly to the importance of this matter. There is no gainsaying the fact that advertising pays, and you should support your Publicity Committee and advertise your products and keep the building world awake to the superior merits of building brick. (Applause.)

President Parker: Hasn't Mr. Gates something to say to us on this question?

Mr. W. D. Gates, Chicago: You have heard from me practically in the report which has been read. I have sat up night and morning laboring on it, and that report is the result of the efforts of your committee. I do not believe myself that cement is going to be the only material used. I believe in good material, and that it will find its use. But I do not believe that cement stands alone there. I believe that poor material can be pushed by aggressive efforts. I did not mean to say anything here. It was my custom years past to sit up in front and get on the program and in the limelight, early in the sessions, but I did not intend anything of that sort today. We have been too busy furnishing the best ware we could to concentrate our efforts on the

concrete question. We have made the best wares in the world, but we have been lacking in the art of pushing our wares, but, while we have been perfecting our methods of manufacture and perfecting our ware, the other fellows have been furthering the use of inferior material, by being aggressive. I was coming out of Yellowstone Park last spring, when I happened to get into conversation with a man, as one will do in traveling, and he showed me some samples of a building material that looked like a piece of marble, and he said, "I have four billion tons of the material, and I am going to start a company to manufacture this stuff. I will make cement for the whole country. What do you think of the proposition?" And I said to him, "I have just two things to say to you. If I were in your place, I would look after my market and see if I was where I could market my material, and then I would see that the material was properly used. I would see that it was not carelessly put on the market." The man said, "Oh, hell, I don't care a damn how they use it, just so I can sell it." (Laughter.) Now, the brick manufacturer follows up his material, and sees that it is used properly, but there is an element of carelessness in the concrete structures. The greatest point they urge for the use of concrete, is the cheap labor that can be used and we are handicapped by the high-priced laborers who lay our brick. (Applause.)

Mr. Bloomfield: I want to say a word as a member of



J. G. Hammer, Butte, Mont.

that committee. As Mr. Randall says, you can go to Baltimore or any other city and you will find brick structures. but when it comes to suburban homes, it is almost impossible to find anything but frame buildings. You can go to any book store and obtain books and plans and specifications for frame buildings, but you can not find a book containing plans and specifications for a moderate-priced brick house. This is where the brick men are weak; there is where they ought to be strengthened. A little thing happened in New Brunswick, N. J. A man wanted to build a house and he wanted to spend considerable money, and he had an architect prepare plans and specifications for a frame building, and the lowest bid was a few dollars less than \$19,000. He said, "If I am going to spend that much for a frame building, I am going to see what I can get a fireproof building for." He simply changed his specifications to hollow block and brick, sent out for bids, etc., and his lowest bid for a fireproof structure was only \$12,500, and that house is built and is a handsome building. (Applause.) It has started a new era in Middlesex County, and we hope to gather data for a book that will contain plans and specifications, so that we may be able to give to the owners and architects of this country a book that will show what can be done with burned clay materials, for less or just about the same price, and in this way do away with these fire traps that are a constant menace. Such plans and specifications will help increase the demand for our material. We are doing good for ourselves and good for our posterity. Think of the prop-

osition that has been put before you today, and then go down into your pockets for the \$50.00 that has been asked for. It would be a good investment. Have architects promulgate plans for moderate cost buildings, publish them and disseminate them over the country, and, instead of having these frame buildings go up about you, you will have permanent, fireproof buildings, at moderate cost, which will last for all time.

Mr. L. W. Penfield, Willoughby, Ohio: I do not think we ought to pass lightly over the report of this committee. Those of you who have, during the past two or three years, been kept advised of the wonderful growth of the Portland cement business, and the tremendous development in the use of Portland cement in structural work, must realize that brick has got its first competitor as a building material. A few years ago we all thought of Portland cement as something imported from Europe, to be used only in the most expensive kind of construction; that is, something that had nothing to do with building, unless in the foundations. Today we have large numbers of fine Portland cement plants in the United States, making Portland cement of the finest quality. Portland cement plants, unlike clayworking plants, are million-dollar propositions. Men who have gone into them are usually men of large means, and, having immense investments, realize that they must have a proper market, for they are going into the market to stay. The price of Portland cement is only about half what it was some time ago, and it is not nearly as cheap as it will be in the near future. It is natural that Brother Randall should sound the note of encouragement. That is his business. He sees the brick and building business in the brightest possible light. This is a great and growing country, in which any industry well-established, with ordinary attention, will continue to grow and prosper, but an industry like the clayworking trade, that is making a product which has no superior for building purposes, that industry may almost stand still in a country growing like this, if it is let alone. Nothing in these days grows unless it is pushed or cultivated or given attention. You may not realize it, but the trade journals that are devoting their time and attention and pages to the clay industries are doing wonderful things in promoting this industry, and to interest the users of clay products. In the last two or three years in the cement industry two or three trade journals have arisen. They have blossomed out astonishingly, and it is really remarkable to look over their pages and see what they offer to the public, and those of you who do not see these cement papers have no idea of the magnitude of the competition that is growing up in the building trade field. You would do well to think twice. The Portland cement companies are spending—I was going to say hundreds of thousands of dollars—I do not know the aggregate, but they are spending many thousands of dollars. One company is spending as much money in one year as it takes to publish the finest trade journal we have in our industry—and that is only one firm. Think of it! A firm spending more thousands of dollars in individual advertising than the cost of the best trade journal that represents our entire industry. That is what is happening, and it has developed within the last few years. Do not think that Portland cement is not meeting the tests of a good building material. There have been failures of concrete construction. If you want to see what is being accomplished by the cement manufacturers, attend some of their conventions; four or five of them are being held in the larger cities every year, called conventions of cement users. I have attended several myself, and they exhibit machinery filling a building two or three times as large as this, all in operation, one firm alone oftentimes spending as much money as has been spent in this whole room here. You would do well to read their literature. You will find their business is being managed by technical engineers, and they are carefully preparing the way for the use of concrete for all purposes. They are giving an enormous amount of attention to the manufacture of sidewalks, and the time is not far distant when you will not see a vitrified brick going into a sidewalk in the United States. The Portland cement people are putting the brick people out of business in that respect, and they will put the cut stone people out of business, too, so far as sidewalks

are concerned. They have put stone cutters out of business. Look at the art stone being put out by the concrete manufacturers. We can not tell at a glance whether the stone fronts are made of art stone, or whether it comes from the famous limestone quarries of Indiana. In the little town in which I live, we have a little library going up, and the out-of-town visitor does not know but that it is cut stone, but it is art stone, made in a little back street in Cleveland, being made under technical supervision, and the architect does not hesitate at all to recommend it. It looks as good as any Indiana limestone ever laid in the wall. It was used in that instance in connection with the brick because we could not get the cut stone, and it looks just as good. The architect was a Cleveland man who stands high in his profession, and he considered it just as good for the purpose. The brick that are used are vitrified shale brick of the roughest, commonest sort, and it makes a beautiful building.

I say this to those of you who do not receive the literature that is being published and comes to the hands of almost every machinery manufacturer, that those interested in the building trades ought to see to it that the brick manufacturers have literature that they can put in the hands of the general public and architects. You certainly should start a publicity bureau in connection with the N. B. M. A. There is a place for this bureau, even if you are not afraid of this competition, but this bureau must be conducted according to twentieth century methods, and if you do not conduct this publicity bureau, your business will come near standing still. (Applause.)

Mr. W. P. Blair, Indianapolis, Ind.: Up to this time, it seems to me that the brick industry in this country has occupied a sort of a dormant condition, and so long as it remains in this condition, we are not going to develop, and we are not going to grow as we ought to. Following the war, many of the northern people were inclined to look upon the southern section of the country as a section lying somewhat dormant, but in the last few years we have come to know that we have been mistaken, and if we were right in the first place we are not right now. The South has wakened up, and I was thinking that maybe we could get a little information and instruction and be wakened on this subject, if we could hear from one of the southern members, and I would suggest that we hear from Mr. F. H. Hyatt, of South Carolina.

Mr. F. H. Hyatt, Columbia, S. C.: Mr. Chairman, ladies and gentlemen—I suppose you have called on me because I am from a southern State, in order that I may warm the crowd up a little. (Laughter.) I have been accustomed Mr. Chairman, to talk to southern people who I know are in sympathy with me, and I sometimes feel like I get along pretty well, and I want to say to you right here that I want to promise you all that I will not talk long enough to feel like the little boy I heard of once in a revival meeting. They had been running one of these old-fashioned Methodist revival meetings. I am a Methodist myself and know something about them. After about three weeks they decided they would give in their experience. The preacher gave his experience and this man gave his and then this sister gave her's, and then after a lot of them had talked, the preacher said any one who wanted to join church to come up and give the preacher his hand. Some came up, and then the preacher said, "Anybody who wants to be prayed for, stand up." And so he continued to make propositions, and the little boy sitting down in front did not accept any of his propositions, and finally the preacher noticed him, and said, "Little boy, you don't want to go to hell, do you?" And the little boy said, "I don't care where in thunder I go, just so I get out of here." (Laughter.)

I want to tell you in a few words something about the South. It has been said that it is a question which is the most entertaining, a good talker or a good listener. I am going to put it up to you if my talk is a failure, you are as much to blame as I am, for there is nothing that is more inspiring to a man on his feet than to know that he has the attention of his audience. About forty years ago, you know what happened down in our country, and we have paid dear for our wisdom, don't you forget it. We have taken our dose of medicine like a man, and we realize today

that we are all under one flag (applause), one country; none better anywhere. I came up to get a little inspiration, and they have talked brick to me until I sometimes feel myself wondering if I have not turned into a brick. I feel interested in this movement, because I have been president of the Good Roads Association in South Carolina for years, and I have every county in the State organized, and every town and city is now getting ready to pave, and I came up here to see about the brick proposition.

As I said in my little talk before the paving brick men yesterday in their meeting, we have been getting some prices on brick in the city of Columbia, and you people want to charge us \$43.00 a thousand for brick. Just think of it! Forty-three dollars a thousand with a freight rate of \$23.00 per thousand.

Mr. Ittner: Is that freight added, or is it included in the \$43.00?

Mr. Hyatt: It is included in the \$43.00. The South is a new South. She has taken on new life. You can hear the hum and whirr of the spindle all along the river. In the city of Columbia, where I live, is the largest mill in the world under one roof. When we take into consideration the cotton crop raised down South, it is enormous. Do you people know that eight or ten States in the South raise 75 per cent. of the clothing of the world? It is a fact. When it is considered that statistics show that only one-third of the world is clothed, about one-third half clothed, and the



John Miller, Washington, D. C.

other third go naked, you can see what our cotton crop is going to amount to in the future. Let me go back about forty years and draw on your imagination a little bit for some actual facts that occurred. When we were taken up and brought into light, we were dependent upon the North for our money, which we are more or less today. They would loan the money to the banker, and the banker would loan it to the merchant, and the merchant to the landlord, and the landlord to the tenant. The result was that cotton soon got down to almost any old price. We now market our cotton crop about ten months in the year instead of three, and we control our own prices. I will tell a little story in order to illustrate our condition down there. I heard of another revival going on, and, after running along two or three weeks, they decided they would have an experience meeting, and after they gave out a song and had a prayer, the preacher turned around and said, "Brother Jones, tell us what the Lord has done for you." He said, "The Lord has done a heap for me; he has given me a wife and five children, and I am blessed a plenty." And they all said "Amen." Then brother Smith got up and told how good the Lord had been to him, and some more brethren told what the Lord had done for them, and finally the preacher said, "Brother Brown, can't you tell us what the Lord has done for you?" Brother Brown got up and said, "Brothers, I am mighty sorry that you all have called on me, for the Lord has certainly played hell with me." (Laughter.) That is

about the way we felt when the war was over, but we have come into our own, and we are now getting ready to pave our streets and build roads, and we want you to help us. I say, how is it possible for us to pave our streets with \$43.00 brick, but we have got some fine clay beds there, some fine clay out of which we can make good brick, and I want you people to investigate that matter, come down and see where and how we live, and see what we are doing. I want to say to the young man, come South instead of going West. The opportunities are great. I do not know of any section, and I have been all over the United States, that has more opportunities than the South. We are improving in our educations, notwithstanding we have the colored man to contend with, but that is a problem that will solve itself. Everything will turn out all right; He who directs this country and rules the world will direct that. I thank you for your attention. (Applause.)

R. G. Eisenhart: Mr. Chairman and gentlemen of the convention—I am not here to fight the cement interests or anybody else; I am here to promote the brick industry, and that is what I want to do. I had a little experience a few days ago, and I want to give it to you for the benefit of my brother from the South. A revival in building was going on, and a building was going up that requires 400,000 brick. I went at it to promote my business, and I sold the 400,000 brick just before I came up here. (Applause.) If we want to promote the industry which we so love, one that has been tried and never found wanting, we want to give this Pub-



W. S. Purington, Galesburg, Ill.

licity Committee some encouragment. We all know that no sensible man expects to do business without advertising to get it. I would move that this report be accepted, and the committee call on us for \$50.00 apiece, and which I have already subscribed. (Applause.) Let us push our business; if we do, I do not fear the cement man or any other man. (Applause.)

Mr. W. S. Purington: I wish to second the motion, and want to say that very few people realize what publicity has done for the paving brick industry of this country. A few years ago a small body of paving brick men banded ourselves together, and we have grown until at the present time we have more than 90 per cent. of the paving brick manufacturers of this country banded together in a publicity bureau, or what amounts to the same thing. It has cost us money, but the results we have obtained have more than paid for what it cost us. As the gentlemen from the South has said, we have promoted the brick pavements in the land far south, where it is impossible for us to go without having them pay \$43.00 a thousand. If this organization of paving brick manufacturers had not been formed, I suppose they could have got it for \$13.00. This is one of the results obtained from our getting together. There is nothing we can do that will bring better and bigger returns than to encourage this publicity bureau. Ever since we have been here we have listened to the hard luck stories of the build-

ing brick manufacturers; have you heard anything of the sort from the paving brick manufacturers? (Applause.)

Howard Chambers, Philadelphia, Pa.: What we want are the names of 200 men for \$50.00 each. Mr. Fiske presented this matter to the machinery association, and I am sorry we had so small an attendance, but it met with an instant and hearty response. Perhaps it came the more ready from us, because we have learned in our business that it is not sufficient to have a good thing and know it yourself, but we have got to hammer into the other fellows the superior merits of our own particular product. We do not expect the other man to do it for us, but we do not allow him in exploiting his business to push us into the background. It did not take the machinery men five minutes to see the advantages of this proposition. I want to say that the machinery men have got a committee out now with a subscription paper to get the names of the machinery people who did not subscribe yesterday afternoon. The majority of the men at that meeting did put their names down, and the \$50.00 will be forthcoming. During the discussion, there was one thing that came out that serves to illustrate the doctrine of publicity which we are preaching. One man got up and said that last year he built a house of brick, and the architect called for a slate roof. He said he wanted a tile roof, of burned clay, and he put it on. Just from that one act, the publicity that came from it, and his explanation to his neighbors of the superiority of that roof, has resulted in seven houses in his neighborhood being built with tile roofs. (Applause.) You want to take hold of this matter yourself, and not depend on anyone else to do it for you. (Applause.)

Geo. M. Fiske: I would like to second the motion of Mr. Eisenhart to the effect that that club be formed by starting here and now. I think it would be a good idea to call for memberships and subscriptions now, and see how many we can get, and before this convention is over this club ought to be formed. If we are going to do nothing else, we ought to do this, and get to work. The cement people are going to do more work this year than they have ever done before. I was told so by a cement man a few days ago. They are going to spend hundreds of thousands of dollars this very year in promoting the use of cement, and you will see bigger advertisements and more of them than you have ever seen before, and if the brick men are going to do anything this year to meet this, the organization must be made here before this convention adjourns, and the officers elected.

President Parker: Gentlemen, you have heard the motion which has been properly seconded. All the members in favor of this motion will stand.

Mr. P. J. Connell, Muskegon, Mich.: Are we to understand that by rising we commit ourselves to pay the \$50.00?

President Parker: Mr. Parker Fiske has something more to say to us, and I will ask him to come up on the platform.

Parker Fiske: I want to say a few words more in regard to what the Portland cement companies are doing in regard to publicity. We are not here to cry or plead the baby, but to learn a lesson from the other people. The idea has been expressed a good many times that we do not need to fear cement, that burned clay is a good material, and it is going to succeed in spite of cement. I want to say as one engaged in the selling of clay products, and as one who comes in competition with cement, that we are losing sales every day in favor of the cement man, and I want to cite one instance that came under my observation a week or two ago. On the east side of Long Island there is a colony of high-grade residences going up; each one of them will cost not less than \$15,000 to \$20,000. They are being put up by a colony of rich men, and there is not one pound of burned clay going into them, except possibly in the chimneys, and I want to tell you, gentlemen, that that result has been accomplished by the advertising of the cement men. These houses are being erected of concrete blocks and stuccoed on the outside with cement. Before the brick men of New York City had awakened to the fact that they were being built, the cement men had convinced the owners that cement was the material they wanted to use. I have here a book published by the Atlas Cement Company, and if any of you

will take the trouble to look this over you will see the work they have done in the way of cement and concrete construction. I fully agree with you that it is folly for us to deceive ourselves with the idea that the brick business is not going to be hurt, because it has already been hurt. The Atlas Cement Company, which I mention because I happen to have some literature from their office, is probably one of the most successful advertising concerns in the building material business, and they are devoting the sum of 1 per cent. of their gross income to the question of educating the people to the virtues and desirability of concrete construction, and the result is, they have built up an enormous business. In every copy of Country Life that I have seen, and in most of the monthly magazines, the Atlas Cement Company is advertising this book I have here. Here is a one-third page advertisement, showing a design of a country house built by one of the best architectural firms in New York City. It is a beautiful house, one that any one of us would be proud to own and live in, if we were not in the brick business. It is almost inevitable that any man seeing these advertisements will write for a copy of this book. It costs 15 cents for postage and contains 168 pages, and it is almost inevitable that after the man and his wife and the rest of the family have looked that book through, they will be prejudiced in favor of cement as against wood or brick, or any other material. So the cement man is getting in his work before the brick man knows that the man is going to build at all. One of my personal friends, whom I used to know exceedingly well, wanted to build a house. He got some of this literature and decided he wanted a stucco house, and before I knew he was going to build the house at all, his mind was made up, and nothing I could say would convince him that he wanted anything else than stucco. The seed was sown, and the harvest ready for the cement man before the brick man woke up. It is this kind of work that we want to do. We want to plant the seeds in the minds of the people before they decide on what they want to use, and we can do it if you gentlemen will come forward with the money.

Mr. Ittner: I would call on those present who want to subscribe to rise to their feet and do something. You can put me down for \$50.00.

President Parker: Those desiring to subscribe will kindly rise.

A goodly number of the members arose.

Mr. P. J. Connell: There are other things in connection with cement work that they are doing in my State. In the past month a street pavement job was let, to be done with cement 6 inches thick, and I must say to the paving brick men, they are largely to blame (laughter) for it. About fifteen years ago our city, through my instrumentality and hard work, commenced paving with brick, and a lot of cull brick were shipped from Indiana and Ohio from contractors, which gave us a very unsatisfactory and imperfect lot of brick that has killed brick pavements absolutely, simply because these cull brick were shipped to our city. We paved about three miles of streets last year and there were very few paving brick used, all because of the bad name they had received so long ago. Of course, we know that this cement paving will not last; it can not endure in street work. I have offered \$25.00 to any man who will bring me a cubic foot that has been twenty years in work and is perfect. I have used cement fifty years. Fifty-two years ago I commenced work as a mason, and I have used cement of every make, and I tell you cement will not stand in this climate only about twenty-five years until it begins to deteriorate, either German or American. I have used them all under the specifications of the very best architects, and the best sand we could use, and I have never found any of it to give perfect satisfaction beyond twenty-five years at the outside. That has been my experience, notwithstanding that we have twenty-five buildings built during the past year in our city entirely of cement, and if we had plans for a cheap, modern, moderate-priced brick house, we could sell the brick. Without having something of this sort, I do not think we can sell so many brick, and, for that reason, I am willing to subscribe to this publicity fund for my firm. I believe it will be a paying investment for the brick manufacturers of the

country. I do not think it profitable to come here and spend my time and money without receiving a benefit. (Applause.)

Mr. Fiske: I think this is a most important question. The machinery men have all gone back to their exhibits and taken one-third of the audience with them, and it has caused such a confusion that we can not understand half that is being said. I do not think it is because they are not interested in this matter, but I do think we ought to handle this question in a business-like way.

Secretary Randall: The first paper on the morning program is a paper by Mr. G. B. Waite, on "Reinforced Concrete and Brick Structures," and would be in line with this question.

Mr. W. P. Blair: I move, Mr. President, that we make the further consideration of this question the first order of business following the reading of Mr. Waite's paper in the morning.

Motion seconded and carried.

Secretary Randall: While the ladies are with us, I would like to read a letter of invitation from one of the leading stores of the city, Sibley, Lindsay & Curr Co.:

February 2, 1909.

T. A. RANDALL, Secretary National Brickmakers' Association:

Dear Sir—It is our pleasure to inform you that on Thursday, February 4, from 3:30 to 4:30 o'clock, we have arranged to entertain the visiting ladies of your convention in the Tea Room of this store.



P. J. Connell, Muskegon, Mich.

The program will be very modest, simply afternoon tea and music by the Hermann Dossenbach Orchestra.

The arrangements have been made through your local committee—Messrs. Burke and Vicinus—and you can make such announcement of it to your ladies as you deem best.

We trust that they may spend a pleasant and enjoyable hour here on Thursday afternoon, and remain,

Yours very truly,

SIBLEY, LINDSAY & CURR CO.

Secretary Randall: The attendance is large, but there are many whom we are accustomed to see at our annual convention who are conspicuous by their absence, and some of them at least feel badly about it. Here are some regrets:

LETTERS FROM ABSENT MEMBERS.

DEAR MR. SECRETARY:

This city is paved entirely with paving brick and they have good, clean streets. My own city, New Orleans, could take a lesson from them. Hope you will all have a pleasant meeting.

Panama City, Jan. 18, 1909.

F. SALMEN.

MY DEAR MR. RANDALL:

I had intended to be present at the National Brickmakers' Association this year, if only to run up and say "Howdy," but I am planning to leave here on Friday next and take Mrs. Titcomb to New York for a short visit, and then on the following Thursday leave for Florida to join a party on the steam yacht Haida.

While I am writing I suppose you are holding your first session, and I fancy I can see most of the familiar faces and the "shining lights." Please remember me to them, and I hope another year I shall not let the convention slip by. With very best regards, believe me, Sincerely your friend,

Providence, R. I.

WILLIAM G. TITCOMB.

DEAR MR. SECRETARY:

The writer had hoped to be with you at this convention, but owing to other pressing engagements, find it impossible, therefore enclose three dollars for membership dues at this time. You

will confer a favor if you will send the writer badges and such literature as may be interesting, and very much oblige.

Rome, N. Y.

DEAR MR. RANDALL:

I am very sorry I cannot be present at the annual meeting of the National Brick Manufacturers' Association, on account of great pressure of business.

I herewith enclose you check for three dollars for dues, and shall certainly endeavor to be present next year.

St. Paul, Minn.

Yours truly,
W. W. PARRY.

Sincerely,
W. SIWART SMIT.

FRIEND RANDALL:

Enclosed find draft for three dollars for renewal of membership in the National Brick Manufacturers' Association, which please acknowledge. Also send me a souvenir badge. I am sorry I cannot come this time. My son is going to school or college at Naperville, Ill., so some one has to be at home to take care of the family. Hope you will all have a fine time. I was glad to meet your son at Champaign.

Chatsworth, Ill.

Yours truly,
GEORGE J. WALTERS.

DEAR RANDALL:

Please find enclosed three dollars, amount of dues for the National Brick Manufacturers' Association. I would have liked very much to have been with you at Rochester, but there is no possible chance.

I am not in the brick business at the present time, but I am holding down the office of street commissioner at Winnipeg, Can., and I talk a good deal about brick.

The outlook is very good for buildings in this city, as the architects have already drawn plans amounting to between two and three million dollars for the coming season.

You will have a good time at Rochester without doubt, and I



R. D. Lindsay, Denver, Colo.

wish I might be with you. Wishing you every prosperity, I remain,

Winnipeg, Can.

Yours truly,
W. F. TALLMAN.

We also have here a reminder from one of our old-time faithful members. This floral offering comes to the Secretary's table each year from Mr. D. V. Purington, who is now in his winter home in Mississippi, and is an indication that he wishes to be remembered.

On motion, the convention adjourned until 10 o'clock Thursday morning.

SECOND SESSION.

Thursday Morning, February 4, 1909.

President Parker: The convention will come to order. The first number on the program this morning is a paper by Mr. George B. Waite.

Secretary Randall: Mr. Burke, of Rochester, instigated the preparation of this paper. He knows the author of the paper personally, and requested me to assign him a place on the program. I make this explanation because the topic of the paper may sound a little queer to you. It is the theory of Mr. Burke and those associated with him that there is a scheme of concrete construction used which will increase

the use of brick, and in connection with brick will do away with the flimsy frame structures, and this paper was intended to bring out that fact. That concrete in connection with brick, especially in floor construction, is an improvement over the frame structures is what the author of this paper intends to prove. The author has sent some slides with which to illustrate the paper, and I will read the paper first and then call for the slides. He fully intended to be present in person, but he writes that one of his associates in business has died, so he finds it impossible to be here.

BURNED CLAY IN THE CONSTRUCTION OF SMALL BUILDINGS.

BY G. B. WAITE.

Mr. President and Gentlemen of the Convention:

Had Alexander or Caesar succeeded in conquering the whole world and bringing with them civilization and the best of government, their influences on posterity would have done no more good than the salutary results which have been wrought for the benefit of mankind through constructions made of burned clay.

How long burned clay products were developing to practically suit all building conditions need not take up our time now, but it was sufficiently long to be sure that at least the common brick with its three varying dimensions will stay with us for a long time to come.

It has been tested almost continuously from time immemorial by aspirants after improved constructions, and each so-called improvement has invariably dropped back step by step to the same idea and the same material, i. e., the clay brick, convenient in size with three varying dimensions.

The history of burned clay products is as interesting, if not more so, than most histories of other world-wide functions of civilization. Like the history of "God's chosen people," it has learned some lessons by trials and tribulations. By retrospection it has learned that some of its success is due to its early marriage.

True to nature, clay gave itself early in life in marriage to Miss Wood, the Queen of the Forest. Unconsciously, of course, it felt the need of a spouse having a strong and tenacious nature to do the duties incumbent on the keeper of the inside of the house; while he, with his fixed and stable manhood, kept guard on the outside of the house, warding off all outside enemies and supporting the whole household.

Matchless was the measure of success of this new family, and their posterity moved to every clime and ruled in every civilized country in the world. Of course, boundless prosperity naturally brings laxity in the fixed habits which were instrumental in bringing success. Therefore, the proud descendants of the illustrious ancient family need not blush if a few family jars are referred to in their history, which only serves to season the otherwise monotonous repetition of successes. That sons and daughters in the lineage of this family should cause their rich fathers and mothers some little uneasiness at times is perhaps beneficial to the development for a higher plane, as corresponding troubles in any other family.

Some of the daughters surrounded with luxury flirted with young and egotistical huntsmen. Nature seemed to tell them that there was something lacking in them which the rude natures of these people could supply. Though the old people kept the best of watch on the girls, they succeeded in meeting the young men, and some fell deeply in love with them. Several likely girls hastily married into the Steel family, which did not cause nearly the friction as a few who married into a mongrel family called the Concrete Tribe.

As soon as the Steel boys once got inside the family grounds they seemed to be willing, and the old people put them to work at once. They were so marvelously strong that the old folks were secretly as much overjoyed at having them in the family as were their daughters made happy from the first meeting.

But it was different with the union with the Concrete Tribe. These boys did not seem to have a clear understanding of anything, though they talked, talked, talked!

It was hard to harbor and encourage the propagation of a posterity from a union like this—for it was not easy to predict what kind of a race it would make. While the whole Clay family loaded the Steel boys down with useless loads, and even tried to see how much they could carry, the boys only seemed to take it as a joke; they knew that in time the sagacity of their people could correct the misconceptions of the Clay family.

On the other hand, the Concrete boys took nothing humorously, but most seriously suggested that the old people ought to retire and give the place up to them. They even threatened the old folks, saying what their people would do to the whole Clay family if they did not get a fair show.

The Clays being quite busy people, paid little attention to these sons-in-law after the threats were made; so the Concrete boys, with the meager help of their tribe, started out independently to build homes for themselves and their families in their own way, about which they had read in certain books.

They started out dressed in their wedding suits, intending to only give orders to the serfs who were to do the work. With books in hand they first watched the picture, then the spot where the houses were to be erected. They were very boisterous at first, giving orders with much command and vehemence. They had not thought much of rations, as they reckoned that the houses would go up so quickly that living in the meantime would be easy. After a short period, they implored their wives to go over to the house

of their father-in-law and quietly borrow a few necessities, as it looked as though on account of unexpected delays through the shortcomings of the workmen, of course, the houses would not go up as quickly as expected. Following the record of one of them (which is typical of many), a sense of shame began to creep into his feelings on account of the boastings he had made to the elder Mr. Clay; but he continued to be game, and once more on Monday morning took his stand with his plan book in hand. With renewed assurance he commanded the serfs to raise the building. Finally one spoke out that it was no easy matter to start walls of a house this way, and dared to say that he believed the way of old Mr. Clay was much better. For this the man was promptly discharged, and commands to the rest were quickly given to immediately raise the house or they would reap a like fate. It was noticed by the workmen that the commands were given in a voice increasing each time in pitch, but weaker in tone. This encouraged the rest to occasionally talk back. One spoke up and said that the lumber was crooked and knotty, and it took most of the time hunting for a suitable piece for every special part of the forms, and that there were so many special things to be fitted around with the forms that he could not make any headway. Another said that he had an idea which would revolutionize concrete constructions by putting up forms of iron; they would cost \$25,000 for the first house, but if you wanted to build 25,000 houses just alike, it would be only \$1.00 apiece, beside the carting, storage, handling, interest, etc. All together, there were sixteen men engaged on form work who courageously spoke up; each was critic of the plans contained in the book, and each severely criticised the plans of all the others. The most intelligent of all who undertook to offer suggestions, was a handy man engaged in putting the forms together. He said all of those engaged on the forms were obliged to have seventy-five different kinds of tools, and it took almost all the time going from the tool boxes to their work, hunting for the right kind of tool to do the "good work" required.

After this the men took more freedom in expressing themselves, and this Concrete boy began to show outward signs of thinking.

Next day the lumberman came and said that as the stipulated time for the building to be finished had expired, he must be paid. Two days later a pugnacious looking man came around and said that he was the delegate for an organization of workmen, and that he had evidence that they were only paying one-half the wages that the Clays were paying.

This last phase brought the climax to his already discouraged feelings, and, having natural brilliancy in cases of emergency, he almost immediately began to read between the lines in his plan book, and soon came to the conclusion that he had not understood the real meaning of the "road to success" laid down in the book.

He visited his attorney and got counsel about the best way to form a company without being responsible for any personal acts. After going home that night, he spent a few moments in looking over his concrete picture album, and picked out among steel tension bars some which had ridges called eyes, some which had projections called ears—although the eyes and ears were so nearly alike that no one but the inventors could tell the difference. So he seized the idea of inventing a bar having eyes and the ears alternate, and found a patent attorney who said this would solve the entire concrete problem, and that with this new idea there would be no further trouble in concrete construction. So they marked the innovation with "patent applied" and at once organized a stock company to handle the prospective business. Next day he started a new book on "Success in Concrete Construction," and "How to Succeed" in doing it by the use of the new *hypnotic reinforcing bar*.

Some length has been given to the history of this particular son-in-law of the Clays, because it is so similar to many who have met with "phenomenal success in concrete," independent of the Clays, their best friends.

Several of these young men, when they had discovered their mistakes, sent their wives around to carefully advance the suggestion at the dinner table of their old home that their husbands thought more of the Clays since starting in business for themselves, and that they would be very happy to visit them. Thus the reconciliation, friendship and prosperity which subsequently resulted from this sagacious move of the Concrete boys. Only a very few obstinate ones persisted in holding out until winter came on, and their wives had to go back to their parents to live, leaving them to their fates.

The sons-in-law who had returned to the happy home of the Clays were received with due appreciation, and were given a chance to show their ability in connection with the business interests of the united family. They were first introduced to their brothers-in-law, the Steels, who had worked their way right into the confidences of the Clays from the very date of their marriages. The Steels were well related before marriage to skilled engineers, and through that source much salutary advice had been given to the business conducted mutually by Messrs. Clay and Steel.

When the humiliated and reformed Concrete boys came home, they were at first given such duties around the buildings as Messrs. Clay and Steel could trust them with. They were advanced as fast as they clearly worked out their own way. As they grappled with the burdens of the business and exhibited especial capacities, they were appreciated by Messrs. Clay and Steel, and, finally, all became the closest of friends. The Concrete boys finally made a clean breast of their feelings, and acknowledged that they owed their business success to the Clays, to whom they were very grateful.

At the last annual meeting of the company, in which the three are now directors, a sort of love feast was held, in which all agreed that they had plenty of their own duties to perform without encroaching on those of the others; that their interests, mutual and individual, were better conserved by continuing in harmony. It was agreed that the Clays were more especially adapted to

guard and protect, enclose, divide and clothe the house, and that the Concretes and Steels were better inured to do the hard drudgery about the inside of the house.

The writer has recited the above story, believing that it is true, and, though the patience of the reader must have been taxed to the utmost, it is hoped that he may be allowed to call attention to the interests of the united family above referred to in its future increase of business, which is awaiting it in the simple constructions for light buildings now being done mostly with wood.

If the cost of fireproof dwellings, barns, private garages, etc., can be shown to compare favorably with less desirable and perishable buildings, and having all other things equally satisfactory, then the demands for such buildings will increase in proportion to the information and education given the public.

The construction, beside being reasonable in price, must be so simple that local contractors or even handy mechanics of any kind can erect them with as much facility as they can erect the wooden building. The day is now here when this can be done, and it is time to show how to do it, that public interests may be advanced, and that manufacturers may reap the benefits that such service to the public merits.

To prepare the mind to look along the lines in which we can expect the most simple and cheap constructions for this class of buildings, we may do well to briefly review a few lessons taught from long experience in other buildings.

The young egotist is enthusiastic in trying to use concrete for everything. Among other things, he has tried endless kinds of hollow concrete blocks for the enclosure walls. These blocks usually shock and disgust the ordinary man in their attempt to imitate stone. They are not accepted by most city ordinances as fireproof, nor do they give sufficient strength for carrying purposes. These blocks can not be laid into any wall from stock, as can brick. In fact, the only way that a concrete block can be made practical is to make it solid and get the size down to something like a clay brick, to be cut and fitted for any place as a clay brick is used. Now, if this is done, it will be just about



G. B. Waite, New York City.

the same size as ordinary brick, and then it can neither compete with the clay brick in price nor in quality.

They have tried to overcome the objections to the cement blocks by making monolithic concrete walls. Without exception, all who have engaged with enthusiasm in the construction of monolithic concrete walls have paid dearly for their experiences, unless someone else has paid for them. They have attempted to erect two well-constructed wooden partitions, plumbed and stayed them, sometimes high up in the air. By the time the forms were down, it was found that the cost of the forms for the walls was so much more than that of the material entering into it that the latter is insignificant in comparison.

Neither is the increased cost the worst drawback to this form of construction. The "getting ready" and "getting over getting ready" gives such discouraging delays, especially in inclement weather, that the writer considers the concrete wall impractical for the ordinary building construction. Concrete walls are only practical where the bulk of concrete is of considerable magnitude and the centering is of comparative simplicity, such as with foundations, retaining walls, piers, and buttresses for railroad work, etc.

It is true that several contractors erect all parts of factory buildings, including the small panels under and above windows (the windows forming the entire fronts), but this is not for economy. The panels form so small a part that they consider it simpler to do it with the same workmen than to get separate mechanics.

The clay products are positively the undisputed masters of constructions for enclosures for buildings. The same arguments hold good in general for partitions, as for walls, if they are made rigid and reliable.

In the business building where a great quantity of brick is needed for strength and rigidity, and to form a bulwark against closely confined fires, the judgment of the engineer is apt to become "stuck fast" to old fixed rules of quantity or materials. When, however, he is designing a construction to compete with a light wooden building, he should go into a dark room to do his thinking,

so that he can not see the commercial building. If he designs a fireproof building having only the surplus strength of a satisfactory wooden building, he is doing well. Remember that it is the province of the engineer to build safely, but at the same time economically. Anyone without engineering skill can build safely if you let him throw away all the materials he wishes.

In the first place, the light dwelling, barn or private garage is detached, and needs but little protection from the outside. To conceive the generic principles of construction for this class of buildings, so as to make it adaptable to simple small buildings, we should first think of the wooden skeleton or "balloon frame," which, after the outlines are established by good mechanics, are so readily finished up by quite ordinary workmen.

In copying after this idea for constructing fireproof buildings, we should try to get a simple, light, but efficient outline frame, all of which shall be used for something all of the time. If we can accomplish this cheaply, the covering for the outside of the building need not be erected for strength, but only to keep out the elements, similar to the sheathing for the wooden building.

A fundamental principle to keep well in mind is that the cheapest way to carry a weight to the foundation is to let it drop straight down. The farther you carry it before letting it drop, the more the expenses. If you concentrate your loads in large centers before carrying them to the foundations, you will have to

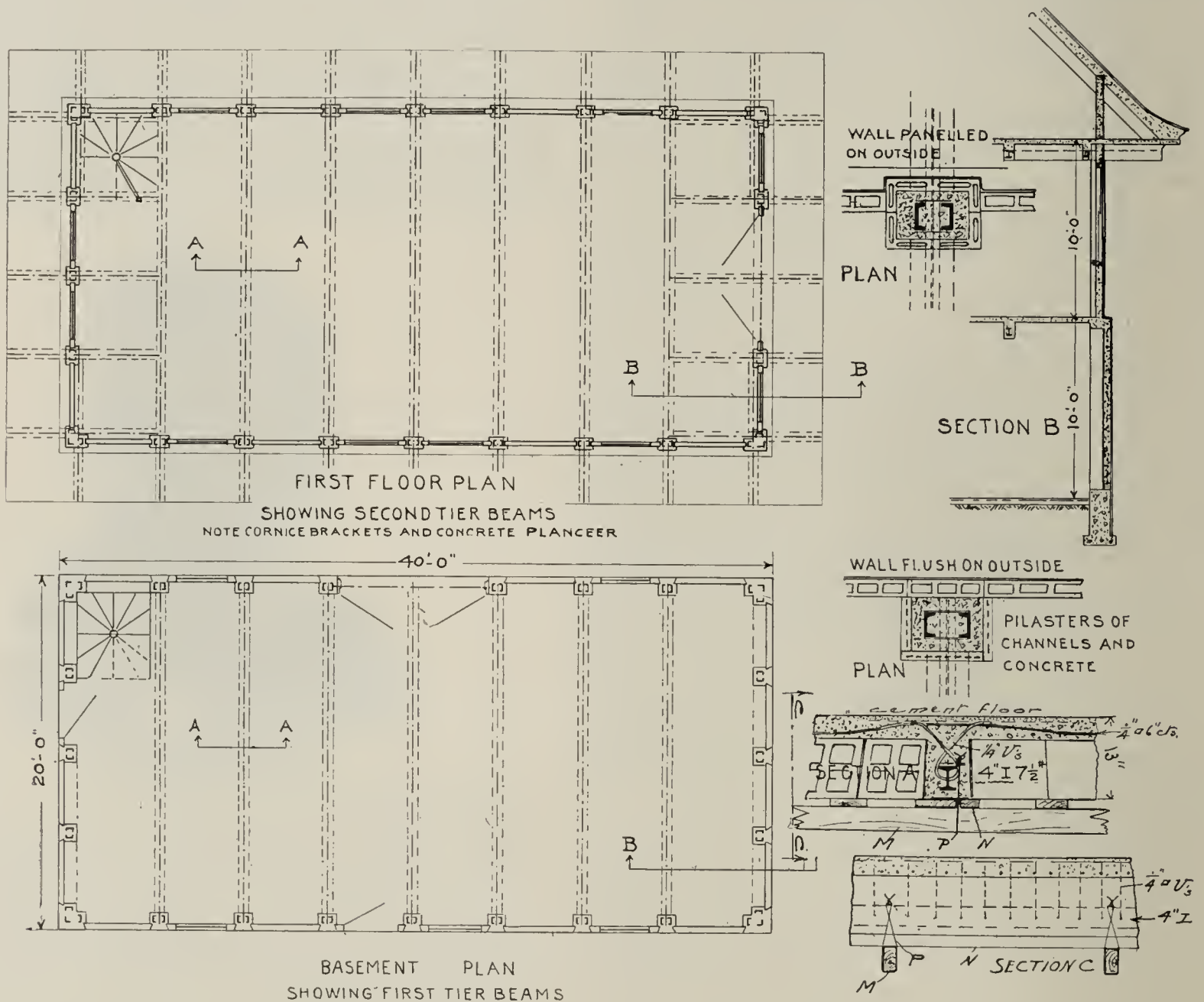
tion of this kind, the great delay and expenses connected with erecting temporary skeletons, outlines and supports, such as is required with ordinary types of reinforced concrete, is done away with, and the prohibitive cost of the all-steel heavy frame is avoided.

To facilitate the work where desired, clay tile can be used for permanent centerings between and around the steel members, with the concrete enclosing the steel inside of the tile centerings. In the floors, the concrete may be brought up over the top of the tile, forming the reinforced concrete floors.

The writer has been engaged for many years in steel and fireproof constructions for commercial buildings, and has used for the last few years, with great success, a combined light steel frame and concrete floor, with burned clay products for walls, partitions, etc. Recently he desired to erect a private garage and utility building for the use of his family at Whitestone, L. I. He conceived the idea of simplifying the steel skeleton scheme used in the commercial buildings to meet the cost of an ordinary first-class wooden construction.

As shown in the accompanying sketches, the building is 20x40 feet, two stories and a basement in height.

The details here shown are, with slight modifications, the plans for this garage. The garage did not need flat ceilings, and, therefore, the tile centering here shown was omitted.



distribute them again when you get there. The more nearly you let them go from the floors distributed, to that extent you will have them where wanted in the foundations.

Of course, it must be understood that to take the floor loads down through a skeleton frame, distributed as in a wooden "balloon frame," the fireproof supports would have to be very simple, so that two such supports of one-half size will cost substantially the same as one full sized. Each main floor carrier would best be made to rest directly upon the vertical support, and thus avoid transmission girders. The spacings will be determined by the conditions from a few to several feet apart, so as to avoid windows, etc., and make convenient, equal spacings.

Using material of the floor fireproofing as reinforcement to the steel frame, but a small percentage of the amount of steel formerly needed is required. Thus the steel members are sufficiently light to be erected by hand with the facility of the wood "balloon frame." When the outline frame is up, we have a skeleton similar to the human skeleton, which needs only the right kind of skin drawn over it to make it effective. The so-called skin could be of some form of burned clay products, as also the inside divisions and the greater part of the floor construction. Enough concrete can be advantageously used to go around the light steel frame to reinforce the uprights and floor tension members. With a construc-

The construction here given is simply modified to apply to general construction where flat ceilings are needed, and where it is desired to avoid wooden centerings as much as possible. The wooden supports shown hung from the small steel beams, all hung with a simple scheme of wire hangers, comprises a system used by the writer for many years. They are rapid to erect and inexpensive. The tile may be supported by means of steel bars extending between the flanges of the small steel beams, in which case the centering here shown will not be needed. The tiles forming centerings shown in the ceiling may be laid very loosely, having cracks between them sufficient to be grouted by the concrete fill. With wire stays between joints of the tile, extending up into the concrete, this tile will be doubly secured in place. Where furring blocks are shown forming centerings around the carrying posts, it is intended to place temporary wire tiles around each block, extending out through the enclosure walls to hold them in place until the concrete is set.

By the erection of the light frame, the centerings required were simplified, in that lines were given and something definite was furnished to tie and hang on.

Loads are definitely carried and a design can be made by which all carrying parts can be made sufficient without wasting any materials.

The light steel skeleton was hauled to the site in one truck-load. The erection was done with one handy mechanic and two common laborers in about thirty working days, the only extra help being about three days when running concrete into floors, at which time four extra men were engaged.

The costs of the materials were: Sand, \$1.00 per yard; gravel, \$2.00 per yard; cement, \$1.50 per barrel, net; handy man, \$2.00 per day, and laborers, \$1.75 per day. The cost of the building completed, as shown in the photograph, was \$1,600.

Since then two three-story dwellings similarly constructed have been erected at South Beach, S. I., by "Italian handy men," with the same success as the writer had in the above described garage.

General Discussion.

President Parker: Discussion of Mr. Waite's paper is now in order, gentlemen.

Mr. E. L. Cook: There is certainly a good deal in that paper that appealed to the brickmaker, but the slides did not appeal to me, or to any of us. The building as nearly as I could see was all of concrete. Of course, we do not wish to suspect that the concrete men are behind any of our papers, but it looks to me as though some points were brought out in favor of the concrete man, without a doubt.

Mr. Ittner: I have nothing to say in regard to this paper, except that a certain relationship was mentioned in the paper that certainly did not show in the pictures.

Mr. Crook: I want to make a word of explanation right here. I was entirely unaware last evening that the slides showing views of our plant were to be shown here as a part of the plants of Rochester and vicinity. As they were thrown on the screen, I heard remarks over the hall, "Why didn't he use brick?" And since then they have tackled me in the lobby to know why we didn't use brick. I suppose one reason was that Dr. Dickey did not start his school for bricklayers quite soon enough. Had he started it a few years ago, and had we taken advantage of it, we would have had bricklayers enough to have had brick construction. At the time that clay storage shed was built which you saw on the screen last night, we were also constructing quite a large addition to our plant and using every bricklayer we could find anywhere, many of them could only be recognized as bricklayers by the union card, and that is why we used concrete construction.

There is one thing in this paper that appeals to me very strongly, which showed me that the author had been in the game, and that is the cost of the frame and the cost of concrete construction. I believe that a strong point in advertising concrete has been that it has been advertised as a cheap material, that can be put in with any kind of cheap labor. That has been a very strong point as against the laying of brick by men at the rate of 60 to 65 cents an hour. We would not have had anything but brick work, if we could have got the bricklayers. We got a good job of cement work, but I want to tell you it was not cheap. Good cement or concrete work costs enormously, and when you start to put in good concrete work that carries a heavy load, and a man asks you what it is going to cost, you can reply like the man did who was asked what it would cost to go to New York. He said, "God knows."

Mr. Connell: It has been my fortune, good or bad, to learn the bricklaying trade, beginning in 1857. I have practically spent my life either as bricklayer, contractor or brickmaker, and it is the only thing I know much about, and I do not know as much about that as I ought to. I had to learn some things. Along early in the seventies, cut stone was used a great deal in connection with brick structures for trimming. The architects adopted the use very largely of concrete for trimming. It was my misfortune at that time to erect a few buildings, one was the Hostetter house, and the specifications called for concrete trimmings made of English Portland cement, five to one, all mixed with gravel not to exceed three-fourths of an inch in diameter. To conform with these specifications, I made the trimmings, sills, window caps, etc., and they are in the building today. For about twenty years there was not a fracture in that concrete construction. At the expiration of that time it began to show defects. These defects gradually increased, until today there is not one particle of that concrete construction that is not defective, and if it stood by itself would crumble and

fall to pieces, but it is held together by the brick. I mention that to show you the frailty of concrete construction, at least as my experience goes. I also built a large power house in my city, using German cement with the same size gravel and the same careful workmanship, and that has begun to gradually show defects, until today they have taken out some of the sills that were down close to the ground because of the defects. I always take an interest in the buildings I have constructed, and so I began wondering and examining to see if I could find any cause for the disintegration of the cement, and I came to this conclusion, cement, being a hydraulic construction, it requires water, and when it fails to receive water enough to sustain life, it loses its crystalizing powers and disintegrates and loses life altogether, and I believe cement will not stand in the dry atmosphere of our climate. This is the conclusion I have reached, based on actual experience during fifty-four years. The conclusion may not be worth anything, but I would not give you \$1,000 for all the concrete houses built in the next fifty years to leave to my posterity, because I know some of them would be buried below the ruins. (Applause.)

President Parker: There are quite a number of papers to be read, and I think we would do well to pass on to the next number.

Secretary Randall: According to the motion, we are to skip the regular order, which is a paper by Mr. Fisher, the City Engineer, and he is waiting to read his paper when we are ready for him, and we will take up the first paper of



E. L. Cook, State Farm, Mass.

the afternoon session, "What Advertising Could Do for the Brick Manufacturer," by Mr. Herbert S. Houston, vice-president of the Doubleday Page Company, of New York City. (Applause.)

WHAT GENERAL ADVERTISING COULD DO FOR THE BRICK MANUFACTURERS.

BY HERBERT S. HOUSTON, NEW YORK CITY, N. Y.

Mr. President and Gentlemen of the Convention:

It is a great pleasure to meet the makers of brick. In your presence the mere publisher, realizing the century-old traditions of your craft, feels to be a very modern addition to the world. Our printed page is a descendant, through long evolution, of the papyrus of the Egyptian, while your brick and the brick of the Egyptian are essentially the same. There must be a subtle flattery in the thought that your material is so good that it has been hard to improve it in the long stretch of time since it was first used. As it has been so difficult to improve the product, you have been busy improving the process, with the result that brick making has kept pace with the march of industry.

But it would be strange indeed if a material that has changed so little from early Bible times until now had not bred a sort of unconscious conservatism in its makers. The other night I heard that wonderful opera of Saint Saens, "Samson and Delilah." In one scene Samson was turning the crude wooden mill mixing clay for his Philistine captors. It was startling to recall that I had seen, as a boy, much the same kind of grinder, save that a horse instead of a man was making the weary round at the end of the sweep. And I presume there are some mills of the same fashion still in use in this modern day of scientific machinery in clay making. In no industry, probably, has there been so little change in material, and in manufacture also—at least until very recent times—as in yours. Such stability has of necessity produced

a certain element of permanence in everything pertaining to brick making. Will you pardon this simile, made in the most friendly spirit: With so many brick walls standing over the earth through the long centuries it would have been simply marvelous if they had not gathered some moss. Of course they have, as a witness to their durability if to nothing else. I can quite understand how the brick maker, when he recalls the ancient Egyptians inscribed prayers for the dead on bricks to entomb in the sarcophagi with the departed, knowing they would last forever, should feel that his product was nearly perfect. But at last he learned that he could make it cheaper and of more uniform quality, by the use of machinery. And now Samson pushes the sweep only on the stage, and the poor horse follows the beaten path in fewer sections every year.

What you have done, gentlemen, is to modernize your processes of manufacture up to the very last minute of industrial development. You have cheapened production and greatly increased it, by lengthening your brick making season to the whole year, instead of a few months, as in the days of the open kiln. But haven't you still laid to your souls the flattering unction that your product was so good that it would sell itself? Don't you continue to believe that bricks are the best building material that the world has known, and that it is so much the worse for the world if it doesn't believe as you do? But have you stopped to consider that the world is busy with so many other things that it may not come to believe as you do unless you take the pains to tell it why you believe as you do and satisfy it that your reasons are sound? And if you neglect to do this telling, what if the makers and believers in some other material start in with enthusiasm and energy to convince the world that their material is the best? You know without my stating it what would happen. Indeed, you know better than I do what is happening right at this very time.

I am sure I need not dwell at length before a convention of brick manufacturers on the fact that a mighty Vulcan has arisen in the shape of the concrete industry and that it is pounding away



Herbert S. Houston, New York City.

on the anvil of publicity until the welkin is everywhere ringing with information about concrete and its merits. Here is an industry that has a product it believes in, and it is convinced that it is worth while to advertise widely to the world, giving the reasons for its belief. And you know what amazing strides this industry is making, increasing its annual output from

Cement Barrels.	Value.
1899—5,652,266	\$8,074,371
1900—8,482,020	9,280,525
1901—12,711,225	12,532,360
1902—17,230,644	20,864,078
1903—22,342,973	27,713,319
1904—26,505,881	23,355,119
1905—35,246,812	33,245,867
1906—46,463,424	52,466,186
1907—48,785,390	53,992,551
1908—40,000,000*	42,000,000*

*Estimated.

Now, comparisons are sometimes edifying as well as odious, and I cannot refrain from quoting from one of your trade papers the figures showing the growth in your production. In the past ten years the output of brick has been a little more than doubled, going from \$74,000,000 to \$159,000,000. You will say that that is a good record of growth, and it is. But you are not satisfied with a good brick—you want the best. Growth is relative in this competitive age. If a rival industry in the great building material field is growing faster than you, you will grant that you are not growing fast enough. You may not concede that much to me, but I feel sure you will admit it to yourselves. A brick manufacturer said to me in New York the other day that it was getting to be provokingly common to be told by architects, when he called to present the advantages of brick for a particular house that was being designed, that the owner had specified concrete. Please note and weigh carefully the meaning of that statement—the owner had specified concrete, not the architect, but the man who employed the architect and decided for himself the building material

to be used—the owner. You will grant at once that he is the man you want to reach. And, gentlemen, I came here today to tell you how to reach him, effectively, economically, surely.

What a fortunate circumstance it is for me that we are in this fine city of Rochester, one of the most convincing witnesses in the world to the value of advertising in general and of magazine advertising in particular. As I pointed out in an address before the Chamber of Commerce here last spring, the manufacturers of this city learned early, and they learned well, that the international flag which trade follows wherever the white man goes is the printed page. And Rochester's multiplying industries, her growing commerce and her millions of stored-up wealth give the answer as to whether the lesson was worth learning. Does any one suppose for a moment that George Eastman could have taken photography from the dark room of the professional and given it to the world without the educational power of magazine advertising? It is because of the tremendous power of that advertising that this city has levied tribute, through profitable trade, from every country on the globe. What has been the chief factor in building up the mighty trade of Rochester to nearly one hundred million dollars a year? General advertising, beyond question. And what has this growing trade, based on advertising, done for Rochester? It has surely built up the city year by year in the steady way an oak grows until today it has a deserved fame for progressiveness and for solid character, just as her manufacturers are known the world over for quality. And what a broad place this sound growth, through advertising, has given to this city's prosperity! During the stringency of a year ago not a bank in Rochester closed its doors and not one suspended payment of real money. What convincing witness this bears to the productive power of advertising. Here is a city whose trade is the world, a field fairly won by advertising articles of high quality direct to consumers, the ultimate market.

Gentlemen, what Rochester has done as a city through the broad-sighted wisdom of her manufacturers you can do as brick manufacturers, through your national organization, in appealing direct to consumers. Through the magazines you can make an appeal to the men and women who wish to build homes and to the business men who wish to build stores and factories. You can carry forward a great propaganda in behalf of brick as a building material, pointing out its durability, its decorative quality and its fireproof quality, indeed, all the superior advantages which brick has as a building material.

And have you ever stopped to think how economically such a campaign of education can be carried on in the magazines? Not long ago the Quoin Club, which is made up of the managers of thirty of the leading periodicals in the country (whose representative I am here today), made an estimate of the comparative cost of printed matter as it is sent out in circulars and booklets for publicity effect and the printed advertisement as it appears in the leading periodicals. The total monthly issue of all sorts and kinds of publications at the last census was 40,000,000 copies. Of this great total 10,000,000 a month is a very modest estimate for the general magazines. Suppose an advertiser should send a circular to each of these ten million readers? If the magazine publishers donated their mailing lists, did his addressing free, gave him the circulars and envelopes for nothing and charged only penny postage, instead of the ordinary two-cent postage on a letter, it would cost that advertiser \$100,000 to speak to these readers once. But suppose the advertiser put a page advertisement in each magazine instead? In this case the publishers would furnish everything except a simple charge that would correspond to postage and the highest possible gross cost for an ordinary magazine page in these ten million copies would be but one-tenth of this postage charge, or \$10,000. The first named postage bill of \$100,000 would practically pay for a page in every one of these periodicals each month for an entire year. This is one graphic way of showing the difference between mere advertising in the way of printed matter and the printed word, which is advertising in an established periodical. Mere printed matter has many other limitations, as you are fully aware, such as the difficulty and expense of securing lists, the fact that a circular must depend wholly on itself in claiming the attention of a reader, instead of having all the collateral points of contact and of appeal which a magazine possesses. People read magazines through and keep them not for a day but for a month, and, indeed, for many months. Instead of something to be dodged, as a circular often is, the magazine is usually an old friend, to be taken out of the wrapper in pleasurable anticipation or to be picked up from a news stand the day its familiar cover appears.

This whole question of the cost and effectiveness of printed matter as compared with advertising in general periodicals was carefully considered by the Republican National Committee four years ago. The analytical mind of George B. Cortelyou, then chairman of the committee, quickly decided that the magazine, in both cost and effectiveness, had a great advantage. As a result four-page advertisements were printed in millions of copies of national periodicals at a much smaller cost than postage alone would have been had they been sent out as circulars. During the last campaign the same question was decided in the same way by the present chairman of the committee, Frank H. Hitchcock. For only a small fraction of the postage charge on printed matter effective advertising was sent into every home in the country, bound up with all that is best and most interesting in art and letters, and independent public discussion—in the magazines.

In an educational campaign, such as I believe your great association could effectively prosecute in behalf of the brick interests as a whole, the magazine offers the natural, and, I might almost say, the necessary medium. In the first place, the magazine is made for the home. Its appeal is primarily and almost exclusively to the home. Largely because of this fact the publishers of mag-

azines have believed in the essential unity of their periodicals and on the necessity of adherence to the higher standards from the first cover to the last. Following out this belief they have excluded from their pages whisky advertising, patent medicine advertising, mining stocks, oil stocks and other speculative announcements; indeed, they have undertaken to see that no unclean or doubtful thing should be borne in their pages over the threshold of American homes. This sense of trusteeship which the publisher recognizes has built up for the magazines deep faith and confidence. And do you wonder, gentlemen, that the millions of magazine readers have come to rely with such assurance on their advertising pages when the publishers accept their responsibilities so seriously? And who can over-estimate the value of that confidence as an asset in advertising? What tremendous force it puts behind the magazine advertisement, giving it in a very real sense the sanction and the support of the magazine itself!

To you brick manufacturers, therefore, the magazines of America offer a medium through which you may send your message in regard to brick as a building material and have that message received with confidence. You can make your appeal through the magazines to intelligent and progressive homes of the country. That is precisely what the concrete interests have been doing, and are doing, and are planning to continue to do because they have found it profitable. It is precisely what many advertisers associated with building in different ways have long been doing, and with great effectiveness. Look at the great campaign of the National Lead Company and of the Sherwin-Williams Company in behalf of paint and white lead in the general periodicals. Consider the marvelous growth of the Standard Sanitary Company since it began its advertising direct to the consumer in behalf of their bath room and plumbing equipments. I could occupy a considerable part of the time allotted to this address by simply giving you the names of advertisers who have gone direct to the builders and owners of homes and met with great success. Right this very month in some of the general magazines which are members of the Quoin Club there are four or five pages of advertising from various concrete and cement companies. Is it fair to assume that the results which building material and building accessory advertisers have demonstrated can be secured through advertising would not come to the brick interests if they should undertake an advertising campaign? I am sure you will grant that in no process of reasoning known to logic or analogy could such a conclusion be reached. If you have a material that you believe in, and you have, and it is capable of widespread use, and it is, how could it fail to be profitably advertised if advertised directly to the whole country in a broad way? Think how suggestive and informing such advertising pages could be made. Attractive residences for both country and town could be shown built of brick. Factories and stores and public buildings and churches could be reproduced that had been built of brick. In order to give breadth of geographical appeal to this advertising it would be wise to use homes and churches and business buildings from the various parts of the country. Of course, this could very easily be done. And what a wealth of material you have and how interesting and attractive such advertising could be made. I am reminded of this when I think of a visit I had the good fortune to make, on a day in June, to one of the earliest English country houses—built in 1520 of brick, of course—Sutton Place in Surrey, near Guildford. And I bore away from my hostess, as a souvenir of the visit, "The Annals of Sutton Place," a great and beautiful volume written by Frederic Harrison. I was looking it through again, as I was preparing this address, and it brought fresh to memory the soft richness of the brick and the decorative beauty of the famous terra cotta ornament over the doors and in the arabesque work in the mullions of the stately mansion. And I read in the preface these words of Harrison: "During the last eighteen years I have often found in Sutton Place a time of peace and quiet thought; and pacing up and down the court, and watching the hues of russet and orange in the mouldings, or the evening light as it gleamed through the jeweled quarries in the oriels, I became curious to know a little more about the builders and the building of it."

And in this great book Mr. Harrison tells in a very interesting way what he found out about the builders and the building of Sutton Place—and a most delightful account it is. In it all and through it all, both in beautiful illustrations and attractive text is the story of brick and the beauty of brick and the durability of brick. Just think what you could do by putting in a page announcement each month in the leading periodicals, all that can be said and pictured along these same lines, and think what a tremendous propaganda you would spread over the whole country by so doing.

But very likely right at this moment you are pointing an interrogatory at me, asking *what of all this and how can it be done?* I confess it does not appear to me to be difficult, and even if it were difficult the great goal of widespread publicity in behalf of brick is something that is worth striving for. Why couldn't you levy an assessment of one per cent. on the selling price of facing brick and with the fund thus created have a publicity fund for such a campaign I have outlined? In New York City it is estimated that last year 60,000,000 facing brick were used at an approximate cost of \$600,000. Such an assessment as I have suggested would give \$6,000 to a publicity fund. In the whole country it surely ought not to be difficult to secure a fund, fixed by some definite assessment in order to equitably distribute the cost, of \$60,000 a year. Of this fund if \$40,000 were spent in the general periodicals and \$20,000 used in the preparation of two or three attractive booklets in regard to brick, for clerical expense, postage and other associated expenses, you would have a well balanced and effective campaign. Within a year it would focus the attention of the whole country on brick

as a building material as that attention has never been focused before. It would bring thousands of inquiries to your secretary for booklets showing the designs of country houses or town houses or business buildings, as the case might be; it would make far and away more effective the publicity work which your committee has been carrying on during the past year. And right at this point I want to say a word in reference to that publicity work. It is valuable and, to a certain degree, important, but when all is said and done it is incidental and not primary when it comes to making a market for brick. Do not deceive yourselves into believing that such free publicity will take the place of *straight, direct paid advertising*. One of the great stores in this city might just as well expect the reading notice that one of the Rochester dailies thought sufficiently interesting to print would take the place of display advertising that brings buyers and sells goods. The two things are of an entirely different sort, but each can be made to serve the other. But by all means have your work on an absolutely candid basis, so that the editor who accepts an article about brick for publication knows precisely where it comes from; otherwise, he is sure to feel aggrieved when it gets to his attention later—and you may be sure it will always come to his attention some time—that an article he accepted was intended by the writer to serve some ulterior purpose. I happen to know that right at this time the managers of the leading daily papers and of the leading magazines are jointly preparing a list of the press agents of various interests to the end that the editors of the daily papers and the magazines may be informed as to just what interest each press agent is serving. Now this does not mean that the daily papers and magazines will decline to run interesting matter about anything of legitimate human concern. It does mean that publishers, in their own behalf and in behalf of their readers, will insist that there be proper publicity concerning publicity men. And you will grant at once that this is in every way right and proper. Whether it has any bearing on your work in this association or not, I am sure you will be glad to have the information I have given you.



George W. Denison, Cleveland, Ohio.

In closing, let me say for the magazines that if they can offer any suggestions or advice that will serve you they will do so with pleasure and promptness. If I can personally supply any detailed information to your publicity committee or to the convention I shall do it gladly. The magazines believe they hold the key to the national market where you wish to sell more brick. That key has been turned by your competitors and through the magazine door they have entered the great consumer market and are daily gaining a larger part of it. Are they to *continue*, without let or hindrance, *until they control it?* That will depend on whether you look *backward* over the long past toward Egypt or *forward* to the bright future in America. Gentlemen, I have no doubt as to the answer—YOU ARE AMERICANS. (Loud applause.)

General Discussion.

President Parker: Gentlemen, you have heard this paper. I think this is a subject that is capable of being enlarged on very much, and I would like to hear from Mr. Eisenhart. I will ask him to come up on the platform.

Mr. Eisenhart: This is rather high for a common brick-maker. In the first place, I don't know anything about the paper, and springing it on me so suddenly almost takes the steam out of me. There is no use talking, the gentleman has read us a very able paper, and it goes without saying that that man is onto his job, and he knows what he is talking about. It is simply up to us whether we are going to profit by the hearing of this paper, or whether we are going home and plod along in the old-fashioned way and wait results, or whether we are going to get a move on us and get to doing something. There is no question about it whatever.

but that the concrete man has got his work in by the means of advertising, and by bringing their claims before the public. We have been plodding along all these years, feeling so confident and so satisfied that we had a material second to none, and I am sure there is not a brickmaker here who has changed his mind on this point. But we are also satisfied that something has been going on, and it is up to us to get to work. If I remember right, the gentleman in his paper spoke rather plainly. Now there is only one way for us to raise this money to do this work, and that is the plan which the paving brick men adopted. I am not a paving brick man myself, and do not know just the method they use, but there are paving brick men here, and I believe it proper for them to come up here and give us that plan. Yesterday I favored adopting the plan that this committee has suggested of assessing every brickmaker \$50.00. Since then I have had a great many men come to me and say that they did not think that was practical, that there were some brick manufacturers with large plants who could afford \$500, and some who could not afford to pay even the \$50.00. I believe there is something in that, and I believe the idea of Mr. Houston's that we should put up money in proportion to our business is right, and if we do that I do not believe we need to stop with \$10,000, or even \$25,000 a year. We have got to have a lot of money and \$10,000 is only a starter, so we have got to get down to business and give our heartiest support to this Publicity Committee, and if this committee finds they are on the wrong track, I assure you



D. Warren DeRosay, Corry, Pa.

that they will adopt a better plan, and one that we, as an association, can give our support. I give you my word and guarantee that the committee will bring about results.

Mr. W. P. Blair: I want to address myself to just one phase of this question, and that is this. If the paving brick manufacturers had waited for every man in the business to pay his share, we would be today just where we were four years ago today. We believe in an advertising campaign, in a publicity campaign, and you can not wait for your neighbor to subscribe, you can not wait for the slow man to run the race and keep up with you. I well recollect one instance that occurred when we were trying to get the paving brick men together. I will not say just where this particular man is located, but he is down in the State of Pennsylvania. He was waited upon by a representative of the National Paving Brick Manufacturers' Association and asked to come in. He said he did not think it worth while, that it seemed that he could not do anything, that he already had about 200,000 paving brick stacked on his yard, and that he had shut down his plant. Now I believe I am safe in saying that there is not a member of the National Paving Brick Manufacturers' Association who would stop short of a million before they shut down, and some of them would not stop short of five million. In other words, the confidence we have in the stability we have in our business does not stop us because we have 200,000 brick piled on the yard. Another gentleman who was solicited said he did

not think he would make paving brick any more, that the bitulithic people had come into his town, and he believed the day for paving brick was about past and gone, so he did not think he could afford to join the association; he did not see any future in it at all. (Laughter.)

Now, gentlemen, you can not wait for the rest, you have got to be large enough and liberal enough to roll your wagon down the road, and not wait for the man who will not drive his team opposite to you. You have got to go down in your pocket, regardless of anyone else, and pay your individual assessment, whatever it may be. I think the Publicity Committee ought to be encouraged in the plan they have offered to this convention, and then let it develop as to whether it is the best plan. I am inclined to think that it will develop into this sort of a thing, and that is, an assessment of 1 cent or 2 cents or 3 cents, or whatever sum it may be, per thousand brick on the individual output. But this must be started with some sort of a determination that you are going to pay your 3 cents a thousand, regardless of whatever anyone else does. Get every one you can interested, but don't stop because the other fellow won't come in. (Applause.)

President Parker: We have with us, Mr. Will Purington, who I think can tell us what advertising has done, and what publicity has done for the paving brick manufacturers. (Applause.)

Mr. W. S. Purington: Mr. Chairman and gentlemen of the convention—I stated to you in a few words last night what the paving brick manufacturers had done, but I did not go into detail. We started in 1905, and organized seven States, appointing boards for each State, the chairman of each State to be a member of the National Committee. After we had organized the seven States, other States wished to come in. We make a charge of 1 cent per square yard for every yard of pavement that was furnished by every manufacturer, and that was paid into the State Board. For instance, if we furnished brick in the State of Indiana, we paid into the State Board of Indiana 1 cent per square yard of pavement. In that way we soon began to accumulate a certain sum. Of that sum, we took 25 per cent. to apply to the National Board, and we established an office at Terre Haute, Ind., and we kept that office there until about two years ago, when Terre Haute got too small for us and we moved to Indianapolis, and we shall have to come to some larger city later on.

Mr. Eisenhart: Come to Horseheads. (Laughter.)

Mr. Purington: The benefits we have derived from this 1 cent per yard, which is a very small amount, and which is legitimate according to the law (we have had the matter presented to several attorneys, and they have assured us that this is the case), has increased the paving brick business about 60 per cent. over what it had been. We have been educating the people of the United States and the engineers. We have also placed our literature in the colleges of the United States. Mr. Blair can give you the details in regard to this latter matter.

Mr. Blair: We have succeeded in inducing the leading colleges in this country which maintain engineering departments, to adopt our No. 1 Instructions as the text-book for their engineering classes. (Applause.)

Mr. Purington: We are constantly educating the people, and they are constantly asking for information. You would be surprised to know the number of inquiries that come into the office of Mr. Blair at Indianapolis. We were forced to do this, just as you will be forced to take up this publicity bureau for the building brick interests, because of the various competitors coming into the field. They were well organized and had their methods of consolidation the same as we have, and we found it necessary to do something to overcome the competition.

Now this matter of spending money for advertising. I have a friend in New York City, who told me not long ago, that he had a contract with some corset manufacturer to spend \$1,000,000 advertising corsets. I suppose some people could not get along without corsets, but you could get along much better without them than you could building brick. As to whether an assessment could be made similar to what the paving brick manufacturers are doing, I could not say.

Of course, our contracts are let in large quantities, and each member of the association sends in his report to the National Secretary as soon as a contract is let, and they also send their 1 cent per yard into the State treasuries, and, as I said, the first year we set aside 25 per cent. of that amount, then we raised it to 33 per cent., and this year we have raised it to 40 per cent., for the purpose of increasing and enlarging our advertising department, which is the main object of the central office. Forty per cent. is the amount which will be beneficial to all, and 60 per cent. is spent by the State Boards themselves, for the purpose of advertising or promoting, or, in other words, sending out representatives.

Mr. Crook: Will you please explain to the audience that the representatives are sent out for educational purposes wholly and solely?

Mr. Purington: We have ten representatives traveling around in the various parts of the United States, and we are now starting one in Canada, as we expect to take that field in in the near future, and, in fact, it has already been organized. These representatives travel around, get on friendly terms with the city engineers, call meetings of property owners, and go before these bodies of men and tell them the advantages of brick over other kinds of paving materials. One of the greatest advantages we have found is getting a list of property owners along the street and sending them into Mr. Blair's office, and he sends to these people our various circulars, covering the cost of pavements, why brick are best, etc. We have a regular system of sending out the pamphlets, following one up with another, etc. In a great many instances we have changed the character of a pavement from bitulithic, asphalt or wooden block to brick. It reminds me a good deal of the old story we used to have in our readers; you can keep telling a man a certain thing constantly until he finally believes it. The story goes that three men tried to scare a friend of theirs into believing he was sick. So they stationed themselves at various places on the street, and the first man the friend passed said to him, "Mr. Brown, what is the matter, you are looking badly." "Nothing is the matter with me, I am feeling first rate." He went on down the street, and the second man accosted him, and he told him he was not feeling very well, and by the time he got to the third man he was pretty sick, and by night he was dead. (Laughter.) So that is the way with advertising.

There is a whole lot of work that I can not explain in this advertising matter. Mr. Houston is a professional in that line, and I know he thinks we should not stop at \$10,000, but this \$10,000 will do a lot of good, but we need more of it. You ask any of the paving brick men who are members of this association how business was last year, and you will find that they have no fault to find at all. Talk to an ordinary brick man, a terra cotta man, sewer brick man, and you will find they have had an awful hard year. It is because you have not circulated matter over the country and advertised your material. My idea of getting subscribers to this fund would be for each man to rise up here and say, "I will give \$50.00 to that fund." I was one of the first to say I would give \$50.00, and I think it is a very small amount, and I expect to double or treble that amount. We manufacture building brick as well as paving brick, and I know there is nothing that will do the brick manufacturers so much good as the raising of this fund for a publicity bureau.

Mr. Parker B. Fiske: The time is going fast, and I think the committee ought to make a brief report to this convention of the progress we have made. The plan is going to be a success. (Applause.) We have very nearly half the money subscribed (applause), but you have all got to take hold and help raise the balance. A good many questions have been raised about the \$50.00, as to whether it was not wrong to assess the small manufacturer as much as the big manufacturer. And the question has arisen as to whether or not two firms could not combine to pay the \$50.00, and that is a good suggestion. You all understand the \$50.00 plan is merely a plan to get started. After we get the game started and show the members of the association that it is a good thing, we can adopt a better and

more comprehensive plan next year; but we have got no time to go around to all the members of this association and have them figure up their product, and then, after they get home, consult their partners or the members of their firm to see whether they will subscribe to the fund. If we do not start the ball rolling at this convention, it is not going to roll for another five years. So it is a good plan to get the \$50.00 from the men who are big enough and believe in their business and take a broad enough view to say they feel they will get \$50.00 worth of good out of it.

Now as to two members in one neighborhood joining together in one subscription, the committee thinks that can be arranged for without any trouble. They can take out a single subscription, in the name of one of the members, and have the correspondence and literature all go to one man and be shared by both. A point which was not discussed fully yesterday, because the subject is too large, is the distribution of these books. The proposition is not only to put these books into the hands of the public who inquire for them, but also to put these books into the hands of men who desire a number of them at cost; that is, those who come into this club. Another point which I want to mention once more is that there is a positive advantage to the man who comes into this club that the man who stays out will not enjoy, and that is the notification that will go from the secretary of the club that Mr. So and So, in a particular neighborhood, has made an inquiry for the book,



J. W. Robb, Clinton, Ind.

and is therefore a possible customer. That is one of the benefits. There is a lot to be said, but I am only going to take a few minutes. We are going to settle this club this noon. We are going to hold a meeting over in the Blue Room at the Seneca, and elect officers and appoint committees, and we want every member who has signed this subscription blank to come over to that meeting. (Applause.)

J. W. Robb, Clinton, Ind.: There is one thing in discussing this paving brick question that has been overlooked. Every member of this association in the building brick business will get his \$50.00 worth of good in good feeling inside of a year. That is one of the great things we accomplished in the Paving Brick Manufacturers' Association. Ten years ago Mr. Purington did not look very good to me. Four years ago he began to improve, and now I think he is the best fellow in the country. (Laughter and applause.)

Mr. Ittner: I think Mr. Fiske has left an impression that he did not intend to leave; that is, if I understood his remarks correctly, that he wants only those who have subscribed to this fund to assemble in the Blue Room following adjournment. Now it is my understanding that we want everyone who is interested, whether they have subscribed or not.

Mr. Bloomfield: Speaking for the committee, we want every man here who believes that he has the best material in the world, the only fireproof material, the only material that can be used to put up buildings that will save you

and your children and your posterity from being roasted by the fire, to come over to the Blue Room and take part with us. (Applause.) We have got the best material on earth and we know it, but let us tell other people. Down in New Jersey today they are manufacturing doors and interior trimmings, so that you do not need to have a particle of wood in the house to set fire to. You have got the best material, I say, have the courage of it, go out among your neighbors, show them what can be done with brick along artistic lines. Go down to Washington, take a look at some of the buildings made of common brick, some of the handsomest buildings we have. All it needs is a little experience to make artistic buildings. Go into this plan with us, come over to the Blue Room, put down your name for \$50.00, and get to work to let the public know what beautiful fireproof, artistic buildings can be made of brick.

Mr. Purington: The Iowa Brick and Tile Association recently adopted a system which is similar to the paving brick association plan. They have made an assessment of 20 cents a carload on all material that passes out of their factory, but I think you can come to that later, and I think there will be no question but what we will raise this \$10,000. Everyone of you can pay a certain percentage, so the small man will pay his proportion right along with the large one, but let us get this \$10,000 as a starter, and we will have no trouble after that in getting all the money we want.



John B. Millar, Toronto, Ont.

Mr. Parker B. Fiske: I have some subscription papers here, and I want to get a few more subscriptions to this plan, so we can go into that meeting this noon feeling that we have it cinched, and if it is in order, I would like to ask for any member in this audience who has not subscribed, but who is willing to sign one of these papers, to please stand up.

A number of the members rose.

Mr. Blair: There is one part of this country where organization is not complete among the paving brick manufacturers. Up to this time, the Kansas and southwestern manufacturers have not seen fit to come into this association, because they say they do not feel that they need the association. Now a curious thing happened, and I am just telling you this to emphasize the fact that every man in this house does need assistance, and you can not get it in any other way except the way you are now starting out. On Friday before leaving home, I received a letter from the Board of Public Works, of Kansas City, right in the market of that southwestern territory, asking us to come out there and consult with them, and give them information as to what we know about our own material. There, right in the midst of the fellows who don't need our help, is a great market crying for information. (Applause.)

F. B. Dunn, Conneaut, Ohio: At the present time I am not engaged in the manufacture of brick, having disposed of my interest, but I thoroughly believe in this publicity, and I subscribe for \$50.00 just the same. Mr. Purington has stated that the paving brick manufacturers have an

assessment or tax of 1 cent per square yard of brick pavement. Would it not be well for us to make an assessment or tax of so much per thousand brick? It would average, I believe, about 25 cents per thousand.

Mr. M. E. Gregory: A good many gentlemen here say they can not afford to pay \$50.00. Just ask yourselves one question and answer it honestly. How many cement buildings have been put up in your locality in the last twelve months? If you had sold the brick for those buildings, would you not be willing to pay \$50.00? Yes, you would be willing to pay \$100 or even \$500. Cement buildings have been put up because cement has been advertised, and the people have been educated to it. We all believe in building brick as the best building material known, but the public don't know it. We have never told them. I believe burned clay is the one material, and so do you. Let us tell the people. (Applause.)

Mr. R. C. Penfield, New York City: Just look over the output of the various districts; say, for instance, the New York fellows turned out 1,400,000,000 brick; Chicago, 800,000,000; Boston, 600,000,000 brick, and so on. Now if we had collected 1 cent a thousand, look what a fund we would have, something like \$25,000. I think if you will take a part of this \$10,000 and promote the plan among the fellows who do not give, and go after the brickmakers who are not here and convince them that the plan is feasible and reasonable, and next year follow it up, ask for 2 cents a thousand, and you can just as well have \$10,000 to spend as not. There is not a man making brick who can not be convinced that he can afford to pay \$50.00, if you go at him right. The fact is, it would give confidence to the manufacturers to know that plan had an association of this sort behind it, and they would be willing to pay 25 or 50 cents a thousand. There is no reason at all why you can not get all the money you want for this purpose.

Mr. H. S. Houston, New York, N. Y.: I want to say a word. If you are starting to educate the people with \$10,000, save your money. You will lose it as surely as sunlight. The gentleman who has just spoken hit the nail on the head. In my judgment, speaking from a disinterested standpoint, use your money to educate yourselves, and, after you have educated yourselves, you can go out and educate the country. Ten thousand dollars does not go very far in the way of general advertising. Of course, it can not. I say to you as a publisher, that unless you are going in to do this thing right, you need not do it at all. First educate yourselves.

Mr. D. S. Plummer, New York, N. Y.: I believe it would be easy to get the members on this floor to pay 1 or 2 cents a thousand on the minimum output who would not want to pay the \$50.00. There are a lot of members who would come in on that basis.

Mr. Parker B. Fiske: This committee has studied this proposition for a year, and we think this is a good plan to start with. We want \$50.00 from you to start with. We will take up this other plan later. We have talked it over, and we will take it up again, this matter of assessing the members according to output, but we can not start until we have something to start with. I furnished all the postage for all the letters that went out of my office in regard to this matter this last year, and I spent my time as chairman of the Publicity Committee, and I did it very willingly, and simply mention it here to show that it takes something to make a beginning.

Mr. Blair: We all realize this is a very important subject, and I know this matter is coming out all right. It is one of the most vital subjects to be brought up at this convention, and I do not believe you can stop these fellows from talking, but there is one thing we ought to do as a matter of courtesy. We have with us Mr. E. A. Fisher, the City Engineer of Rochester, who is on the morning program for a paper. He has been waiting here all morning, and we certainly ought to hear him now. If we are not through with this publicity matter, we can take it up and thresh it out the first thing this afternoon.

Secretary Randall: I think Mr. Fiske covered the matter. We are to meet in the Blue Room at the Seneca immediately after adjournment and go ahead with the work.

President Parker: Gentlemen, I am pleased to intro-

duce Mr. E. A. Fisher, City Engineer of Rochester, who will read a paper on brick pavements. (Applause.)

POINTS OF PERFECTION IN BRICK PAVEMENTS.

BY EDWIN A. FISHER, CITY ENGINEER ROCHESTER, N. Y., MEMBER
AMERICAN SOCIETY CIVIL ENGINEERS, PAST PRESIDENT
AMERICAN SOCIETY MUNICIPAL IMPROVEMENTS.

Mr. President and Gentlemen of the Convention:

Permit me, at the outset, to say that I heartily second the warm welcome extended to you yesterday by His Honor, the Mayor, and to assure you, on behalf of the Department of Engineering, that we thoroughly appreciate the value of a convention like this to our city.

While we have not the extensive manufactories of your products that some other cities may have been able to show you, we are not an insignificant user of such products.

It will be our earnest endeavor to contribute in every way possible to your pleasure during this convention. If any of your members desire information relative to any of the public works of the city, it will afford us much pleasure to furnish all the information possible, and for that purpose the services of any assistant in the department are at your disposal.

The topic assigned me, "Points of Perfection in Brick Pavements," will answer as well as anything else as a text for the few suggestions I have to offer, and I promise to confine myself as closely to the text as the average preacher to his, and also to further contribute to your pleasure by being brief.

BRICK PAVEMENTS IN ROCHESTER.

The first brick pavements in this city were laid about 18 years ago, in the year 1890. Five short streets, aggregating about 1.5 miles in length, were laid in that year. This amount was increased very little for the next 10 years, and at the end of the year 1899 we had only about 5.5 miles. In the next 4 years we laid about 6 miles, making a total of 11.38 miles in 15 years, or an average of three-fourths of a mile per year. During the next 4 years, however, ending with December 31, 1908, we laid about 33 miles, or an average of about 8.25 miles per year, being 11 times as much as the average for the 15 years previous. We now have 41 miles, or 645,500 square yards, of brick pavement. Brick pavements are now 22½ per cent. of the total paved streets, the percentage having increased from nothing in 1900 to 5 per cent. in 1904, and to 22½ per cent., as stated, at the present time.

The diagram herewith presented shows the comparative rate of increase of asphalt, Medina block stone, macadam and brick pavements since the year 1890. This exhibit certainly offers great encouragement to the paving brick industry.

CONSTRUCTION OF BRICK PAVEMENTS.

I desire at this time to acknowledge my great personal indebtedness, as well as that of our profession, to Mr. Will P. Blair, the indefatigable secretary of the Paving Brick Manufacturers' Association, for his vigorous, clear and most valuable contributions to the literature of brick paving, and especially for his most able paper before the American Society of Municipal Improvements at its last meeting in Atlantic City, on the "Proper Construction of Brick Pavements." This paper, together with the model specifications furnished by the Association, should be in the hands of every municipal officer having anything to do with the construction of brick pavements, and also in the hands of our contractors and foremen doing the work. The paper details requirements, which the author knows from a personal examination for a long time of pavements, some of which were constructed properly and many others not properly constructed, to be absolutely necessary to secure good results.

I can express my appreciation of this paper in no better way than to say that I fully concur in the suggestions therein contained, and that it is my intention to have such of those suggestions not already in use in this city put into practice in our future brick pavements, so that at the next convention you hold in this city we may be able to offer you a practical demonstration of their value, both to the property owner who pays for the pavement and to the paving brick manufacturer as well.

I shall also refrain from any general discussion of the subject, so well and thoroughly treated by Mr. Blair, and confine myself to emphasizing a few points, perhaps peculiar to this locality.

PAVEMENT ORDINANCES IN THE CITY OF ROCHESTER.

Our charter permits the Common Council to provide in an ordinance for pavements for the construction of any necessary local sewers, also sewer laterals and water services. It is also the practice to include in the same contract the trenching and backfilling for any water mains required. The electric light company and the telephone companies are required to construct the necessary conduits, and the gas company to lay the necessary mains, all in advance of the improvement, the work to be done either by the same contractor that lays the pavement, or under his supervision as to refilling trenches. In this way the entire responsibility for the integrity of the subgrade is upon the contractor, and his guarantee is not complicated by the work of others over whom he has no control. The minimum future disturbance of the street is also provided. This practice, I believe, is one of the points of perfection in a brick pavement.

I might also add that it is the practice to put in the foundation for the street railway tracks, and lay the pavement, in the portion of the street that the railway company is called upon, by statute, to maintain.

It is our practice to provide a concrete foundation at least

six inches thick for our brick pavements in public streets. Even with the best of care in backfilling trenches, and the most thorough rolling or tamping, some small settlements are bound to occur. The six-inch foundation will successfully bridge such settlements. Our experience is that it is better to do all the underground work above specified at the same time as the pavement is put down, and that it is a positive disadvantage to have such work done by another contractor, even if several years elapse before the pavement is laid. The worst settlements that we have had in paved streets have occurred over sewers laid from eight to ten years prior to the putting down of the pavement, where the surface was crown'd up so as to shed water and the backfilling, except for a very limited distance from the top, received no consolidation whatever.

EXPANSION JOINTS.

I want to emphasize the point made by Mr. Blair regarding the method of providing expansion joints at the curbs by placing a board of proper thickness next to the curb and allowing it to remain from twenty-four to thirty-six hours after the pavement has been grouted, and then, after removing the board, fill the joint nearly full of paving pitch, with a coating of sand to protect it from the sun. This method is much superior to the prevalent practice of pouring the paving pitch first. I have seen some very serious damage to good brick, due to the fact that the paving pitch in the expansion joint crosswise of the street had settled and the grouting filling the top of the surface of the joint had broken the tops of the brick for from one to three courses each side of the expansion joint. This bit of carelessness on the part of the contractor's foreman and the inspector gave the brick an undeserved bad reputation.

CEMENT GROUT FILLER.

I would especially commend the portion of Mr. Blair's paper relative to the grouting of the pavement, to contractors laying and



E. A. Fisher, Rochester, N. Y.

guaranteeing brick pavements. The extra care required to do the work properly, as described, will be repaid a hundred-fold by the greater durability and freedom from repairs during the life of the guarantee, and by the satisfaction of the residents with the quality of the work.

Having thus briefly referred to a few points in the construction of brick pavements, I will now offer a few suggestions relative to the material furnished by the paving brick manufacturers.

The qualities which a good paving brick should possess are so universally recognized that it is unnecessary at this time to describe them. They may, however, be summed up in the single statement that "the brick should be tough, and of suitable form."

TESTS.

Your association has done most excellent work in the careful, painstaking and protracted scientific investigations to determine a practicable method of testing paving brick.

What is known as the Standard Rattler test, approved by your association in 1901, has been found by the experience of engineers to be a very satisfactory method of determining the wearing qualities of a paving brick, and until something better is found, should be used by brick makers and by municipal officers in testing paving brick. This test was recommended after an exhaustive investigation by the following named engineers: A. A. Talbot, Professor Municipal and Sanitary Engineering, University of Illinois; A. Marston, Professor Civil Engineering, Iowa State University; J. B. Johnson, Dean College of Engineering, University of Wisconsin, and W. K. Hatt, Professor Applied Mechanics, Purdue University.

Among other things your committee having the matter in charge said:

We believe that any adequate test of paving bricks must settle the following points concerning them:

Their durability under exposure to such wear as they will meet in a heavy traffic street, in which sliding friction, or grinding, co-operates with constant blows, or impacts, to break down the material. To endure such treatment we believe that a brick

must possess that peculiar combination of hardness and elasticity generally known as "toughness." It is not enough for a brick to be hard. It must be elastic also, or its life in street wear will be short.

Their durability under the attacks of such weather as they may be called on to endure.

We believe that none of the various tests heretofore proposed for determining the strength, hardness or toughness of burned clay wares compare in efficiency with some form of the rattling test. We believe that neither the cross-breaking test, nor the crushing test, nor the specific gravity test, represent the conditions of wear in a street with sufficient closeness to make their results convertible into terms of street wear.

We believe, also, that it is, and will always be, impossible to adopt any single absorption test which shall even approximately include the safe and exclude the unsafe materials, and that wherever the absorption line is drawn, an injustice to either the maker or user of the paving brick is sure to result. As a means of judging the relative value of different stages of vitrification of any single kind of bricks, we consider this test useful and reliable, but not as a means of comparing different wares.

WHAT PERCENTAGE OF ABRASION SHOULD BE ALLOWED.

Your committee recommended 20 per cent. This percentage has been found, in general, to give a very good quality of brick. I believe, however, that the limit should not be an arbitrary one, but it should depend largely upon the character of the traffic on the street in question. For streets of heavy traffic I believe, with improved methods of manufacture, brick showing not more than 15 or 16 per cent. abrasion should be required, while for unimportant streets or roads, or for gutters in macadam streets of light traffic, a 24 per cent. brick would be satisfactory.

In this connection I would advise a brick maker not to furnish brick to a contractor for a street having heavy traffic under a specification only suitable for a street of light traffic. The loss to the brick industry as a whole by the use of such brick



Spencer Duty, Cleveland, Ohio.

is beyond computation, and examples thereof are numerous. As one example illustrative of this point, I will refer to a brick pavement laid on East Avenue in the year 1891 by one of the best paving contractors in this city, and at that time laid in the best manner known to the trade. This pavement remained in good condition for about eight or nine years, after which it became very rough, and later was worn so badly in the center of the street that it was necessary to make quite extensive repairs. The brick eventually became worn to a thickness of about one and one-half inches, when it was impossible to repair with new brick, and the repairs for the last three years the pavement was maintained was by filling up the holes with asphalt, where the brick had worn entirely away. Some of the best of these bricks were tested in the rattler and gave results of about 23 per cent. The average was much greater. The brick was altogether too soft for the traffic passing over this street.

The same brick was laid on a residence street of light traffic, by the same contractor, in the same year, and is now, after seventeen years' use, in practically as good condition as when first laid. The joints were filled with paving pitch, instead of cement grout.

Another example: A brick pavement was laid on a portion of East Main street in the year 1898. Some of this brick was taken up and tested during the year 1907, after nine years' use in the street, and showed a little less than 14 per cent abrasion in the Standard Rattler. The pavement, although subjected to rather heavy traffic, showed no appreciable signs of wear during its nine years' use. The pavement was made of wire-cut brick laid close and well grouted.

Another suggestion is, that the brick maker use at the works the same standard rattler, and make sufficient tests, before sending brick away, to satisfy himself that the brick will stand the prescribed test when arriving at their destination. The place to sort brick is at the kiln and not on the street. During the extensive work of the year 1907, it was practically impossible for contractors to get brick sufficient to complete their contracts,

and on some jobs we were obliged, in order to get the street in condition for use, to receive brick not properly culled at the works, and to sort it on the street, in some cases rejecting from 25 to 40 per cent. of the whole lot. This method was not at all satisfactory, either to the engineer or brick manufacturers, as the inspectors culling were not as expert and could not do the work as well as it could have been done by expert brick makers before loading on to the cars. We have therefore adopted the rule that no considerable amount of culling will be done on the street, and any lot of brick having more than a very small percentage of culls will be rejected.

WHERE SHOULD THE TESTS BE MADE?

I have already said that the brickmaker should provide himself with the proper apparatus to test the brick. Why, then, should not the test be made at the works by competent inspectors in the employ of the city and through inspecting bureaus, the same as is done in the case of cast-iron water pipe and steel for bridges, etc.?

Mr. Charles Ridgley, of Springfield, Ill., in a paper before the Illinois Clayworkers' Association, in January, 1902, on "Brick Inspection," said: The great need in this matter (brick inspection) seems to be competent expert inspection. This cannot be done except by persons who have made brick making a study, and who have had experience enough to know good brick from bad under varying conditions, and who also know how to apply the necessary tests and to interpret them when made. An inspection by experts may be more severe at times than one by those who are inexperienced, but it should be more uniform, and, as it would be likely to secure a better article for the purchaser in the long run, it should be for the good of the trade; and the brick maker knowing what to expect, would soon find a way to make his wares so that they would not be rejected, and his results would be more satisfactory.

Your competent inspector will know just what store to set by slight variations from absolute perfection, and he will not inflict needless loss on the manufacturer by higgling over slight defects, while at the same time he will mercilessly reject everything that will in any material way go to detract from the real value of the pavement when completed. An inspection of the kind herein outlined could be made best of all at the makers' works.

The association adopted a resolution requesting the officers to present this matter to the national association and to endeavor through them to have it understood with the Society of Municipal Engineers, or to have it otherwise arranged, so that all future contracts for paving brick should provide for such inspection as was recommended by Mr. Ridgley.

In this connection I beg to call attention to a device attached to the rattler used by the department of engineering in making tests which records the revolutions of the rattler, and automatically shuts off the current operating the rattler when the required number of revolutions have been made. In this way, as one of the brick manufacturers stated, after an examination the bricks get exactly what is coming to them, and no more.

SIZE OF BRICK.

I notice in your official announcement and program of this convention that your association has adopted standard sizes of brick, and that the standard size of a paving brick is $8\frac{1}{2} \times 4 \times 2\frac{1}{2}$ inches.

I am at a loss to understand what you mean by a standard size, for the reason that your companies furnish a great variety of sizes, and scarcely any two works turn out the same size of brick. It would seem to me worth while for your association to appoint a committee to confer with the American Society of Municipal Improvements, and have the entire committee unite upon a standard size for paving brick. If it is not desirable that the same standard should apply in all sections of the country, or for both clay and shale brick, different standards might be fixed applying to the different sections of the country, and to the different materials.

GUARANTEES OF BRICK PAVEMENTS.

The question of whether a pavement should be guaranteed at all is one that has received recently a great deal of consideration from municipal officers. I believe in this city, on account of the large amount of underground work we do, that it is desirable to have a guarantee of sufficient length to show whether the back filling has been properly done, and also that any defective brick may be discovered. The general ordinance of the Common Council, under which all pavements are laid, provides that they shall be guaranteed for ten years. This practice arose about twelve years ago, when the department had no facilities for testing asphalt pavements, and it was decided, upon the recommendation of the City Engineer, that an asphalt pavement should be guaranteed for ten years. It was not his intention at that time that other pavements that could be inspected and passed upon as to their wearing qualities should be included in this guarantee. The builders of asphalt pavements, however, represented to the Common Council Committee having the matter in charge that it was unfair for them to guarantee their pavements for ten years, and to permit other pavements to be laid under a less guarantee.

The city now has provided itself with proper apparatus for testing asphalt pavements, as well as other kinds of pavements, and it is no longer necessary that the ten-year guarantee should apply. The general practice is to reduce guarantees to at most five years, and I have recommended that this change be made in our general ordinance. It is a mistaken idea of some taxpayers that they are getting something for nothing. The general result, however, is exactly the contrary. As a general rule, in the long term guarantees they pay for something and get nothing. No contractor who knows his business will accept of a long term

guarantee for maintenance without a sufficient addition to his bid to cover all contingencies. A five-year guarantee is all that is necessary to determine whether the work and material comply with the specifications.

In conclusion, I wish to say most emphatically, that other pavements than brick have their good points, and are preferred for localities suitable for them. In the larger cities, both in this country and in Europe, properly treated wood block is taking the place of asphalt in no small degree, although in this country asphalt predominates, notwithstanding the necessity of constant repairs.

Medina block stone, properly prepared and well laid, is best adapted to streets of heavy traffic where the question of noise is not a controlling factor. Granite block is still used, although extremely noisy. Bitulithic pavement is also being laid to some extent in a good many cities. Macadam pavements, while never adapted for streets of heavy traffic, are still preferred by many for quiet residence streets of light traffic. The automobile, however, is rapidly changing the relative merits of macadam and brick for main thoroughfares in our public road system. In this connection, it may be of interest to quote from the report of Mr. Nelson P. Lewis, Chief Engineer of the Board of Estimate and Apportionment of New York City, on the First International Road Congress, held at Paris in October last.

He says that the Road Congress was prompted by the very evident effect of modern motor cars upon the highways of France and other countries. That interest in the subject was widespread was indicated by the fact that the roll of official delegates included representatives from thirty countries. He says the manner in which the high speed motor cars damage the road surface was discussed in a number of papers submitted to the congress.

Much has been said about the suction of the broad rubber tires of motor cars drawing from the roadbed the binding material upon which its life depends, and while this is in a measure responsible for the dust nuisance, and the rapid deterioration of highways subjected to heavy motor traffic, it is not the chief cause of damage. Stone roads, waterbound with screenings or sand, were designed to sustain a rolling traffic, and, with reasonably broad tires and moderate speed, very little damage is caused by such traffic, although the loads may be very heavy. The motor car, however, is a self-driven vehicle, the power being usually applied to the rear axle, and the rear wheels act as driving wheels. The tractive force or shear exerted upon the road surface by these driving wheels is doubtless the chief cause of the injury which is so apparent. The fine dust or binding material is not so much sucked out of the roadway by the rubber tires, as it is ground out and thrown into the air by the driving wheels.

He says further that the recent deterioration of the surface of the highways of France is very noticeable. The damage caused to highways in Great Britain by the automobile is quite as evident as in France, and that another paper presented to the congress showed that the annual cost of maintenance of the rural main roads of England and Wales had increased 20 per cent. during the last five years, and that in the counties nearest to London the average increase for the year ending March, 1907, was from 38 to 48 per cent. over that of 1901.

The general conclusion was that some different construction than that now obtained for macadam roads should be adopted, and the general sentiment was that they should be bound with some bituminized preparation.

Ex-State Engineer Skene, in his report for the year 1908, just made public, says, among other things, with reference to the damage to macadam roads by the motor car: "Within the past year the Empire State has well maintained its position in the vanguard of the crusade for better roads. Eight hundred miles of splendid new macadam highways have been thrown open to the public and added to its former mileage. The experiments with surface preparations in this and other states have been continued, and their results watched with the keenest anxiety by the leading experts of the country. These results are as palliative, and as palliative only, as they were a year ago. Much has been written on the subject. Numerous conventions have drawn together practical road builders from all parts of the country for an interchange of opinions, and, finally, scarcely three months ago the greatest International Road Congress the world has ever known convened at the city of Paris, France, for the purpose of organization and discussion."

In all this writing, in all this consensus of opinion, there is to be noted a remarkable unanimity of conclusion. How shall we build and maintain our highways to stand the changed conditions required by modern automobile traffic? The broken stone road of today is the result of more than a century of development. Since the days of Tresauget, of McAdam, and of Telford, though variant in methods of construction, its purpose has remained unchanged to meet the wear of the iron-tired, horse-drawn vehicles at a reasonable cost. Until the advent of the motor car these conditions have been fairly met, and the broken stone road has been thus far satisfactory. But conditions now have radically changed. The macadam road of today is being rapidly denuded of its binding, and its wearing surface disintegrated; the construction methods of the past will not meet the requirements of the future, or even of the present.

It may be said without fear of successful contradiction, that the day of the ordinary macadam surface for main public roads is rapidly passing. The asphalt and tar surfacing are in the experimental stage. Brick has the requisite qualities for a permanent roadway, and even now is being used in considerable quantities in the States of Ohio and Indiana, and to some extent in this state. There are opportunities for the use of brick paving in the larger cities on streets where it is better adapted to the service required than the material now being used. To secure the business indicated as legitimately belonging to the brick pav-

ing industry requires the honest, earnest and intelligent co-operation of the manufacturers and the contractors who lay the brick. The manufacturers should refuse to furnish brick unfit for the street or road where it is proposed to put them, even if within the specifications. They should also continue the work Mr. Blair has so well inaugurated, and make the life of any contractor not worth living who refuses or neglects to observe the minor details of his work, that are required for the best results. He will have the hearty co-operation of the engineers, and of the property owners who pay for the pavement. There should be no combinations to inordinately raise the price of the pavement, as any such action would defeat its ends by the active competition of other materials. Neither should a cut-throat competition prevail, and work be taken for less than a fair price, with the hope of slighting sufficiently to make a profit. This method, if seemingly successful, will also defeat its end, and will, as it has done in the past, do irreparable damage to the industry. Taxpayers do not object to paying a fair price for public work. They want good work and full value for money expended, and to that they are justly entitled.

In closing, I want to congratulate your society upon the opportunity for a much greater extension of the brick pavement than has ever been known. This opportunity is due to the earnest, careful and scientific work you have done and are now doing in the interest of good pavements. I thank you for the privilege of appearing before you. (Applause.)

General Discussion.

President Parker: You have heard this very excellent paper, gentlemen, and we would like to have a discussion of same.

Mr. Purington: You will notice in the chart Mr. Fisher shows the line indicating the increase in the use of paving brick started upward about four years ago; about that time



Frank B. Dunn, Conneaut, Ohio.

the National Paving Brick Manufacturers' Association was organized.

Mr. Ittner: I would like to hear from Mr. Blair as to the uniform size of brick.

Mr. Blair: I am not responsible in any way for that. This was adopted ten years ago and has never been changed.

Mr. Purington: I think this paper was excellent in every way, and the suggestion that the inspection be made at the plant is an excellent one, and, if it could be carried out, would be worth a great deal to the paving brick manufacturers. We have shipped out a great many paving brick in the last twenty years, and have had but one inspection at the plant, and that was done by Hunt & Co., of New York City, for the Government when we shipped brick to Panama. I think Mr. Fisher is entitled to a great deal of credit for that paper.

Mr. Ittner: I move a rising vote of thanks be given Mr. Fisher for this excellent paper.

Motion seconded by Mr. Dickover and carried.

On motion of Mr. Bloomfield, the convention adjourned until 2:30 p. m.

THIRD SESSION.

Thursday Afternoon, February 5, 1909.

President Parker: The convention will please come to order, and I will ask the Secretary to announce the first order of business.

Secretary Randall: We are way behind with our program, and we have got to get to work and stay at it if we expect to get through. We would like to leave you out there in the exhibition room all afternoon, but we can not do it and finish our program. Presume it is the wish of the convention to take up the program where we left off this morning.

President Parker: Before we go any further, I wish to announce the Committee on Resolutions:

A. R. Root, Pennsylvania, chairman; J. W. Hahn, Massachusetts; F. C. Hyatt, South Carolina; P. J. Connell, Michigan; S. J. Fox, Ontario; W. H. Brecht, Iowa; J. W. Robb, Indiana; A. L. Hunter, N. Dak., and E. T. Lewis, Tennessee.

Secretary Randall: We have with us a gentleman who would like to have your ear for a few moments, Mr. E. S. Williams, of Scranton, Pa., secretary of the National Builders' Exchanges. He would like to say a few words with a view of obtaining a closer relation between the two organizations. We will have to ask you to be brief, Mr. Williams, as our time is very valuable.

The Power of Thorough Organization.

Mr. E. S. Williams, Scranton, Pa.: Mr. President and gentlemen of the convention—I ask your indulgence for a few moments because I believe it is for our mutual benefit. When I heard the address yesterday afternoon, the lecture last evening, and the addresses this morning, it reminded me of a little incident I heard of not long since. A little



E. S. Morse, Washington, D. C.

boy disturbed his mother a number of times and she finally decided to punish him. She grabbed him by his coat collar, and he slipped out and ran away. She chased him round and round the house, and he finally crawled through an opening in the foundation and went under the house, and she could not follow him, and so she said, "Wait until your father comes home, young man, and he will settle with you." So when the father came home she told him of the circumstance, and said, "Now you have got to get Johnnie out from under that porch and punish him." The father was rather a large man, and he called Johnnie, but he did not come, so by and by he started in to crawl under the house, and it was very dark, so he could not see ahead of him at all, but presently he heard a whisper, "Say, dad, is she after you, too?" (Laughter.) From what I can gather from the trend of the arguments, somebody has been after you, and somebody has been after us, too. I am a builder, a brick builder and general contractor, and I stand between you men and something that has been interfering with your business.

I noticed on the screen last night the picture of a brick plant, a large part of which was built of concrete (laughter), and the owner has said that he was obliged to use that material because he could not get bricklayers to lay the brick. For over forty years there has been a National Association of Bricklayers, an international union that has been

systematically and persistently restricting apprentices all over this broad land of ours. They have got their agents at work and they pay them well, and instead of bricklayers willing to work, we find the employers bidding against each other and paying 5 and 10 cents an hour more than the unions ask. Ninety-five per cent. of the brick laid in this country are laid by the members of the bricklayers' union. That is a broad statement, but I can prove it. They are putting on the brick business of this country, from the most careful calculations, a handicap of \$12,000,000 annually. Can you stand it much longer? They are all about you, you are hedged in. You have the best building material in the world, the most beautiful and the most durable. There is nothing that can take the place of face brick. There is nothing in concrete construction that can take the place of the beautiful press brick. It is the common brick man, the man who has been furnishing the brick for the foundations—you know millions spend more than the millionaires—and you will find the homes of the working men, the foundations of which used to be of brick, are now being put in of concrete, because you can put in a concrete foundation for \$6.00 a cubic foot, and the best that brick can be put in for is \$9.00 a cubic foot. You are handicapped 50 per cent. to begin with. It is the law of supply and demand, or the survival of the fittest, and if you are going to allow a combination of our employes put an international restriction and condition upon you, you are going to suffer.

I have a report here of the forty-one bricklayers' unions. The international union was organized forty-five years ago, and last year, in Detroit, Mich., their national convention was held, and they had delegates there from all over the United States and Canada, and here are some of the things they did: They issued an edict that on and after May 1, 1908, that every member of their union must work eight hours a day. The workingman does not get a cent more, but the builder loses by the operation, and the restrictions put upon the different local unions in the use of apprentices is so great that they are dying off, the old men are dying off faster than they are producing apprentices. The brick-laying business has not kept pace with the progress going on in the building world—it has not kept pace with concrete construction, and it is your fault and mine.

I would like to interest you people enough that you would go back to your homes and say to the builders and those you are acquainted with in the building trades, "Get into an organization that will give self-protection." You are not organized, that is the truth. There are only 200 organizations of the building trades in the United States. Only part of them are organized in name only, fifty of them have not vitality enough to make their members pay their debts, and we are trying now to promote a movement that will organize the builders for self-protection, and we want you to help us.

As for thoroughness, do you know the bricklayer' unions will put more men in the hospital than you can turn out in the trade schools. A bricklayer said to me not long since, "When we get a man on a job we don't like, something happens to him, a brick falls on his head or something of that sort, and he goes to the hospital." Think of it, in a law-abiding country, one man goes after another man as though they were heathens. I learned the bricklaying trade and a man who served his time with me as an apprentice is now a member of the union, and I asked him how he could stand for these things, and he said, "You don't look at a soldier who kills an enemy of his country as a murderer, do you? That is the way we look at a union man who is simply protecting his labor union, except that he is simply doing up a scab." I would just like to read from the International Bricklayers' Union constitution and rules of order which were adopted at the Detroit meeting, under section 2, article 16, which is headed, "Codes of Crimes and Penalties." "First, union wreckers, \$25.00 to \$100. Selling out our trade and protecting scabs, \$100 to \$1,000. Second, members of subordinate unions who withdraw or resign to further the interests of firms, corporations or manufacturers in teaching laborers the trade of masonry, shall be subject to a special initiation fee for the first offense of not less than one hundred dollars (\$100), nor more than five hundred dollars (\$500). Third, treasury defaulters, not less than \$10.00, nor

more than \$50.00 fine, at the option of the union, besides the amount embezzled to be returned."

Talk about being handicapped! If I had the time, I could give you innumerable instances and examples of their thoroughness. Here is their journal, published in four different languages; English, French, Italian and German. Every bricklayer in the United States and Canada must take that paper and pay for it. What would you think, Mr. Randall, if you had a subscription list of every brickmaker in the country. They have a list of every one of the local unions, and have a traveling card they issue to every member of the union. When a man leaves the town of Scranton, for instance, he is obliged to take a card and deposit it in another town in thirty days or he is fined \$5.00. They can tell you where every union bricklayer is in the United States within sixty days. The international does not interfere in any way with the system of apprentices, nor do they interfere with wages. They make the general laws, and then they protect the local unions in any scrap they get into. Some of you brickmakers may have felt the pressure of the International Bricklayers' Union. You have tried to have a handy man about your yard, fix your kilns, and you have not been allowed to do it, and have had to pay a bricklayer double and then stay with him to see that he does it.

You brickmakers here have been trying to get together on certain lines, and we have been trying to get the building trades together, and we can all take lessons from the other side. This is only one out of thirty-one building trades whose material enters into the construction of modern building. Multiply your troubles by thirty-one, and you will have an idea of the troubles the general contractor has to deal with. The American Federation of Labor is composed of sixteen different labor unions, with a membership of 20,000 local unions. There is a combination which is stupendous, and you can see what an easy matter it is to increase their wages at the expense of the people.

We have got to get together along a line of just as thorough a system of organization as these people have. You will pardon me for taking so much of your time, but this thing is dear to me because I love liberty.

Mr. Ittner: I want to make a motion that the gentleman be allowed to finish his remarks, if it takes all afternoon. I want him to speak without feeling that he is under a strain, because I have been in the building business and the different branches for over sixty years, and it is the first time I have ever heard a man speak on this question who has warm feet and red blood, and so I say for God's sake let him speak. (Laughter and applause.)

Mr. Williams: I have in my hand an agreement between the bricklayers' union of Philadelphia and the brick masons of that city that takes away the liberty of the master masons of Philadelphia, and places restrictions on them which I, as an American citizen, would not put my name to. I would beg first. There is in that agreement that the bricklayers may fine the employer. Think of it! In 1901 I was running a stoneyard, employing nine stonecutters, and doing a general contracting business besides. One day the walking 'delegate of the stonecutters' union came to me with an agreement, and said, "Sign this paper." I asked him to let me read it first, and it was an agreement in regard to hours and wages and that I should agree to hire none but union stonecutters, and I told him I was willing to sign the agreement except the part not to hire any but union stonecutters. Then he told me that I would have to close my yard, and I told him all right, that I would never sign an agreement that would keep me from putting anyone on who wanted to learn the trade that I wished. He closed my yard, and I have not run it since. But I am in the building business, and I am president of the Builders' Exchange of Scranton for the ninth consecutive year. We have this sort of a scheme in our builders' exchange: I claimed that no association lived up to rules unless there was some way of touching their pocketbook, and so our members are all under bond. We had a builders' exchange convention in 1903, and we tried to get this system introduced. Some of the delegates told us we could not do it. I told them they did it in New York City, and there is where I got my idea, and one of the Philadelphia delegates jumped up and said, "We can not do it." And I replied, "Can't you get a bond?" That made him mad, and he said, "I am now under a bond of \$16,000." And I

asked him if he had gone his limit and couldn't get any more. I told him the trouble with them was, the members of the Philadelphia exchange were cowards; that is, they were moral cowards, didn't have backbone enough to run their business, and that they had signed an agreement to allow the unions to run it for them. Another man jumped up and said he demanded an apology, and I told him that he himself had signed such an agreement. His name was Atkins. It made him pretty mad, and he said he had never signed such an agreement. I simply walked to the back of the platform and pulled out this agreement and said, "There is a clause in this agreement that permits you to be fined by the union, and it is signed J. J. Atkins." (Laughter.) He came up and read it and went back and took his seat, and we never heard another thing out of him. This condition prevailed in Philadelphia, and the labor unions run the employers today. In Indianapolis the mine workers today are holding a convention with 1,140 delegates, representing 300,000 miners, at an expense of \$9,000 a day. These delegates are being paid \$9.00 a day. They don't expect people to do their work for nothing, and it is not human nature. You have got to put money into organization work, and work along business lines, and you have got to enforce discipline.

Fighting the Devil with Fire.

There was a member of the Scranton exchange (I speak



Anthony Ittner, St. Louis, Mo.

of the Scranton exchange, because we have a local exchange that is a united organization), who had a contract seven miles distant in the country, and he had a number of masons working there and on a city job, too, twenty-nine all told, and the union masons called off masons working on the country job; and the member came to me and asked what he should do if they also declared a strike on the city job. So we got together and talked the matter over with the result that the builders stopped work on all the buildings that were employing union masons, and in four days I got a letter from the president of the union saying that the strike against the member in question was called off, because it was not authorized by the respective unions. (Applause.)

We have since 1903 had four lockouts. We locked out the stonemasons' union, and we locked out the hod carriers' union. It took us five months to win out, but we did, and it took us just five weeks to win out in 1908. More recently we locked out the painters' union, and it did not take the painters long to remove the boycott, and we didn't go into the Supreme Court of the United States, either. It was pretty bitter medicine, but it worked. I must tell you a rather amusing incident that happened to me. We had had trouble with the carpenters' union, and their national organizer came to settle the difference. He met me on one of our principle streets one day, and there were five or six of the other leaders with him, some local and some of national importance, and they surrounded me and said, "Why are you down

on the poor working man?" I told him he was mistaken, and he said, "You are down on unions." I took off my hat and turned down the sweat band, and there was a union label. I did not buy it because it was there, but it was there, and I showed them the union label on my coat, and showed them my shoes and they were union made. And I said to the leader, "Now, let me see your union hat and union coat and union shoes," and I caught the president of the international union with a non-union hat and a non-union coat. (Laughter.) They don't believe in competition in labor, but I have here a report of their convention, and they advertise for bids for getting out that journal. They do believe in competition, if it saves them \$6,000 in getting out that journal.

What we are trying to do is to get local organization composed of every company that deals in building materials, or that contracts for buildings. I believe that every city that can stand a central labor union can stand a builders' exchange, and know it would give you your self-respect. We have demonstrated in our town that the boycott is a joke, but it was hard work. And the plan we are working on if it can be brought about will bring industrial liberty to the workingman of the United States, and you will find it time and money well spent. We want every town in the United States to have a local organization, then State association, and then national association, to take charge of these organizations, to keep them in line. Every builders' exchange should maintain a strike breaker in every



S. J. Fox, Lindsay, Ont.

trade. If we had one in every city where there is a central labor union, it would mean that we would have 600 strike breakers to send here and there, wherever they were needed. Just look at this notice I have here to labor men. It is in large type, "Keep away from Boston." The trouble is, we employers and builders are afraid of the bricklayers' union, and they know it. I'll tell you, gentlemen, if you ever saw a boy who wanted to scrap with another boy, he was always a little braver when he had some one to back him up. I was down in North Carolina not long since and met the builders of that State. I met representatives from six cities, and after they heard my talk they all agreed, without a single dissenting vote, to go back home and organize builders' exchanges, and they all agreed to send delegates to the national convention at New York City in March. We have been working on this national convention for three years. Brother Randall has received a number of letters from me, and I presume they have all been placed on file, but he couldn't file me, so I decided I had better come here myself. This scheme will cost money, of course, but I am giving my time to come here and talk to you, and I am paying my own expenses. As I said a while ago, I went down to North Carolina and the North Carolina fellows treated me royally, gave me a banquet, and the mayor of the town was the toastmaster of the banquet, and after they had listened to me very carefully they did what I asked them to do, and that is what I want you to do. You have men here from twenty-five States, but mind you, you are only

individuals out of 7,000 brickmakers of the United States, and, as I understand it, you have only 629 members enrolled on your list, while the bricklayers have nine out of every ten, and you have only about 9 per cent. of all the builders of the land. When the brick manufacturer gets stuck he blames the builder, and it is not his fault. When times are good there are not enough bricklayers to lay the brick, and what is the result of their combination? In San Francisco the bricklayers get 67 cents an hour. Labor unions have hurt San Francisco more than the earthquake.

When will we be stronger than we are today? Are you going to wait until we grow weaker? That is why I want you brickmakers to go home and talk builders' exchanges. We have every brickmaker in the town of Scranton in our builders' exchange. We have one member, an old soldier, and when we had the hod carriers' locked out I said to him, don't deliver any more brick on any job where they are hiring union hod carriers. He said he could not refuse to finish the contract. I said to him, "What did you do when the Scrantonian libeled you? You sued the proprietor, didn't you, and used your political influence to get him locked up for sixty days, didn't you? And his paper went on being printed just the same. When he libeled John Mitchell what did the unions do? They went around to every one of his advertisers and told them to take their ad out of his paper, and they did it. And then they went to the newsboys and told them not to sell the papers, and they did not, and the result was he had the Scrantonian on his hands without any ads. He sent his attorney down to New York to the head of the labor union, or the federation of labor, and asked them what they wanted him to do, and they said, 'Retract what you said about John Mitchell,' and he did, and then they told him to put a union man on his editorial staff, and he did. Now that is the way the unions hold together." He said he would not deliver any more brick, and he did not. Then we had another member, a dealer in lime and cement, who had a big contract to furnish cement for a new building being erected by a big brewery firm. And when I told him he must not deliver any more cement, he said he simply had to finish the job, but after I talked with him for some time he said he would go and see the purchasing agent, and the purchasing agent told him that it was all right, and that when the trouble was over they would buy his stuff just the same. The brewery could not get a single barrel of lime or cement or any brick in the town of Scranton for five months, and it proved that we could stand together. The unions say the builders' exchanges are worse boycotters than they are. I tell them we are simply giving them a dose of their own medicine, and it is bitter.

The builders' exchanges first met in 1907 in Scranton and elected officers. We had representatives from nine different States. Last year we met in March in Washington and had more States represented. Next month we meet in New York City in the rooms of the Employers' Association. A number of years ago the builders held a meeting in the city of Chicago, and some of the delegates wanted to declare for the open shop. I told them if they did that some of the members would go home and get into a scrap, and they would never hold another meeting, and the National Association of the Building Trades declared for an open shop and they never did hold another meeting. They simply attempted to cover the ground and did not have anything to cover it with. I am handicapped in this movement because lots of times when I write a man he replies, "I subscribed some money to a movement of this sort in Chicago in 1903. Do you know what became of the money?" And I have to plead guilty that I don't, but I do know that we ought to use as much common sense as our employes have, and they have demonstrated the power of organization. The carpenters' union was organized in Chicago in 1881 with twelve local unions, with 2,041 members. Today they have 1,917 local unions, with a membership of 195,000, and they have spent in strikes, lockouts and for benevolent purposes, over \$4,000,000. They take \$11,000,000 annually out of the pockets of their members. They have put a burden on the building business of \$11,000,000, and when you take into consideration all the other unions, you will realize what a burden is being put on the building trades. The average

union man pays \$10.00 a year to his union. They pay \$20,000,000 to sustain and organize labor unions of the United States. Most of you believe in fire insurance and life insurance, and, in fact, you have to have them both. In the former you insure your production, and if you have strong employers' unions over the United States it will save you strikes. You can not break up the bricklayers' union, but what I want you to do as business men is to get together in organization, so as to make the labor unions play fair. The American people believe in fair play, they love fair play. We want you people to send three delegates down to our New York meeting. Our national fee is nominal, \$50.00 per capita. We want your moral support. We want you men to be missionaries. You have heard the Macedonian cry, "Come over and help us." Some people say I talk about the unions too much. I suppose before the Russian-Japanese War the Russians did not like to have anyone talk to them about the Japs or praise them, but if they had known more about the Japs they would have put up a better fight. So we had better get together for mutual assistance and co-operation.

You hurt your little finger and it makes you sick all over. You hurt one industry and you hurt the whole industrial system. We are so constituted that we are dependent and interdependent upon each other. You may not believe it, but it is true, and that is why I am putting this matter before you this afternoon. I want you to come and meet with us. Send three delegates from this association to meet with us in March, it will only cost you \$50.00 to come in and have the privilege of the floor.

Now, gentlemen, I realize that I have taken more time than I should, but the reason is, I love liberty. I have never discharged a man on the demand of any labor organization, and I never will. I want you people to help us by sending three delegates to the New York meeting with instructions to pay in your membership in the National Builders' Exchange. (Applause.)

Mr. Crook: As we are using our time so rapidly, I would move that in the discussion of all papers the members be limited to three minutes. This question that has just been discussed by Mr. Williams is a burning one, and if we talked all afternoon we could not get through.

Motion seconded by Mr. Gregory and carried.

Mr. Ittner: I rise to move a vote of thanks to Mr. Williams for the able address he has given us.

Motion seconded by Mr. Robb and carried.

Mr. Ittner: I want to say I have been in the building business for sixty years, I am a charter member of this association and an ex-president of the National Association of Builders, and I have never heard anything that has done my heart so much good as the talk we have just listened to. It is true Americanism. Yes, go to the poor house, beg on the streets before you yield your American citizenship. (Applause.)

President Parker asked Vice-President Blair to take the chair.

Mr. R. C. Penfield: Let us settle this matter now. Why should we not send three delegates to attend this convention? I move that this convention request the President to appoint three delegates to attend this convention in New York City in March.

Seconded by Mr. Dillehay and carried.

Chairman Blair: These delegates will be appointed later by the President, and I will ask the Secretary to announce the next number on the program.

Secretary Randall: The next in order is No. 4 on the morning program, "Handling Clay from Bank to Machinery," by F. R. Kanengeiser, of Bessemer, Pa.

Mr. Kanengeiser: This paper is very meager, and I am very sorry it is so, but we are still working on these investigations, and I hope later on we will have further facts to give you. But whatever I have stated in the paper we can substantiate by our records just as far as we have gone.

HANDLING CLAY FROM BANK TO MACHINERY.

BY F. R. KANENGEISER, BESSEMER, PA.

Mr. President and Gentlemen of the Convention:

In offering to you a paper on the subject just announced, we will confine ourselves to a recital of our experience in the handling of shale for a paving block plant from its natural deposit

to the ground shale, ready for the auger machine, together with what data it has been possible to gather in the short period of preparation.

The shale bank in question overlays a ledge of limestone, and varies in depth from 20 to 35 feet, the whole carrying some 5 feet of drift clay. In the center and deeper part of the bank and lying directly on top of the shale, a vein of bastard fire clay, varying in thickness from 3 to 8 feet, makes its appearance.

This bank, like practically all other shale banks, varies as to character of shale. In the center of the bank we find the hardest, most silicious shale. Near the ends, or outcrops, we find a fine, plastic weathered shale, and a gradual variation from center to ends. (We will say at this point that this whole deposit of shale has been cut into sections by glacial action, and the outcrop spoken of is the part of the deposit next to these cutouts.)

The bank which is being worked at present has been sectioned or staked off in 50-foot sections, and chemical analyses made of the drillings in all sections; these analyses, together with abrasive and absorption tests, form the basis for our mixture of shale, and permit of very intelligent handling of the same.

The practical handling of the shale bank is unquestionably familiar to all. The bank is first drilled with an ordinary well drill, which puts down a 4½-inch hole. The hole is squibbed or sprung with dynamite and then charged with black powder; the resulting shot merely shakes the bank loose and permits of much easier and faster digging. In this connection, we will say that the steam shovel in use will dig the bank without shooting, but we have always found it more economical and less troublesome to pay for the ammunition necessary to shoot the bank, rather than to give our steam shovel the extra wear and tear, coupled with the greater cost of maintenance and repairs. One shot in the bank will loosen about 1,600 tons.

The digging and loading are accomplished by a large-size steam shovel, which delivers shale to the ordinary type of side dump cars; these cars are then hauled by dinky locomotives to their several destinations. When a shot is made, the bank loosens



J. W. Hahn, Boston, Mass.

in such a way that the drift clay and fire clay hold together, and may then be taken down by the shovel and sent to the waste dump. In the instance under consideration shale has been delivered to two plants; at one plant all the shale was shoveled directly into the dry pans, at the other plant shale was shoveled directly into pans for about half of last year, and the remaining time shale was placed in storage and fed to the pans by belt conveyors.

The storage above mentioned is built of concrete and has the following dimensions: Three hundred feet in length, 62 feet in width, 30 feet in depth, and has a capacity of 20,000 cubic yards. The two outer and one end wall are heavy concrete retaining walls, while the other end is open to the dry pans; a chord wall runs lengthwise through the center of the storage; "T" beams spanning from wall to wall carry the overhead narrow gauge tracks, which run the full length of the storage. From these tracks shale is dumped into the storage, and may be so placed as to give the best mixture for the manufacture of paving block. At the bottom of the storage, and running the full length of the same, are four conveyor pits, covered with timber of sufficient size to carry the load of shale dumped on them. In each pit is placed a conveyor of the ordinary troughed belt conveyor type, and same is driven at a belt speed of 360 feet per minute by a sprocket chain connecting it directly to the dry pan counter shaft, so that the dry pan clutch operates pan and conveyor simultaneously. These conveyors are 312 feet center to center of drums, and carry an 18-inch belt, and the whole of the shed, including tracks, is roofed and closed on all sides, so that the shale is kept dry and free from frost.

The feeding of a conveyor, and, consequently, one pan, requires one and a third man, and consists simply of raking the shale down the slope of the 30-foot pile to an opening over the belt. If a hard nodule or other hard substance gets into the pan, a man, whose duty it is to watch for just such cases, throws the clutch of the pan, thus stopping both pan and conveyor.

The ground clay passes over piano wire screens to a conveyor, and thence to a ground clay storage of 200 cubic yards capacity.

where it is ready to be drawn on for the manufacture of brick.

We have given an outline of the mechanical handling of our shale from bank to machinery, and will now endeavor to present some results of this storage and method of handling.

We find that from January 1st, 1908, to January 1st, 1909, a total of 23,712 earloads of shale was delivered to our No. 2 plant, at which place the storage is located. Each car carries an average load of 4,429 tons of shale; this, then, shows a total delivery to plant of 105,020 tons. The production of the plant for the year consumed 90,034 tons, showing a surplus of 14,986 tons. The tonnage consumed for the year shows an average consumption of 7,502 tons per month. During November and December there were twenty-four working days on which no shale was delivered, thus it will clearly be seen that the storage has practically three months' storage capacity, based on the production of 1908.

At our No. 1 plant, a similar storage is in course of construction, and when completed will hold an amount proportional to the capacity of our No. 1 plant. Thus, when both sheds are full the expense of the steam shovel, dinkeys, cars and men engaged at present the year round in handling shale, will be cut off for a period of from two to three months per year.

The shale storage in question was first used in July, 1908, and has been in continuous operation since. Now, if we take the operation of pans during the five months preceding July, namely, February, March, April, May and June, when shale was dumped at the pans and then shoveled into them, we find that 9,522,000 brick were manufactured. Four pans ground the clay and worked during this period, 4,481 hours, showing an output of 2,125 brick per pan per hour. We realize, of course, that during February and March grinding of shale fresh from the bank, full of frost and moisture, is not ideal, and that if conditions had been better the output per pan might have been greater, but we take these figures to show what was accomplished during the five months.

Now, taking the operation during the five months following July, namely, August, September, October, November and December, we find that 9,592,500 brick were manufactured, and that two pans ground all the clay. The two pans worked a total of 2,163.25 hours, showing an output of 4,434 brick per pan per hour. This shows a net gain by using storage and conveyors of 2,309 brick per pan per hour, or 108.6 per cent.

In the course of investigation, which has been carried on for a year, we obtained results which were very gratifying. Taking an average of 100 abrasive tests on paving block for the months of June and July as a basis, we found that as our mixture improved we gained in abrasive quality of block. The following data will be of interest to paving block manufacturers: The shale shed was first used in July; brick were taken from the kiln in August; forty-nine abrasive tests in August showed a gain over June and July basis of 10.74 per cent. One hundred and one tests taken in September show a gain over June and July basis of 14.58 per cent.; seventy-eight tests taken in October show a gain over June and July basis of 21.90 per cent.

As many of you know, our block have passed many city tests previous to August, 1908, so the meaning of this gain in abrasive quality must be clearly self-evident.

The shale taken from storage gives us other advantages, namely, the column on the machine works more uniformly than when clay was delivered straight from the bank, drying is more uniform; burning, settle and heats carried practically do not vary as they do with shale brought directly from the bank. The appearance of the burned block is surprisingly uniform since the installation of this storage. We will now make a brief summary and place before you the advantages of this storage in their order of importance in our judgment.

First, uniform quality is produced, making your ware strictly high-grade; second, uniform quantity of production, the importance of which we must all realize, the dry unfrozen shale in large quantity makes this production possible during the winter months; third, saving in cost of operation of steam shovel, which alone will pay good interest on the investment; fourth, saving in grinding machinery, on account of increased output of each machine, and fifth, a small saving in the cost of feeding pans.

During the latter part of the year just passed we have very materially increased our kiln capacity. During the month of January our output from one stiff mud machine has been increased 50 per cent., thus showing that the shale storage may be drawn on at will to conform to any added production within the limits of stiff mud machinery.

In conclusion, we will say that we have discovered no new methods. We have to pay money to win our shale, just as usual. We have simply enlarged others ideas, added some of our own, and put the whole to a capacity suiting our requirements, and while it costs money to equip thus, we will say that wherever a shale bank, used for paving block manufacture, varies in its block-making characteristics, the above described method will be found exceedingly efficient, and, when all costs have been summed up, the balance will be very gratifying. (Applause.)

General Discussion.

Vice-President Blair: It seems to me that we will be glad to have the balance of that paper next year. Is there anyone here who wishes to discuss this paper?

Mr. Ittner: Who wants to speak on any subject if he can only talk three minutes? (Laughter.)

Vice-President Blair: We will now listen to a paper on "A System of Costs in the Manufacture of Brick," by Ellis Gates, of Van Asselt, Wash.

A SYSTEM OF COSTS IN THE MANUFACTURE OF BRICK.

By Ellis D. Gates, Seattle, Wash.

Mr. President and Gentlemen of the Convention:

Any man who is running a clay plant should be interested in system. For what can any man do unless he uses system in his work? He is like a ship without a rudder, drifting around from one piece of work to another piece of work without knowledge of the true condition of his business. Every large manufacturing concern has been built up by men who recognized the value of system in their work.

When you think of a cost system, do not think of a mass of detail, for that is not system. Think of a straight line drawn between two points, one point being the plant and the other point being the executive.

In other words, a system must be simple or it will entail too much work to keep up, and thereby defeat its purpose. On the other hand, it must go into enough detail to show specific costs as otherwise it will not locate the weak spots, which are always the points of too high cost.

Systems may be roughly divided into three classes, viz.:

(a) Those containing unnecessary forms and unimportant information.

(b) Those which are simple and yet show the right amount of detail.

(c) Those which are lacking in detail and do not show the figures in proper form for comparison.

It may seem strange, but the fact is that when the average man starts in on system he invariably runs to Class A, and the forms and reports of that system are generally filed in the waste basket after the first enthusiasm has worn off.

You must be the judge as to the amount of detail you wish your system to show—I am only trying to show how easily the records of a brick plant can be kept and the order of arrangement.



Ellis D. Gates, Seattle, Wash.

In devising your system, first decide on what details you want costs shown, and then design the reports so that the figures will come in automatically each day, each week or each month, and automatically call themselves to your attention.

Bearing the above in mind, the following operations will be necessary to bring the reports to the executive in proper form:

1. Daily reports from foremen to factory or city office.
2. Daily distribution sheet of all labor under proper headings.
3. Reports and distribution sheet condensed and resulting figures sent to executive.
4. Daily report shown in chart form for executive.
5. Monthly summary of labor distribution sheet.
6. Monthly summary of daily reports.
7. Monthly cost sheet, showing all expenses of the business.

You see how simple it is when we approach the subject in the right manner and eliminate needless operations. The forms given for the various reports have required careful study on my part, as otherwise too much time would be needed to fill them out, and would not give all the information desired.

The actual reports needed will be as follows: Clay mining, clay grinding, clay mixing, pugging clay, machining, repressing, drying, setting, burning, drawing, wheeling, sorting, and loading.

You will probably wish to make some changes in the forms given for the reports before trying to use them. That is usually necessary, as nearly every plant has conditions peculiar to itself which govern the installation of any system, either of production or of cost.

You will note that some of the forms show spaces where supplies used may be entered daily. This scheme may be carried out with all of the reports, or the supplies used may be charged at the end of the month, the amounts of the charges being received from the supply storehouse at the plant. Or, in a plant which does not have the storehouse system, the different supplies may be kept together and a requisition slip filled out by

the foreman needing the supplies, the charges being made from these slips at the end of the month when the regular inventory is made up. By keeping a card system inventory the supplies used are quickly determined, and all chance for error is reduced to the minimum.

This is one of the points that can only be decided by the man on the ground, as it will have to be adapted to suit the varying conditions.

The first report to be taken up is the Daily Clay Mining Report, the form being shown by Chart No. 1. You will note that this gives the date, the tons of clay mined, the supplies used, the number of men working, the total number of hours, and is signed by the foreman.

CHART No 1.

DAILY CLAY MINING REPORT.

DATE _____

TONS CLAY MINED _____

SUPPLIES USED _____

POWDER _____

FUSE _____

CAPS _____

OTHER SUPPLIES _____

NO. MEN WORKING _____

TOTAL NO. HOURS _____

FOREMAN _____

CHART No 2.

DAILY CLAY HAULING REPORT.

DATE _____

TONS CLAY HAULED _____

_____ TONS TO BUNKER No _____

_____ TONS TO BUNKER No _____

NO. MEN WORKING _____

TOTAL NO. HOURS _____

SUPPLIES USED _____

FOREMAN _____

The total number of hours is given, so that it may serve as a check on the time cards or other system of time keeping in use.

No. 2 is the Daily Clay Hauling Report. This form gives the date, the tons of clay hauled, the number of men working, the total number of hours and the supplies used, if the supplies are to be kept by this method.

These two reports may be consolidated if the clay is hauled to the plant as fast as it is mined, and all the labor charged under one heading, if that seems preferable to you.

The Daily Grinding report (Chart No. 3), gives the date, the pan number, the hours each is grinding, the tons ground in each, the totals of hours, tons and materials, as well as the

number of men working, the total number of hours, and the supplies used.

You may prefer to consider that mining, hauling and grinding are the same in quantity as the number of brick made at the machine, in which case these reports can be dispensed with.

The Daily Making Report (No. 4), will give the date, the number of brick made by machine count, the tally of each repress at the end of the day, the tally at the start, and thence by subtraction the number of brick run through each repress that day. The difference between machine count and repress count should show the loss at this point. This will enable the executive to keep in touch with the loss and which repress is handling the most work. This report may also give the supplies used if wished.

The Daily Drying Report, which is illustrated by Chart No. 5, shows the date, the number of cars of brick transferred to the dryer with its corresponding thousands of brick, the cars transferred to the kilns, with the number of brick and to which kilns they went. It should also show the number of cracked brick found that day, in order that the loss in drying be known.

A convenient method of keeping count of the cracked brick is to have a special place into which all cracked brick could be thrown as found, and from which they can be removed at the close of the day's work, counted and entered on the report.

The Daily Setting Report (Chart No. 6), should show the

CHART No 3.

DAILY GRINDING REPORT.

DATE _____

PAN No.	HOURS	TONS	MATERIAL
TOTAL			
TOTAL			
TOTAL			

NO. MEN WORKING _____

TOTAL NO. HOURS _____

SUPPLIES USED _____

FOREMAN _____

date, the number of cars of brick set in each kiln with the corresponding count of brick, the setters in each kiln, and the total number of brick set.

As shown by Chart No. 7, the Daily Burning Report should give the date, the tons of coal burned at each kiln, the settle or temperature if that is wished, the total tons of coal used, kilns finished, with the number of days and hours burning and number of brick in each kiln. The head burner should also inspect the kilns being drawn and note on his report the physical condition of the kilns, what repairs will be needed, and any other information interesting to the manager.

The Daily Drawing Report (Chart No. 8), should contain spaces for the date, the kilns drawn, the number of each grade of brick, and the disposition of the brick, whether stacked or shipped. These figures will enable the stock clerk to keep a perpetual inventory of all brick on the yard by means of a card system, so that it may be known at any moment what can be done toward delivering new orders.

Chart No. 9 shows the Daily Loading Report. This should give the date, the cars loaded, the number of brick on each car, the grade of brick, the consignee or order number, and where the brick came from, that is, whether from the kiln or some stack in the yard. This will also aid the stock clerk with his inventory.

If you wish to have a report from the boiler room, I would

suggest something like Chart No. 10, giving date, tons of coal used at the boilers, kind of coal, horse power of boilers working, the tons of coal used per horse power, and, if possible, the number of hours each engine is running with the horse power used.

These reports are turned in to the works office each night, and either condensed there or sent to the main office, and the daily report to the manager, which will be shown later, made up from them there. In this latter case they will be convenient in case the executive wishes to go into more detail than the condensed report.

If you are using time cards in your plant, you may find it more expedient to have the various foremen make their reports on the back of their time cards. This would work very nicely in the case of the short reports, which will not require any special forms printed.

We will now take up the subject of dividing the labor costs, for each day, into the divisions which we have already laid out for the daily reports, so that the records will give us the labor cost for the number of brick processed in each of the various operations.

This is accomplished by a printed form called the distribution sheet, and is shown (all or in part) by Chart No. 11. This sheet is provided with columns headed as follows, reading from

CHART No. 4.

DAILY MAKING REPORT.

DATE _____

MACHINE TALLY AT FINISH _____

MACHINE TALLY AT START _____

BRICK MADE, MACHINE COUNT _____

TALLY No. 1 REPRESS, FINISH _____

TALLY No. 1 REPRESS, START _____

RERESSED BY No. 1 _____

OPERATOR _____

TALLY No. 2 REPRESS, FINISH _____

TALLY No. 2 REPRESS, START _____

RERESSED BY No. 2. _____

OPERATOR _____

TALLY No. 3 REPRESS, FINISH _____

TALLY No. 3 REPRESS, START _____

RERESSED BY No. 3. _____

OPERATOR _____

FOREMAN _____

left to right, man's number, rate per hour, hours, wages for the day, and then the headings for the operations: Clay mining, clay grinding, clay mixing, pugging clay, machining, repressing, drying, setting, burning, drawing, wheeling to stack, wheeling to cars, loading, direct labor, upkeep, indirect labor, improvements, and any other headings that you put on your final cost sheet. Indirect labor will be all labor which does not actually process material.

This sheet may be used with two columns under each heading, as shown, or only one may be provided and it used to keep the cost alone; the number of brick processed in each operation will then be taken from the daily reports direct and totaled. The single column will allow the sheet to be smaller than it will be with two columns. When two columns are used and one-half inch is allowed for each column, the sheet will need to be about 2 feet long on the line of headings, and with one-quarter of an inch to each line it will be 1 foot from top to bottom for fifty men. This sheet is made up from the time cards each morning, each foreman seeing that his men specify on their cards the kind of work performed during the day, so that the timekeeper has no difficulty in making the proper distribution. A timekeeper can distribute the wages of fifty men and make up the total in an hour's time.

The production figures are then entered on the Daily Report to the Manager (which is drawn up in the form shown by Chart No. 12), the totals from the distribution sheet are entered, the daily costs figured, and it is referred to the manager. If possible, the report should be entered on a comparative chart and the figures compared with those of some other period; this obviates having a large number of old reports on the desk which would be in the way.

From this report the executive can quickly see to what capacity the plant is running, the cost per thousand in the different operations, which operations are behind and which are ahead of the average output, and, with the Daily Burning Report, Daily Drawing Report and Daily Loading Report, Nos. 7, 8 and 9, he is fully informed as to the physical condition of each plant, what kilns are finished, the condition of the kilns being drawn, the quality of brick coming from the kilns, what disposition is being made of the brick as drawn, and what shipments are being made.

CHART No. 5.

DAILY DRYING REPORT.

DATE _____

____ CARS BRICK TO DRIER = M _____

____ CARS BRICK TO KILNS = M _____

AS FOLLOWS -

____ CARS BRICK TO KILN No. _____ = M _____

____ CARS BRICK TO KILN No. _____ = M _____

____ CARS BRICK TO KILN No. _____ = M _____

____ CARS BRICK TO KILN No. _____ = M _____

____ TOTAL _____

BRICK CRACKED. _____

FOREMAN _____

CHART No. 6.

DAILY SETTING REPORT.

DATE _____

____ CARS IN KILN No. _____ = M _____

____ CARS IN KILN No. _____ = M _____

____ CARS IN KILN No. _____ = M _____

____ CARS IN KILN No. _____ = M _____

____ CARS IN KILN No. _____ = M _____

No. MEN WORKING _____

TOTAL No. HOURS _____

FOREMAN _____

When presented with the figures charted, as stated above, it is especially valuable and time-saving, as the chart shows comparisons at a glance, without the eye having to point out the figures and the mind having to compare them. You may think me too enthusiastic on the subject of illustrating figures on charts; I certainly am quite fond of the method, and know that you only need to try it to become an enthusiast also.

Chart No. 13 shows the final report on each kiln, which is made up after the kiln is drawn, and referred to the manager. This data he will find very useful in keeping the comparative costs on each kiln for setting, fuel and drawing, as well as the quality of product burned in each kiln and the repairs needed. The information will be especially valuable in plants having different types or sizes of kilns, for, in a short time, it will show which size or type is the best from a cost viewpoint, and which produce the best quality of product.

ENGINEER _____

costs are then calculated, and the percentage of each operation cost to the total cost is calculated. This last figure shows the percentage cost of each operation, and will indicate which ones are variable in proportion.

The cost sheet is then ready for the executive, or it may be shown on a chart and the two presented at the same time. If the chart shows a comparison with some previous period, the value is greatly increased.

The results will become more valuable as time passes, due to the possession of more figures for comparison, and by using this system you will be able to establish the plant on either a piece-work plan, or, better still, on the premium rate plan, the latter being better by far than the former.

This premium rate plan is rapidly coming into use, and will undoubtedly be the method of payment of the future wherever it is possible to employ it. Already many of the large institutions of the country have adopted it.

I am very sorry that I can not have the pleasure of being with you at your convention this year, but I appreciate the honor of being allowed to present this paper, and hope it may benefit the cause. If there is any point which I have not made

MONTHLY COST SHEET. CHART NO. 14.

1909	JANUARY				FEBRUARY			
	M	COST	COST PER M	%	M	COST	COST PER M	%
CLAY								
KILN FUEL								
OILS								
OTHER SUPPLIES								
TOTAL MATERIAL								
MINING CLAY								
HAULING CLAY								
GRINDING CLAY								
PUGGING								
MACHINING								
REPRESSING								
DRYING								
SETTING								
BURNING								
DRAWING								
WHEELING TO STACK								
WHEELING TO CARS								
LOADING								
DIRECT LABOR								
TOTAL LABOR								
TOTAL PRIME								
INSURANCE								
TAXES								
DEPRECIATION								
REPAIRS OR UPKEEP								
POWER								
LIGHT & HEAT								
RENT								
INDIRECT LABOR								
TOTAL BURDEN								
TOTAL FACTORY								
OFFICE SALARIES								
RENT								
POSTAGE & STATIONERY								
SALES MEN								
ADVERTISING								
TOTAL SELLING								
TOTAL COST				100.00				100.00
COST LAST YEAR								

clear and about which you wish to ask, it will please me to hear from you on the subject at any time. (Applause.)

Secretary Randall: The next paper is to be illustrated by slides, "The School for Bricklayers," by W. C. Smith, general director of the Winona Technical Institute, and O. C. Pierson, director of the department of bricklaying, Indianapolis. Mr. Pierson is with us and will present the paper. He is the teacher in charge of the bricklaying department at Winona that this association endowed with several scholarships last year, and they are making progress, and it is hoped that some of the members who helped them last year will continue to help this year. (Applause.) I am glad to present Mr. Pierson. (Applause.)

(In addition to the accompanying illustrations, Mr. Pierson showed a number of interesting views of the school buildings, and the various departments of same. Also, some of the buildings built by the students of the school of bricklaying during the past year.)

THE SCHOOL FOR BRICKLAYERS.

BY O. C. PIERSON, INDIANAPOLIS, IND.

Mr. President and Gentlemen of the Convention:

I desire to present something in which I know you as a brick-maker are interested, or at least should be—the School of Bricklaying—as I am sure that the cost of laying brick is vitally material in the use of brick as a building material. First, I want to bring before you some of the conditions in the building trades as I have found them from the contractor's viewpoint, and, if possible, to show you the need that something be done to better conditions. Not only is the general public suffering from these conditions, but if anyone particular class feels the results of these conditions more than another, it is the brick manufacturer.

It is needless for me to tell you that the use of brick is as old as time, and that brick and stone are still the principal building materials, especially for the class of larger buildings, with possibly one exception, and that is the use of concrete in foundations. Wood or frame houses for dwellings are being built in large numbers in many of the towns and cities all over the country and in localities where brick are made and are plentiful, and where lumber is scarce and necessarily expensive.

What reason, then, can we assign for building frame houses in preference to brick? Principally because they are less expensive on account of the cost per hour of brick labor, which is about double that of carpenter labor.

Last year carpenters could be hired at 25, 30 and 35 cents per hour, according to their ability as mechanics. The scale at Indianapolis for brickmasons was 65 cents per hour, weather good, bad or indifferent.

Now, gentlemen, what I am trying to show you is that it is not in the material in which there is such a great difference in the cost of construction, but in the cost of labor.

Just in the same way that wood is being used for superstructure in preference to brick, the concrete block is being used for foundation walls, and just on the same account—the labor problem.

Now just a few figures to bear me out as to the relative costs of material. Indianapolis prices are taken as a basis of these figures.

I desire to make a comparison of the costs of materials on frame, concrete and brick walls, and necessarily take walls of nearly the same thickness.

First, we will consider the cost of materials for a frame wall and 120 feet around the exterior of a house and 10 feet high. Construction, the cheapest balloon frame:

125 pieces 2x4, ten at \$20.00.....	\$17.50
1,200 feet sheathing at \$20.00.....	24.00
1,300 feet poplar sidings at 28 cents.....	38.00
2,000 lath at 6 cents.....	12.00
133 yards painting.....	20.00
Nails	3.00

Total\$114.50

In a concrete block wall 1,040 blocks, each 8x8x16, will be required to build the same amount of wall, and at 12 cents each will amount to \$124.80.

In 120 feet of 9-inch brick wall, 10 feet high, with an average amount of openings, there will be required 12,400 brick, which, at \$7.50 per thousand, will amount to \$93.00.

Thus you can see that brick to build that amount of wall will cost \$21.50 less than frame, and \$31.80 less than concrete blocks.

Yet, when labor is added to each of the above constructions, we find that the brick wall will cost \$29.00 more than the frame, and about \$10.00 more than block. Brick laid in the wall at \$11.00 per thousand mason measurement, with average amount of openings, is the same as \$16.00 actual brick or kiln count.

Therefore, you can readily see that with brick at \$7.50 per thousand and mortar at \$1.50 per thousand the labor to lay the brick costs \$7.00 per thousand, or almost as much as the value of the brick.

I believe that the cost of brick work in the wall at \$16.00 per thousand, kiln count, is too high. And I can see only two ways to decrease this cost, one of which would be to decrease the price of brick, and that I am sure is what you gentlemen least desire and probably will not submit to. Now the other way, which I am sure is a feasible one, is to get more men into the bricklaying business. The unions have preached that restriction of apprenticeship is what raises wages, and this is exactly what the bricklayers have done in the past. As a consequence, they have gotten their wages up to the highest point of any trade in the country.

The union tells us that they have enough apprentices learning the trade. Each contractor is allowed two. It matters not whether the contractor employs thirty to forty men or only a few, it is the same. An apprentice to every three or four masons would not be too many, but it is not that way and not likely to be. On the very first day that we opened our school the union sent its representative out to tell us that they did not approve of teaching bricklaying, and that there were already enough men in the business, and that he supposed that the brickmakers thought that the offer by one of your members to give the first graduate of our school a job at \$6.00 per day was an indication that if there were more bricklayers at lower wages more brick would be used. I have always believed that a skillful mechanic, who is able to do all kinds and the best of work, should be paid good wages, and I consider that the amount now paid for bricklayers is good pay for the best of them.

Restrictions are placed on the mason by the union in such



Prof. O. C. Pierson and the Class in Bricklaying, Winona Technical Institute.



Students of the School of Bricklaying at Work on a Substantial Brick Building.

a way that the amount of work is limited. In the ease of men at work on walls or plers or between windows, where each one has an equal amount to do, one is not allowed to do any more or go any faster than the other, thus the best man's work is limited or gauged by the poorest or slowest. Then it has come to the point that in the busy season of the year it is nearly impossible to get enough men to do the work, especially competent ones. The contractor is compelled often to hire anybody that comes along and calls himself a bricklayer and carries a union card. They get so independent at times that the contractor can hardly say that he is boss, further than hiring them and seeing that they get their pay. He can not say a faulty word in reproof or about faulty work to the workman but that he will come down off the scaffold and demand his pay, knowing that all he has to do is to go a little farther down the street for another job.

While there are a good many good, industrious men among them, the majority of them are so "ornery" and good for nothing that there can be no dependence put in them. Consequently, the contractor is at their mercy, he not knowing one day what the next will bring forth.

Some instances of my own personal experience: In 1907, while building the Plaza Flats, I had fourteen masons at work before the 4th of July, and only five reported for work the day after. Monday morning there is scarcely ever a full force to start work. I am ordered not to do any work before or after hours. Many do not care whether they work more than two or three days a

Now just a few words about the Winona Technical Institute. Six departments are in operation this year: Printing, lithography, pharmacy, tile setting, foundry and bricklaying.

Our bricklaying course covers a term of nine months, and consists of instruction in the use of tools, work in building walls, corners, flues, etc., plumbing, levelling and bonding walls both in common and pressed brick. Study of materials, kinds of brick and manufactured mortars, how made and used. Architectural drawing sufficient to enable the students to make and read building plans readily. Estimating costs of materials and labor of brick work.

We will graduate our first four students at the end of this month. We started our school with five students and have added nine since. The hard times of the last year and a half have prevented a number of young men from taking the course, they not being able to get enough money ahead to pay their board while in school. We have room for practically an unlimited number of students in this trade, and we are confident that we will have at least twenty-five or thirty students in this trade the coming year. During the past year I have taken the contract of brick work for seven frame houses, each of which required from 25,000 to 30,000 brick, one two-story pressed brick veneered house requiring 25,000 pressed brick and 20,000 common brick, another two-story brick house taking 75,000 brick, and a one-story brick store building taking 75,000 brick. On all of this work the students were



Each Pupil Has His Daily Stunt of Practical Bricklaying at the Winona Institute.

week, and seldom let a week pass by without making a draw on their wages before Saturday. Nothing seems to please this good-for-nothing class of men better than to take the young apprentice out nights and break him into their ways of earousing around and dissipating. One of the largest contractors in Indianapolis, who works from twenty-five to forty masons in the busy season, told me he has had no apprentices for two years, and will not have because of their turning out to be such ornery men.

It was just these deplorable conditions, a few of which I have tried to describe to you, that prompted me to take up this work as instructor of bricklaying at the Winona Technical Institute at Indianapolis, Ind.

Now I believe these conditions can be changed in time by teaching a lot of young men, who are anxious to learn a trade, to lay brick. They have been kept out of this trade so long that there will be little trouble in securing plenty of sober, industrious young men who want to earn an honest living, and be glad of the opportunity.

The wages pertaining in this trade are not in keeping with those of other trades, in many of which a higher degree of skill is required.

Men to learn this trade do not have to be peculiarly adapted for it, but any young man, say from seventeen to thirty years of age, who is able-bodied and of average intelligence and ability and not lazy, should have no trouble in learning it.

used and paid for their work according to what they were able to do.

I consider that the students need this work on regular building construction in learning the trade, and have adopted this plan to give them the practical work, thereby making practical workmen of them. We are looking forward with great expectancy to the establishment of the Hotel Employe's Training School with us, which is practically assured now.

The hotel keepers expect to erect and equip a model hotel building, costing \$200,000 on our grounds, the construction of which will mean practical work for our bricklayers.

Now, gentlemen, this school is not self-supporting, and therefore must look to some outside aid. I am sure that had it not been for the scholarships already provided by some of you this department would not have started, and I am sure that there is no one more vitally interested, or that should be, than the brick manufacturer. The contractor can not be looked to because his hands are tied, and he must stick to his union men at least until we can provide enough men to cut some figure in the business. A few hundred men in this trade would not lower wages, but would prevent wages going higher. In helping these young men to learn this trade, you are not only helping each one of them individually, but you are helping to create a demand for your manufactured product in this way. Now I realize that the unions are not going to throw open their arms wide, or at least

not right away; therefore, my aim is to train these men in such a way that they will be prepared to go out after this house work and foundations that are now being built of frame and concrete blocks; and then the unions, seeing what our graduates are accomplishing, will be glad and anxious to get them in with them.

Many, I am sure, will not likely go into the union because of the opposition they have found in trying to get to learn this trade. Practically all of the students have tried time and again to get in as apprentices. I know one who tried every year for four successive years without success.

WHAT STUDENTS SAY.

Last year when this matter was presented to you there was a generous response, and forty-five scholarships at \$60.00 each were subscribed for, but out of this number a few have not been realized, though an amount sufficient to operate the department has been subscribed.

For the next few years at least \$2,000 per year will be needed to carry forward this work.

WHAT OTHER ASSOCIATIONS ARE DOING.

National Association of Employing Lithographers, \$4,000 for five years, \$20,000; United Typothetae of America, \$3,000 for three years, and three more if necessary, \$9,000 to \$18,000; National Founders' Association, \$4,000 for three years, \$12,000; Tile Manufacturers' Association, \$5,000, besides \$8,000 to \$10,000; National Brick Manufacturers' Association, \$2,500; National Metal Trades Association, pending, \$3,000 for four years, \$12,000, and International Stewards, pending, \$15,000.

These associations have also provided equipment, as follows:

Tile	\$4,000
Foundry	12,000
Lithography	25,000
Printing	50,000
Machinery	30,000



Victor Cushwa, Williamsport, Md.

In view of what the other associations are doing, can the brick-makers' association afford to let this opportunity go by?

I consider that this method of providing scholarships for young men to learn the trade is the very best way in which to help them learn it. Tuition for the course is \$60.00. Besides, it costs the student about \$200 for board and living expenses while in the school, and that is quite a sum for the poor boy to get together while working at low wages. Instead of the scholar paying the tuition, the scholarship is loaned to him for a period of two years, upon receipt of his note for that amount. This permits him to take the course, and gives him a year's time in which to work and earn enough to pay it back, when it becomes available for another student. (Applause.)

General Discussion.

Mr. Pierson: I want to say in addition that I have here a number of subscription blanks that I will be glad to have any of you who care to do so sign, and so help on in the great good work, in which I know you are interested. (Applause.)

President Parker: Mr. Pierson has given us a very interesting paper, and we will devote a few minutes to the discussion of same.

Mr. Crook: I would like to ask Mr. Pierson about those buildings on which the students worked. Was there ever any trouble with the other workmen?

Mr. Pierson: I neglected to say that Mr. Smith, our general director, regretted very much that he could not be here. In answer to that question, I will say that practically all of the work has been done outside of the labor unions; that is, I took the general contract for all the work, and

then employed men in the other trades in the school to do the work. In some instances union plumbers worked on the job, and did not make any kick whatever. Union painters worked, too, and never made any trouble. Of course, in every instance the bricklayers had done their work and were gone before the union men came. The carpenters in each instance have been students in the school.

A Member: I want to say a word of endorsement of this work. The three important features of our work are the making of brick, selling of brick and laying of brick. If we do not make good brick we will not succeed, if we do not sell the brick we will not succeed, and if we do not have the brick laid economically we will not succeed. That is why the question of laying brick to us as brick-makers and brick dealers is important. There are two features in the laying of the brick, and that is the cost and the quality. There is no question about it but that both can be improved. The chief cost is in the laying of the brick, and it is evident to all us that if we could get our brick laid more economically, more brick would be laid. Another feature is the quality of bricklaying which we obtain in this country, particularly the finer grades of brick for pattern or ornamental work, and that sort of thing. I have known a good many cases in the last year where I have shown an architect or owner some nice pattern work to use in his building, and he has said, "I would like to use that, but I can not get any masons in my particular locality to lay that kind of work." So I think that these schools, where the art of laying brick well is taught, is going to be a great thing for our business. I believe in this work, and I am glad to endorse it by giving Mr. Pierson our subscription for a scholarship.

Mr. Ittner: I have a couple of letters that passed between Mr. Smith and myself, and it was Mr. Smith's desire that I should say something before Mr. Pierson began to speak, but there has been so much confusion since I came here that I do not get my bearing as quickly as I am in the habit of doing. This letter of Mr. Smith's and my reply will come very properly in line with the talk of Mr. Williams, and become a part of the printed proceedings. I do not know whether these letters can be read in three minutes or not, but I will be glad to have our worthy Secretary read them for me.

January 26, 1909.

MR. ANTHONY ITTNER, Ittner Brick Co., St. Louis, Mo.:

Dear Mr. Ittner—I take the liberty of answering yours of the 25th to Dr. Dickey, which has been opened in this office in his absence. I am anxious to put the situation before you, so that it may have smooth sledding at Rochester.

Our bricklaying department has made steady, if slow, progress since its opening, and we have enrolled twelve men who will be as skillful mechanics as can be developed anywhere in the United States in the time allotted. I believe our progress has been such that it indicates the lines upon which the problem of instructing bricklayers will be solved. It is our purpose to give the students ample outside work in combination with the class instruction. Our proudest piece of work is that of the residence built by our boys, on one of the prominent streets, cut of which I enclose.

It is our plan to have Mr. Pierson, the instructor, spend a day or two at the Rochester meeting, giving talks and showing slides of the students at work, the buildings they have erected, and the class instruction. I have just been in conference with Mr. Randall by telephone relative to the Rochester meeting, and we both feel that if you could stop here on your way east, to see the recent results of our work, it would be a great help to us.

It is very important that this matter shall be presented to the National Association in such a manner that they may be influenced to lend their support to the department. Some forty-four scholarships were originally pledged, a large number of which have been paid. However, there will probably be four or five which will not materialize owing to the business depression. If I recall it correctly, most of the subscriptions covered but one year. If we can secure the co-operation of the National Brick Manufacturers' Association for a period of five years, with a subscription of say \$2,000 per year, the department will be firmly established.

I trust you will stop at Indianapolis, for I should like to talk over with you a number of things. Yes, that was an inspirational meeting at Tuskegee. Mr. Washington has since visited our institute, and was impressed with its possibilities. He is a great educator, a great man in every way, and has surely contributed his share towards solving a vexed problem, not only for his people, but for the nation. Would not his fundamental principles of work and study go far toward solving a number of problems confronting the American student in elementary and secondary education today?

Permit me to express, in Dr. Dickey's absence, his cordial good wishes for your personal welfare, to which I add my own.

Very sincerely yours,

W. C. SMITH,
General Director.

THE NATIONAL ASSOCIATION OF MANUFACTURERS.

OFFICE OF THE CHAIRMAN.

ST. LOUIS, Mo., January 27, 1909.

MR. W. C. SMITH, General Director Winona Technical Institute,
Indianapolis, Ind.:

Dear Mr. Smith—Yours of yesterday with enclosures just came to hand.

You can not imagine how pleased I was to learn that your boys were permitted to go outside of your school grounds and do work on buildings in course of erection. I do so much hope that this liberty and freedom will always be granted to the boys of your school in all of its trades.

How sad and disheartening it was to me when I learned, as I did, that the New York Trade School, established in 1881 by the philanthropy of Col. R. T. Auchmuty, was placed on the low level of a state penitentiary, yes, and even lower than some penitentiaries, since many penitentiaries are permitted to work their convicts outside and to dispose of their goods and ware outside. But not so with the New York Trade School, from whence no boy is allowed to do work outside, nor are the things made in the school permitted to be sold or even given away outside of the school, unless the boy who made an article in the school desired to take it to his own home for his own use; otherwise everything made in the school must be destroyed. I have, in fact, shed tears over the sad situation and handicap with which this school is cursed.

Why a boy who has served a three or four years' apprenticeship in this school can not get a situation in the city of New York if it becomes known that he is a graduate of the school, as it must perforce be known, as every teacher in the school carries a union card in his pocket. And further, should a boy from this school through the influence of some friend finally get a place to serve his apprenticeship over again, he would not be given one day's credit for the time he had served in the school—and all this in free America! It seems incredible, does it not?

It is just this situation and condition of things which Samuel Gompers has brought upon the country, and which has emboldened this miserable creature, who knows no more of our American institutions and the essence of constitutional liberty than a hog does of Greek or Latin, to exclaim and publish to the world, "Go to hell with your injunctions." Then there comes the further thought, which is far more bitter than wormwood and gall combined, of our President and the Civic Federation hobnobbing with him and becoming his aids in his endeavor to secure the passage of his un-American and unconstitutional measures through Congress. And even now, with a jail sentence hanging over his head, he is the most impudent and brazen culprit in the United States.

The question may very appropriately be propounded, "Whither are we drifting?" And yet I am not desponding, as I still think this is "a government of the people, for the people and by the people," and that "you may fool all the people some of the time, some of the people all the time, but you can not fool all the people all the time," and that it is not given to an anarchist to destroy our Government, or to a demagogue to ever become its President.

I hope you are not mentally asking yourself the question, "What is the matter with Ittner?" Surely if you saw into the industrial situation of your country as I do, you would not ask this question mentally or otherwise.

Dear Mr. Smith, I shall do everything in my power to comply with your suggestion, and leave a day sooner for Rochester, so as to again visit your school, and join my wife and daughter Nellie on a train for the same destination the following day. Until then I remain,

Yours very truly,

ANTHONY ITTNER.

President Parker: If there is no further discussion on this subject, we will take up the program. The next in order are the Questions for General Discussion. Shall we continue with the morning program, or shall we take up the papers on the afternoon program. Some one please make a motion.

Secretary Randall: If those who asked these questions are here and want them considered, well and good. Otherwise, I think it will be well to skip them until later.

Mr. John T. Hummert: I move the questions be read and if anyone wants to speak on them, all right.

President Parker: We will take it by consent and proceed with the questions.

Questions for General Discussion.

Secretary Randall: The first question, No. 7, is, "What Form of Organization Would Best Serve the Interests of the Hudson River Brick Manufacturers?" I think if the party who asked this question will talk with Mr. Eisenhart and others who have formed local organizations, he will get some information that will be of benefit.

No. 8, "What Is the Future of the Down-Draft Kiln as Compared with the Efficiency and Cost of the Present Continuous Kiln?"

If there is no answer to this, we will take up the next, No. 9, "When and Where were the First Brick Made by Machinery?" I have a communication from an old-time mem-

ber, Mr. F. E. Frey, in reply to this question. Mr. Frey was one of the pioneer manufacturers of machinery in the country.

WHEN AND WHERE WERE THE FIRST BRICK MADE BY MACHINERY?

BY F. E. FREY.

Mr. President and Gentlemen of the Convention:

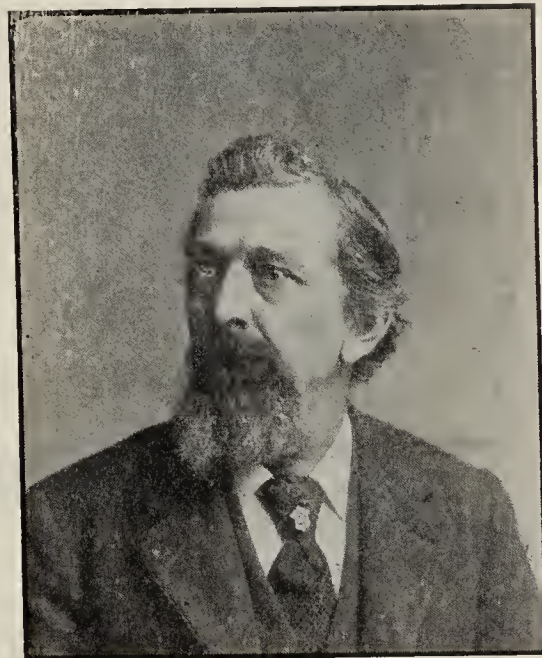
When your esteemed Secretary, Mr. T. A. Randall, wrote me whether I could assist with an article in the elucidation of "When and Where the First Brick Machinery Was Invented and Used," the following words came to me in an instant, with which I will open my treatise on the subject:

The evolute man, when he found clay
Could be molded, found a way
To form it by hand into brick,
And to bake them, learned the trick.

For many thousand years man made
The brick then in the self-same state;
Until last century's decree
Decided for machinery!

The subject brought my memory back to the days of my greatest activity in the brick machinery line. At the period I tried to engage to our interest, nearly every foreign workman and expert that had gained their knowledge of the clay business in Europe—one even from New Zealand.

However, all these men had worked with clay machinery in the only two countries of Europe, namely, Germany and England, where machines were made and used, the New Zealand man having gained his first experience in Germany. These men while with us often discussed the subject, "Which of the two countries



John T. Hummert, Quincy, Ill.

first used brick machinery," referring to auger machines exclusively. Of soft clay machines they had no knowledge.

The result of their discussions led me to the conclusion that auger machines came out nearly simultaneously in both the above-mentioned countries.

Before coming to America, at fifteen years of age, I had acquired considerable knowledge about the clay industry, inasmuch as a brother-in-law owned a factory for making brick and roofing tile, where I spent a great deal of my time previous to going as apprentice to the machine trade. Even after that, much of my time was put in at the brick and tile factory, our shop being located beside the machine shop. I mention this because at that time I never heard of such a thing as a brick machine mentioned or thought of. From this I reason that the auger machine of Germany had not yet emerged from the brains of the inventors. However, we were located in the southwest corner of Germany, within sight of Switzerland and France then, while the home of the auger machine was away north, in Prussia.

In moving to where we are living during the winter, my library and papers were left in the other house, hence I am compelled to rely on my memory exclusively, otherwise I might be enabled to give closer dates from print.

After I was engaged in making brick machines, I was anxious to know what was being done in other countries in brick machinery. So, in the latter part of the sixties, I tried to procure printed matter thereto; after much trouble, a dealer in books at New York City found such a book in England and sent it to me. This book illustrated two kinds of auger machines. One was a side-cut and the other an end-cut machine. The side-cut machine had a die made of rollers, with a down-cut wire cutter, and was manufactured in London.

Afterwards I learned that Germany had the most successful lubricating die. This I learned by a long, persistent search personally in our patent office. I found a German by the name of Schlichteisen had made application for a patent on a lubricating

brick die, which the office refused to grant because it was then in use in Europe.

Thus far I can trace by memory what there was in the brick machinery line in the two countries mentioned between forty and fifty years ago. The succeeding statements in regard to the developments of the application of machinery devised for the making of brick and the successful operation will demonstrate, as I think, the precedence of America's efforts for that purpose, referring to the soft clay process, however.

When I arrived in New York, June 20, 1852, I met a man who had worked at Haverstraw-on-the-Hudson the year before in a brickyard. Being interested in the business, I wanted to learn all about how brick were made here. Naturally, I drew this man out on the subject, and was told that machines were used at that then already extensive location for brickyards. From his description I learned that the machines were operated by hand, with horses on a pug mill that forced the clay into the machines. The molds were sanded and pushed in behind the pressbox. The front platform was in the shape of a half moon, he said. This, I understood, was for the purpose of shoving the molds out of the way to have them struck off. It will be seen that this brings the use of machines back to the year 1851. How long before that date they came into use, some old codger older than I am, yet living in Haverstraw, might be able to tell.

From New York I came to Plymouth, Ohio. The Fourth of July coming on Sunday, I saw two celebrations, one on Saturday at Sandusky, where a steamer had brought me from Buffalo. Next Monday we were at Plymouth, where another celebration was going on. The first few days I visited the brickyard of a German named Seider. This man informed me that he had sent his son to Tiffin, Ohio, where he was learning to operate a machine, and to have one sent to him. I saw the machine when it came.

Four years after I located at Bucyrus, and found the shop there had been manufacturing a machine of the same kind, or



F. W. Fitzpatrick, Washington, D. C.

nearly so, for several years. In 1860, Mr. Sheckler and myself bought the shop, and continued making the machine. This was called the Doty machine, and, as I learned since living at Cleveland, was brought out by the father of Mr. Doty, of Collinwood, near this place. Whether Mr. Doty reinvented or patterned after the Haverstraw machine, I am unable to say. It had no half moon front platform, however. An observation in a ramble through Cleveland late in the sixties or early seventies, of two rusty machines in front of a small defunct machine shop on Ontario street, showed me that at one time such machines were made here. All such machines were then attached to upright pug mills. The shaft, pugging arms and wider wings on the bottom for forcing the clay into the machines, we all made of wood in a very clumsy manner. It was called the Krebs, which is the German name for "lobster," inasmuch as when lying on the ground it resembled that crustacean with the wooden pins sticking out for legs, and the wings at the bottom the broad tail. Two horses were required to operate this contraption. For the wooden shaft I substituted an iron one, with iron knives and a forcing wheel below with the wings hanging back; that was with a tangent from the periphery of the shaft. This improvement dispensed with one horse and did better work.

For a novelty and more ancient device in the evolution and conception of brick machinery, I will relate now the statement of a man now between eighty and ninety years of age. When yet a boy he worked at a brickyard at Mt. Vernon, Ohio. They used a machine, he told me, that was like a cart, with a hopper-like box on top, which held enough pugged clay for one row out and one back when drawn over the yard. It would mold and deposit the brick automatically, then was refilled. (Applause.)

Secretary Randall: The next, No. 10, comes from a Kansas man. "What Is the Future of the Brick Business in Section Where Natural Gas Is Used, When the Supply Gives Out?" In the vicinity of Indianapolis, where the brick-

makers burned with natural gas for a number of years, the supply was exhausted several years since, and they are burning with coal today, just as they did before we had gas. It did not stop the brick business; it simply makes them pay a little more for fuel, and if they succeed in getting a little higher price for their brick they are all right.

The next question is No. 11, "What Is the Probable Scope and Utility of the Continuous Kiln When Gas-Fired, and When Direct-Fired?"

There doesn't seem to be any answer to this question, so we will take up the next, No. 12, "At What Stage of Burning of a Round Down-Draft Kiln Should the Dampers Be Used?"

I don't know what is the matter with the kiln men this morning. The next question, No. 13, is the last, "What Is the Best Form of Kiln for Calcining Fire Clay?"

Mr. Haigh: The vertical kiln.

Secretary Randall: This brings us to No. 15 on the afternoon program, a paper by Mr. F. W. Fitzpatrick, of Washington, D. C., on the "Relation of the Architect and Manufacturer." Mr. Fitzpatrick was unable to be here, much to his regret, but he has sent his paper.

INTERESTS OF THE ARCHITECT AND OF THE BRICK MAKER DRAWING CLOSER TOGETHER AS MODERN CONSTRUCTION DEVELOPS.

BY F. W. FITZPATRICK.

Mr. President and Gentlemen of the Convention:

Primarily, or perhaps we should say fundamentally, the brick manufacturer is interested in the material as a purely commercial proposition. He has invested a certain amount in a plant and it is up to him to keep that plant at its full capacity in order to get therefrom the greatest return upon his investment. We, the architects, are interested in brick as simply a unit, one of many used in the expression of our ideas, in the materialization of our designs. In those two basic viewpoints our interests are dissimilar, but immediately thereafter they draw closer together. We want the very best thing we can get, and it is to the manufacturer's interest to come as near supplying that demand as he possibly can. Some would have us believe that there is inborn antagonism there, a sort of distrust of each other, the one ever scolding and demanding something better and the other yielding just as little as he possibly can. This is the wrong view. The closer the architect and the manufacturer get together and train themselves to think with each other, so to speak, the better is it for them both and for the buildings, the art that yields them both not only their bread but the opportunity to develop, to attain eminence.

There were makers of brick at a very remote period in the history of men, perhaps even before there was any need of architects. The monuments of stone and of marble have decayed, have become utter ruins and the story they tell us in their hieroglyphics and pictured carvings are well nigh obliterated, but the work of the potter, the maker of tiles and of bricks, has been preserved to us in almost perfect condition and from far distant times. The buildings may have crumbled on account of the disintegration of the mortar used in the joints of such brickwork, but the clay work itself is intact. See what has been unearthed at Babylon and Nineveh and at Thebes and look at the splendid work in tile and in brick still standing in all its pristine perfection in Persia and Assyria and in India and in the early Christian examples of architecture at Byzantium and the other Roman dependencies. Surely we have precedent enough not only as to how to make brick that will last, but how we may put these brick together in most artistic form in architectural masterpieces.

In ancient times there were rather sharply drawn lines in the use of materials. Geography and geology had much to do with the establishment of these demarcations. In places where stone was found and was easily quarried, stone, of course, was the most used material; in the neighborhood of great forests wood came easiest to the hand of man to be fashioned into habitations and shelters, and then in regions in which neither timber nor stone was plenty man quickly learned to make unto himself a building material from the clay of the soil, molding it with his hands and letting the sun harden it into permanent form or burning it with the straw and refuse of his cultivated fields. In our own time and land the history of brick has been most interesting; its career may be said to have been checkered, but it has succeeded in making a place for itself that is unassailable and most eminently respectable. At first in Colonial times it was a luxury and brought here from the mother country at great cost, and each brick was as precious as a drop of its owner's blood and as carefully guarded. The theft of bricks was a very serious offense indeed and punishable with the severest penalty. Then our fathers began to make brick themselves, rather crude affairs, but, laid up with a wide joint, the effect was quite artistic. Later, for awhile everything had to be of stone. A man must indeed be of common clay if he abided in but a brick house. Stone and marble were the proper caper, and if he couldn't afford them, why he stuccoed his brick and jointed it up in beautiful ashlar, or he built of wood, but it was to imitate stone with joints and everything most painfully copied. In our own times brick was revived; there was a species of Renaissance, but it was only used for sec-

ondary buildings, as we might call them; the really monumental affairs had to be of granite or stone or marble. But those secondary or commercial buildings were of more or less importance, and though we couldn't afford to make them of marble or stone or granite, we craved something better than ordinary brick, and so pressed brick came into vogue. Kilns were carefully picked over and each building presented a most uniform appearance, the bricks all of an exact size, with the narrowest imaginable joint and of precisely the same shade in color—you can still get exactly the same effect by whitewashing or kalsomining a wall surface. It was painfully beautiful. Some thought that galvanized iron and such ornamentation wasn't quite the right thing, and so the brick work was ornamented per se. Bands of black brick were introduced, little spots of other color were injected and dog-tooth effects were everywhere. Then we had molded brick, but the desire was always to get something that looked as nearly like stone as possible. We seemed to realize and properly appreciate that brick was only used as a substitute, something cheaper than what we would like to use, and it was up to us to make it look as much like the real thing as we could.

It has only been within the last ten years that brick has really come into its own and has taken its proper place among the available media architectural. Our architects have found that granite and stone and marble buildings, where at all exposed to fire, have been cruelly spalled and damaged. They realize that in our highly combustible cities pretty nearly every building they erect is exposed to a greater or lesser fire hazard on account of its neighbors, and they have found that brick best withstands fire. It has also dawned upon them that much expression can be obtained with brick, and latterly they have used the material from preference, selecting it regardless of price instead of granite or marble or stone. The old notion of uniformity of color and great exactness as to shape has given way to the saner adaptation of rougher forms and varying tints. It is simply surprising to note the beautiful effects that can be obtained in brickwork today. In a stone building elaboration of ornament and panelings and moldings are necessary or the mass of a building becomes brutally heavy and uninteresting. An architect generally fights shy of much plain wall surface in stone. In brickwork just as great a variation and seeming elaboration can be obtained, plays of light and shadow, and at infinitely less cost than the carvings and moldings in the stonework, and at the same time a plain wall surface is sought for by the artistic designer. If there is no occasion or reason for his diversifying that wall in the flat by diaper work and artistic jointings, the crude plain wall surface itself is most effective and prettier far than an equal surface of any other building material; there are finer gradations of tint in it than in any other material save possibly some of the very expensive foreign marbles, and these latter in large masses weary the eye.

Usually it has been the architect who created the demand for certain kinds or forms of materials, but in the case of artistic brick the manufacturers have taken the initiative and produced the material first and offered it to the architect, much to the latter's pleasant surprise, and it has taxed him to apply that brick in one-half of its possibilities of artistic effect! There is a rather unfortunate tendency toward ultra-specialization in materials. The concrete enthusiast wants his house entirely of concrete. If he could only get it transparent enough, he would have it in his windows; the glass people have had in mind a building entirely of glass, with fittings and furnishings of glass, everything of glass whether it would best suit the purpose or not, and so it goes. I believe in a judicious combination of materials, each one in the place for which it is best suited, therefore am I not clamoring for a brick roof, brick downspouts and brick window sash, but I do believe that there are yet endless, almost unthought of, possibilities in brick construction that for the best interests of architecture, let alone the brick manufacturer, we should seek to develop, to bring forth, to discover or to perfect.

The way to bring a thing about is to make it interesting for those whom we are seeking to interest. That seems to be one of the first principles of life. So, why would it not be a good idea for the brick manufacturers, the clayworking associations, to inaugurate a series of competitions among the architects for artistic effects secured in brick construction? The Brick Builder has done this to a certain degree in its splendid competitions for theaters, libraries and so on entirely of terra-cotta or terra-cotta and brick, but what I'd like to see would be the development of problems in domestic architecture. There is where brick can be used to splendid advantage. The bigger problems will find themselves, so to speak, but the brick house of modest dimensions, as well as that of greater pretensions, is still in embryo. We have done some mighty effective work in that direction, but it is here and there and with wide intervals between. What we ought to have are some competitive designs for narrow front row houses, detached cottages, suburban houses, etc., etc. Designs showing how the decoration and cornices, the "features" of such buildings, can all be brought out in brickwork. In the present order of things there is too great paucity of expression. In our ordinary rows of city houses there is a wall with a bay window at certain intervals and so many holes left for windows. These openings are capped with stone and there is a galvanized iron cornice at the top, and there you are. Our younger architects at least would jump at the chance to show what they can do with so adaptable a material as is brick for just such domestic architecture.

If the brick manufacturers will club together to raise a reasonable amount for a few attractive prizes, I am sure that through the intermediary of the clayworking journals a most interesting series of competitions can be brought about, and with results that will redound to the greater glory of a material whose potentiality has been but half developed, and to the advantage of an art that challenges the best within us. (Applause.)

Secretary Randall: The next is a paper by Mr. John F. Lent, of Pittsburg, Pa., on "Transportation Problems of Importance to Brick Manufacturers." Mr. Lent is present and is ready to present his paper.

TRANSPORTATION PROBLEMS OF IMPORTANCE TO BRICK MANUFACTURERS.

BY JOHN F. LENT, PITTSBURG, PA.

Mr. President and Gentlemen of the Convention:

The transportation subject has come to be recognized as a paramount issue, not only with the public generally, but with our legislators and courts, and we have recently entered upon a new era in this department of our commerce. A brief resume of the progress of steam railways which were initiated among other advances of a peaceful civilization in the early part of the last century, shows an expansion of facilities in this country for transportation, that has made possible the rapid increase in our foreign and domestic trade.

Prior to 1835, transportation had been cumbersome and tedious, and shipping slow and expensive. Capitalists saw the possibilities of large profits from railroad building, and they were aided materially by the people through land grants and unlimited valuable franchises. The facilities of transporting thus encouraged produced prosperous railroads, for which bonds and stocks were freely sold and the investors enriched. Exorbitant freight and passenger rates were charged for the service performed, and in time the need of legislation to control these corporations culminated in the Granger suits, which lasted several years—these suits resulted in the decision that the railroads were public institutions, and could be controlled by the people.

Previous to the year 1886, when the Interstate Commerce Law was passed, the custom to make contracts at special rates to



John H. Lent, Pittsburg, Pa.

attract to the railroad a volume of business was uniformly adopted by the carriers, each line undertaking to build up the revenue under this questionable practice, and transportation was sold for the best rates possible. Improvement in the conditions of the carriers was thought by them necessary, and a system of pooling freight was undertaken by large railroad interests. Competing lines indulged in this distribution under percentage agreements, and the freight produced by the public was juggled with much freedom, and with disregard of the shippers' prerogatives as to the route selected for the movement of their property. With the Elkins Law of 1886, pooling of freight was prohibited, and for a time the carriers exercised caution in the effort to avoid punishment under the many new conditions this law imposed, but they soon fell to their old practice, which took the form of giving rebates and resulted in many ruinous rates, and, in consequence, inefficiency of service. Published tariffs were disregarded, the larger the shipper the greater proportionate refund tendered after the movement was completed. This practice grew to enormous proportions, disrupting market prices, and was as confusing to the public and as distasteful to them as it was ruinous to the railroads.

In 1895 an effort was made to get the railroad systems of the country to agree to maintain tariff schedules, and certain organizations were formed and agreements made by them to that end, and after a period in which millions had been returned in the shape of rebates, the railroads uniformly joined in the effort to adhere to tariff schedules and the rebate practice was soon eliminated entirely, being generally conceded to be unbusiness-like and prejudicial.

Later, certain moneyed interests undertook to get control of the railways of the country, and this was known as the "Community of Interest" plan, which had for its purpose the joint control in the hands of a few, the immense railway systems of the country, but this scheme met its Waterloo in the Northern Securities Case, which was so successfully contested and won by our great statesman, Philander C. Knox, who will, on the 4th of next month, assume the powers of Secretary of State. No more potent influence was necessary to establish the power of the will

of the people, and the railroads were less bold in their combinations and more submissive to the popular demand of the public, which called for greater powers for the Interstate Commerce Commission.

Then came the Hepburn Bill of June, 1906, which so enlarged upon the privileges of this commission as to provide review of complaints of unreasonable rates and regulations, from any shipper, with power to direct a change to a reasonable charge or practice, and which provided penalties for the violation of tariff rates, which has had a salutary effect upon the methods employed in transportation. All interstate business comes directly under the control of this commission, and I believe that the law has been religiously followed by the carriers and shippers, yet it has injected so many ideas and provided so many new principles as to set aside old-established precedents of railroad practice, creating some difficulty both on the part of the railroads and the shippers until a thorough understanding can be had of the prerogatives, which the commission accord to each under their interpretation of the law. Much confusion and complaint has been created, but it is to be hoped that the time is not far distant when the educational advantages of all this agitation will give the shippers the knowledge for the protection of their privileges, and secure for them the receptive attitude of the carriers to which they are justly entitled.

The present law is not all that is to be desired, however, and future legislation to enlarge still further upon the powers of the Interstate Commerce Commission can reasonably be expected at this session of Congress. In their twenty-second annual report, the commission ask specifically to be empowered to restrain an advance in rates or a change in rule or regulation which imposes an additional burden on the shipper, and if this is granted, advance in rates advocated from selfish motives will be curtailed.

At the present time the railroads may proceed to advance rates, and the investigation and adjustment can only be authorized after such advance has been assessed and the injured shipper has filed complaint. The courts have in some instances interfered by



Marion W. Blair, St. Louis, Mo.

injunction to prevent advances, but their jurisdiction is vigorously combated by the railways.

It will be generally conceded that the law has had the effect of increasing the revenues of the carriers, and it has acted as a subterfuge for refusing lower rates that could have consistently been granted, and while many railroad officials have "smarted" under the persistent increase of complaints filed before the commission, they have become resigned to the inevitable, and are showing remarkable spirit of patriotism in the changed attitude of treating with the public.

We do not wish to be classed with the demagogue nor sanction the growing tendency to file complaints against the railroads because of the facilities established at Washington. Many absurd and needless complaints have been filed with the Interstate Commerce Commission, burdening the records and embarrassing the railroads. Each decision brings out a new principle to follow and the peace which is so essential between these two great factors, the shipper and the carriers, has been stifled. I deprecate the growing tendency of litigation in treating with transportation subjects, the giving away to technicalities at the sacrifice of principle, the setting aside of precedents borne of sober thought and long practice, to foster a pet theory. Only the most intimate co-operation along peaceful lines can secure the advantages that are mutual, the development of trade.

To this end what shippers must be accorded is representation at the various conferences of railroad officials when rates and classification are determined upon. A more liberal attitude toward the exchange of argument so that each side may clearly understand the motive of the other, less mystery in the legislation of rates by the carriers and a modification of that discretionary power which has been exercised by railroad officials determining the life or death of an industry. It is gratifying to observe the tendency of the carriers along these lines, and I predict that in the degree the public are taken into their confidence in this respect, will the complaints before the Interstate Commerce Commission be reduced. I contend that the best interests of both are served

if every reasonable effort is exhausted to reconcile differences of opinion before appealing to the commission.

Now let us review for a moment the possibilities of that other means of transportation so sadly neglected in this country and just now getting its proper recognition from the federal government—our waterways. The cheapest transportation is possible by water and the commerce of the country demands access to this method by the improvement of our rivers and harbors. The Panama Canal, with its depth of thirty-five feet, will revolutionize the transportation of freight between the East and the West, and the progress made on the canal is highly commendable, but what of the resources and protection along the basin of the Mississippi and Ohio rivers and territory lying between these rivers and the lakes? What immense advantages to the public would come from this cheap transportation, extending our possible markets. Congress was convinced that \$300,000,000 could be spent for the Panama Canal, and it must be admitted that a like sum appropriated, which would on good authority dig a canal the extent of the Mississippi river, would be more feasible and patriotic, giving efficient and cheap transportation for the marketing of the products of our Middle West and the commerce of the entire country.

The comparative cost is illustrated when we consider that the charge for carrying coal and ore 150 miles by rail is 20 per cent. greater than the charge for carrying the same freight 1,000 miles on the lakes, and 30 per cent. more than transporting on the Mississippi and Ohio rivers 2,000 miles, nor would this improvement of our waterways affect adversely the railroads, as we find our most progressive and best tonnage contributing points to be those centers that have access to water transportation. Population and industry grow where facilities for transportation are the most diversified. The railroads, if relieved of the slow, cheap tonnage that could be moved by vessel, would enjoy the higher rates on merchandise freight. The railroad facilities under normal trade conditions are wholly inadequate to move the business offered with dispatch, and the need of improved waterways is daily increasing.

Now let us reflect on the difficulties that encounter and the economies of transportation in prospect for the brick manufacturer. Probably no commodity has created a greater number of railroad tariffs than brick. From its innumerable producing territories there have been changes of rates to the ever growing markets, and these changes influenced by varying conditions. The fabric of brick rates in this country today contains many inconsistencies, and yet there seems to have been very little concerted action on the part of the shippers to assist in molding the legislation of brick rates and to properly inform the railroads of the trade conditions and competition, which must of necessity be taken into account in arriving at a proper rate. Not until recently has any definite action in this direction been undertaken, and within the past year it will be generally admitted by the railroad officials that there has been more consideration given to the question of brick rates and their proper relation to other commodities than at any previous time. I cherish the hope that this will encourage further efforts toward co-operation between brick manufacturers and the railroads so that each may have an appreciation of the difficulties of the other and jointly work for the development of the industry and the revenue producing tonnage that results.

No checking is more real or more vital than that imposed upon the railroads by commercial competition. No railroad prospers serving unprosperous communities. Producers will not produce and consumers will not consume at localities that are subject to unjust prejudice and disadvantage in the adjustment of rates. Rate making involves many intricacies, but the tonnage produced by brick manufacturers gives us a standing far above most industries, if our claims for low rates are intelligently presented.

Now, the railroads are large consumers of that rival in tonnage, the steel products, it being claimed that 60 per cent. of the steel produced in this country is sold directly or through allied interests to the railroads. Manufacturers of steel have, therefore, a substantial reciprocal in trade for the rates assessed on their product, but the brick manufacturer pays his assessment for transportation, receiving in return comparatively few orders from this magnanimous customer. We will not overlook the fact that this large purchasing power must be encouraged, as a paralyzed steel trade seriously affects the national welfare and is reflected immediately in the demand for brick. We are, therefore, at no disadvantage in presenting our claims for the lowest rates which can be accorded a commodity; untrammelled with the hope of attractive orders, and fortified with every argument in proof of the lowest handling cost; with the added advantage of supplying a commodity universally demanded by the people for the construction of homes and the improvement of the sanitary condition of their municipalities.

Since the building of the Tower of Babel, which we are told was constructed of brick made by the sons of Noah, this commodity has been made and shipped for varied purposes. With the alarming reduction of our forests we are encouraged in the manufacture of building brick; the popular demand for improvement of public roads and the sanitary requirements of populous centers enlarges the demand for paving brick, and the industrial supremacy which will come through the fostering of our great steel industry contemplates increased demand for our furnace or fire brick. What commodity could take a more active part in the commerce of the nation?

That a very general revision of rates on brick can be expected in the near future is a matter of common report. The case of the National Paving Brick Association now pending before the Interstate Commerce Commission, which will determine as to a classification of brick and also establish the basis of rates on east-bound shipments, will doubtless be decided within the next sixty days. Upon the principle this decision sets forth

will all future freight rates on brick be made, and this will necessitate a changing of practically all brick tariffs now in existence. Even with an early decision from the commission, a year or more will be consumed in bringing the tariffs in line, no matter what the decision may be in the case, in consequence of which the immediate future presents much confusion and disturbed rates on brick.

The law requires shippers to rely on the published tariffs and offers no relief from losses due to erroneous quotations made by railroad agents. The inconsistency of this condition of the law is emphasized by the inability to secure the tariffs of interest to the manufacturer. Application for these is bringing too frequently the response that the supply is exhausted, leaving the shipper powerless to determine the rates, except by the impractical method of applying on each occasion to view the copy of tariff on file with the freight agent. This situation confronts not only in the regular tariffs issued but the changes that are made from time to time in the form of supplements. The shipper, therefore, at the present time is ill advised of whether the tariff he has on file bears a current or an antiquated rate, and if he is to be bound by the rates published he should be protected by a measure that will insure the receipt of all tariffs applying from his shipping point.

The railroads are not without defense in this apparent neglect to supply the required information. It must be admitted they have done well, and probably as good under the circumstances as is possible. The law has compelled the issuing of a greater number of tariffs under a uniform system of compilation, that has created enormous expense and seriously congested the work in the various departments having charge of the preparation of tariffs. This has developed inefficiency in the mailing of tariffs and the "supply exhausted" phrase has become suspiciously common. Nevertheless the public is placed at a disadvantage in acquiring the information essential, despite the cause. Many tariffs, although showing the proper basis of rates, are unintelligible to the average shipper and are interpreted with difficulty even by an expert. A greater simplicity in the compiling of these schedules is being urged by the Interstate Commerce Commission, and a movement is also on foot to make all interstate rates subject to a notice of fifty days instead of thirty as at present, and this will materially lessen the number of tariffs and tend toward a greater stability of rates.

The freight rate equalling as much as 75 per cent. of the value of brick makes the transportation cost a vital element in determining the possibilities of marketing, and the margin of profit being so small requires the transportation cost to be computed in advance with much accuracy, so that the legitimate profit may be preserved. Contracts figured on the basis of erroneous rates may lose to the manufacturer a desirable sale or may create a loss for him if he closes a deal at a less rate than authorized, and under the existing conditions he has no redress.

Among other conditions of the shipping which has created a hardship on our shippers has been the car supply. Nothing is more disquieting than to have a good supply of orders and a large stock of brick and no cars or at least a small percentage of cars necessary in which to load. Serious losses have been occasioned from this weakness in the transportation service, and the fair distribution of cars is, without question, one of the most difficult problems with which the carriers have to treat. In times of commercial activity it is a physical impossibility for the railroads to supply all the cars needed, and it is unfortunate that in times of depression their policy does not lead them to the purchase of new equipment and the repair of the disabled cars. The inability to supply the needed equipment argues well for the encouragement of water transportation to thus relieve the rail lines so that the growth of our trade may not be dwarfed to the extent of the facility the railroads afford.

Freight claims, principally overcharges, are encountered, and many of these could be avoided with due diligence on the part of both the carrier and the shipper. They result from errors on the part of both, and with proper checking of the rates at time of shipment could be avoided. I claim the shipper should be as familiar with the proper rate as the railroad agent who prepares the manifest. With the rate inserted in the bill of lading and this document in the hands of the consignee, the agent at destination upon presentation of the bill of lading should prepare correction, should the consignment reach him showing an overcharge. Under such a system of correction to billing the public would not be obliged to contribute funds which bear no interest. Errors will occur because of the volume of business handled, but the correction of these can be made with less annoyance and greater certainty if undertaken at the time of delivery of the property or shortly after. Claims arising from loss or damage are the exception in shipments of brick, but in such instances the common law places the responsibility upon the carrier to deliver goods at destination in the same condition as received, unless prevented by an act of God, or of the public enemy, and no contract can relieve it from liability which is the result of negligence.

The claim departments of the railroads have been the object of much criticism for the time consumed in making alleged investigation of claims, and justly so. Not sufficient attention has been paid to this division of the work, although much improvement is observed recently in accomplishing a settlement of proper claims with little delay. Such adjustments as can only be made through claim accounts will be expedited if the shipper is careful to present the facts accurately, accompanied by the proper documents, viz.: bill of lading and freight receipt. A bona fide claim presented to the proper official of the railroad needs no suggestion of threatened suit for failure to pay. Abundance of time may be consumed in the investigation, but my experience prompts the opinion that legitimate claims can and will be settled by the railroads without resorting to the more tedious and aggravating process of law.

The collection of demurrage is another element of which shippers have complained, this constituting a charge for the use of the equipment after a reasonable time has been allowed for releasing the car at destination. This measure was adopted to expedite the unloading of cars and has generally been conceded to work to the advantage of both the carrier and the public. Without the assessment for demurrage cars have been needlessly delayed when they were required for other loads, and congestion of terminals resulting, has hampered the delivery of freight. Demurrage was unpopular until its merits became thoroughly understood, and the application of rules demonstrated the wisdom of the plan. The collection of this charge on interstate business has been sanctioned by the Interstate Commerce Commission and the conditions requiring its collection form a part of the tariffs that establishes rates for the movement.

The regulation of traffic within a given state, as is generally known, is not subject to the Interstate Commerce Commission, but to a railroad commission, with which most of the states are now provided. The powers of these commissions differ materially, but the regulations imposed and the decisions rendered harmonize well with the various rulings governing interstate shipments.

Thus briefly I have undertaken to show some of the fundamental principles that control our shipping, yet the subject must necessarily be generalized. The thought I would leave with you, however, as being the most productive of good to shippers, is the need of firmly establishing a spirit of co-operation with the carriers.

Under the guiding influences of the Interstate Commerce Commission, we have every reason to expect a liberal display of justice, and I believe any proposition intelligently and fairly presented will secure for us the transportation privileges to which we are entitled, and give the carriers the increased revenue that comes from an enlarged movement. The obstinate and unapproachable railroad official is a character of the past. The changed attitude may not have been voluntary, but is none the less desirable, and should be encouraged. We must intensify our demands and as-



Hervey Haigh, Catskill, N. Y.

sert our privileges with renewed vigor, but tempering our efforts with a consideration for the carriers and the difficulties under which they labor.

Let us advocate needed reforms through organized effort, going hand in hand for the betterment of the transportation regulations, as the railroads by organization have made possible the maintenance of rates and the uniformity of rules. (Applause.)

President Parker: Mr. Lent has given us a very valuable and important paper, and I think we ought to have some discussion on it, even though we have but little time to devote to discussion.

Secretary Randall: I would like to ask Mr. Lent if he wants the resolution given in his paper to be considered as a resolution for our consideration.

Mr. Lent: I really presented that at the request of the committee, as it was the intention to interest this association in the appointment of a committee for that purpose.

Mr. Blair: I would suggest that the matter go to the Committee on Resolutions.

Secretary Randall: We are getting along famously with our program, and Mr. Bleininger, who is next in order, is waiting to give his paper on "The Clay Products Laboratory of the Technological Branch of the United States Geological Survey." Prof. Bleininger is no stranger to us; he has been our representative on many occasions in the past, and today he stands as our representative in the employ of the Government in the Department of the Technological Branch of the Geological Survey at Pittsburg. (Applause.)

Prof. Bleininger: Mr. Chairman and gentlemen of the

convention—I will not take much of your time, for I realize how hard you have all worked and I sympathize with you and know how tired you are.

THE CLAY PRODUCTS LABORATORY OF THE UNITED STATES GEOLOGICAL SURVEY, TECHNOLOGIC BRANCH, AT PITTSBURG, PA.

BY A. V. BLEININGER, PITTSBURG, PA.

Mr. President and Gentlemen of the Convention:

With the constantly increasing importance of clay products as a structural material, and in view of the fact that the government spends about \$40,000,000 annually in construction work, Congress authorized the prosecution of testing work upon all building products made from clay used by the federal government. This step was especially timely owing to the growing scarcity of timber and the enormous fire losses of the country. The federal engineers realize more than ever before the need for more definite knowledge concerning the fire-resisting properties of structural materials. Again, the clay industry has grown to such proportions that its problems deserve careful consideration. In 1907 the value of the clay products manufactured was \$149,697,000.

Since the primary object of the new section is the testing of clay products used by the government, it is evident that the specifications governing the purchase of the various classes of materials must be worked out carefully, so that they are fair to the manufacturer as well as to the government, resulting in the purchase of ware of good quality. In this manner it is intended that the clay products section should test common and pressed brick, paving brick, hollow tiles and conduits, sewer pipe, fire-proofing, terra cotta, enameled bricks and glazed tiles, floor and roofing tiles, fire-brick and all other refractories, electric porcelain insulators and other structural goods submitted for this purpose by the construction bureaus of the government. It is readily seen that the study of the methods of testing these various products requires a



Prof. A. V. Bleininger, Pittsburg, Pa.

great deal of work and detailed attention and this part of the activity of the section must always be pre-eminent. A great number of problems relating to the testing of clay wares might be mentioned. I shall state but a few. What shall constitute the minimum crushing strength of a good common brick? Relation between porosity and crushing strength. Relation between porosity and resistance to freezing. Relation between permeability and resistance to freezing. Relation between density and resistance to sudden heating. Crushing strength of firebrick at high temperature. Heat conductivity of burned clay wares. Can the present rattler test for paving brick be improved? Strength of hollow tile walls, arches and columns. Strength of terra cotta of various shapes. This list could be extended almost indefinitely.

Outside of this definition of the working scope there is a great field open along the line of aiding in solving manufacturing problems, more or less directly connected with the testing of the quality of clay wares for various purposes. In other words, the second part of the duties of the section would consist in assisting the manufacturers to reach the highest possible grade of quality. This again opens up many problems for investigation. There might be mentioned a few questions. What is the best preparation for each class of clays? How can structure defects produced in shaping clays be eliminated? What is the best drying treatment for each class of clays? What is the best heat treatment for each class of clays in burning? How can difficult drying clays be worked successfully? What benefits, if any, are derived in the annealing of paving bricks? Can we improve upon the present methods available for the elimination of whitewash? What is the best structure of refractories for various purposes? And so on ad infinitum.

As a third field of activity the section has in mind the study of the clays of this country with special reference to the deposits found on the public land. Here again an exceedingly great number of tasks remain to be attacked. It is surprising how little we know about clays, a fact which we see borne out every day

by the failure of this or that concern due to the use of unsuitable materials. Since we have today no standard methods for the testing of clays, the matter of the selection of proper clay materials must continue to be an empirical procedure, depending upon individual experience and judgment. Nobody can deny that this is an extremely important subject and should receive proper attention. We must study carefully the co-relation between the chemical and physical character of clays, so that by suitable tests we shall be enabled to tell whether a certain shale will produce paving brick or not. We ought to be able to classify clays as to their plasticity, a thing which we are unable to do at present, although men have handled clay for thousands of years. In this extremely important work of the standardization of clays and allied materials the section desires to co-operate with all who are interested in this subject, so that perhaps general specifications for testing clays may be adopted. Furthermore, it is fully realized by this division of the technologic branch that thorough co-operation with progressive organizations like the National Brick Manufacturers' Association and the American Ceramic Society is of great benefit in furthering the interests of the government as well as those of the clay industries of the country. In fact, it is hoped that this section might become to the ceramic industries what the Department of Agriculture is to the agricultural interests.

The writer hopes that these brief remarks will tend to show you what the object of the clay products section is and what it intends to do. Now, a few words as to the organization of which the section is a part. During the St. Louis exposition some work was begun by the government, under the direction of the United States Geological Survey, on the investigation of the coals of the country.

Somewhat later this work was extended to various other investigations, and among them to the study of concrete. At the present time all of this work is gathered together under the name "Technologic Branch," and it embraces numerous divisions of research.

In the fall of 1908 the various sections were moved to Pittsburg, and through co-operation with the War Department they were enabled to occupy the buildings and grounds of the United States arsenal. In the buildings now available there are housed the divisions of mine accidents and explosives, fuels, lignite briquetting, concrete and stone, and clay products. The mine accident and explosives section deals with the study of mine explosions and is carrying on exceedingly interesting experiments with coal dust in the endeavor to find means of preventing the horrible disasters which afflict the coal mining industry.

Coal dust explosions are caused to take place in a steel cylinder 100 feet long, under conditions which are studied closely. Similarly the ignition of mine gas from electric sparks and other causes are looked into carefully. One of the most interesting features of this section is the use of life-saving apparatus for the rescue of miners, consisting in a fireproof suit and a device which provides oxygen gas diluted sufficiently for breathing. This apparatus has been of considerable use in helping to put out mine fires and in the examination of dangerous mines, especially immediately after an explosion.

For the testing of explosives suitable apparatus has been provided, such as the ballistic pendulum and many instruments. This work has resulted in very important results and has shown that our knowledge of explosives has, up to the present, been quite defective.

The fuel section includes the study of the coals of the country as well as their testing for the purchasing bureaus of the government, the investigation of producer gas both as a source of power and fuel, the testing of kerosene and alcohol engines and the close examination of mechanical stokers, not only for boilers but also for furnaces and kilns. Some exceedingly valuable results are being obtained as regards the use of very low grade coal with as high as 40 per cent. ash in the gas producer. The use of forced draft for producing high temperatures with ordinary slack opens many possibilities for various industrial applications. In the study of the gas producer special attention is being paid to the elimination of the difficulties caused by the deposition of tar as well as the use of the latter for by-products.

In the briquetting section the problem of utilizing the great lignite deposits found in a number of states is studied on a large scale with full-size machinery. Many of these lignites are so friable that they cannot be shipped or handled without disintegration. Hence there remains nothing but to pulverize them and press the powder into bricks by means of a powerful press. The use of binder is avoided by heating the lignite in a cylinder to a temperature sufficiently high to bring out the tar from the material itself, thus reducing the cost of the process greatly. In this way it is hoped that the use of lignite will be promoted, thus making use of one of the large fuel resources of the country which has been neglected up to the present time.

The concrete section is engaged in the study of the various uses of this material with special reference to the study of the various aggregates and the fundamental properties of plain and reinforced beams and columns, work which is being carried on with care and thoroughness.

The clay products section laboratories occupy nine rooms in Building No. 10, which are equipped with grinding pans, screens, ball mill pulverizers, auger machine and cutting table, repress steam and gas-heated dryers, dry press, filter press, brick rattler and all of the apparatus needed for the physical and chemical study of clays. A commodious brick structure with a sixty-foot stack contains the kilns and furnaces which are used for making burning tests. Draft gauges and gas analysis apparatus are provided for controlling the operations. For carrying on crushing, transverse and tensile strength tests the structural materials division has available all of the necessary machines and it has un-

der construction probably the largest testing machine in the world, with a capacity of 10,000,000 pounds. This machine will render possible the carrying on of tests on brick piers up to sixty feet high, and has ample range for all kinds of beam and column work in clay, concrete and structural steel. In addition, apparatus for making freezing and fire-resistance tests and for high temperature work, such as electric furnaces, is provided.

The investigations now being carried on in the clay products laboratories are as follows: Study of the fundamental property of plasticity; relation between the crushing strength and the porosity of burnt clay products; the crushing strength of fire-brick at high temperatures; the resistance of soft mud, stiff mud and dry pressed brick of from high to low porosity to sudden temperature changes; the effect of longer and shorter burning upon the clay ware.

This brief sketch perhaps will indicate that the plant of the technologic branch now being equipped at Pittsburg is intended to do just what other countries have done long ago, namely, to study important technical problems for the benefit of the people on a whole. (Applause.)

(In connection with his paper, Prof. Bleininger showed a number of illustrations by means of a stereopticon of the clay laboratory at Pittsburg, and the various appliances used in same, as well as a number of interior views of the various departments of the survey.)

Mr. Blair: I wish to offer a resolution for the purpose of memorializing Congress in behalf of the appropriation for the Sundry Civil Bill, asking for \$150,000 for the sustenance and maintenance of this geological department. I will prepare the resolution for the purpose of having it referred to the Committee on Resolutions.

Mr. Bleininger: I want to say that if any of you go home by the way of Pittsburg, or if at any time you happen to be in that neighborhood, you will be very welcome at the Technological Department of the United States Geological Survey. The latch string is out, and we will always be glad to see you. (Applause.)

President Parker: This has been a very interesting paper, and we are indebted to Prof. Bleininger for same. Is there any gentleman desiring to discuss it. If not, a motion to adjourn is in order.

On motion of Mr. Geo. M. Berry, the convention adjourned until Friday morning at 10 o'clock.

FOURTH SESSION.

Friday Morning, February 5, 1909.

President Parker: Gentlemen, you will come to order. We are late this morning and must now get down to business. I will ask the Secretary to announce the first order of business.

Secretary Randall: Taking up the program where we left off yesterday afternoon, the first in order this morning is a paper by our worthy President on "Power and Fuel for Clayworking Plants." (Applause.)

FUEL AND POWER FOR CLAYWORKING PLANTS.

BY LEMON PARKER, ST. LOUIS, MO.

Mr. President and Gentlemen of the Convention:

The study and development of special appliances and methods of saving costs is very necessary to a manager or superintendent, and the most enterprising brickmakers are constantly seeking for information in this direction.

To begin the discussion, the digging of clay has advanced from the hand pick and shovel to the steam shovel and other labor-saving appliances; from the transfer by mule cart and barrow to electric and steam haulage, and from older methods of manipulation of clays to the machinery of today, making the raw product into its final form with little hand labor. From this point less general progress has been made.

Extravagant burning methods of old-style kilns, with their wasteful fuel consumption, are still largely employed, and the old slide-valve engine is still a favorite means of developing power.

As to the economical use of fuel in kilns, I am distinctly in favor of the development of the continuous kiln, not necessarily but preferably, along the line of producer gas, and having experimented along that line, I know that the field has much promise.

Some of the continuous kiln plans followed permit of the burning of fuel right in the body of the kiln, with its very objectionable marking and discoloration from contact with ash and cinder. Another plan leads producer gas over a long distance, permitting loss from cooling, endless trouble in starting and liability of sooting up of kilns and gas ducts.

The third and most promising method is that in which the producer gas is made and used right at the kiln, lessening the

liability of trouble from sooting and utilizing more of the initial heat developed in the manufacture of the gas. The objections found are those common to gas producer plants, such as careless firing, too thin beds of coal causing overheating of the generator, or on closing down heat radiation from the body of kiln melting hoppers and bells. Conditions easily remedied and another possible fault an excessive and long continued period of oxidation. I believe this or other methods of fuel saving in kilns will develop into a practical process in the near future.

In any of the foregoing continuous methods of kiln burning the saving is not in the form of the firebox or in the application of heat through burning of fuel gas, but entirely due to use of heat usually allowed to pass out of the stack.

There is another method of heat saving which can be applied to ordinary kilns, that of extracting the heat of a cooling kiln by fans and forcing it through drying tunnels, which seems to find favor amongst some of us, but is this as promising a field as the continuous arrangement, which extracts the heat from the products of combustion to heat up a kiln just starting and at the same time takes the highly heated air from a cooling kiln to furnish the air of combustion?

In one instance the highly heated products of combustion are allowed to escape. In the other case a large per cent. of both heat from products of combustion and cooling are extracted and used.

I admit the first of the above propositions seems to have a wider use today as the problem is simpler, but the continuous proposition appeals strongly to me from its greater economy. I know the heating of drying tunnels from waste heat of some kind is desirable, I may say necessary, but why can't we look to the engine, with its exhaust direct to atmosphere, for this?

In my experience, 200 horse-power of exhaust steam used during working hours will heat 90,000 square feet, or over 2,000,000 cubic feet, and 200 horse-power of live steam at night is more than sufficient in zero weather.

As the exhaust steam used during the ten working hours is



Wm. Conway, Philadelphia, Pa.

naturally charged to power, the extra coal necessary at night is only chargeable to the heating cost, or one-half the expense usual wherever live steam or methods other than from waste heat are employed.

With properly designed continuous kilns using either coal or gas fired furnaces directly in contact with kilns, and kilns so placed that the leads of flues from one kiln to another is by the very shortest and least tortuous route, and of ample capacity, a saving of from 40 to 50 per cent. in fuel should result. Repeating a statement made before, the natural tendency will be toward an oxidizing rather than a reducing condition, possibly not desirable for some kinds of clay ware, and, indeed, herein is one of the weak points of the continuous system. Should the air of combustion not be hot, as it is usually toward the end of a burn, very high temperatures are sometimes hard to maintain. As to the quality of fuel, speaking from experience with ordinary and good grades of soft coal, a medium grade should answer. I do not favor under any circumstances the use of coal with much dirt or inert matter, as the same adds to its weight and has to be removed in clinkering, wasting by carelessness a large per cent. of good fuel, as witnessed by the presence of a great and unknowable quantity of unburnt coal in our ash heaps.

There are a number of factories both in Europe and America which have tried out various systems of kilns, tending toward economy in fuel, and the data obtainable on this subject should be fairly reliable and complete.

I have also heard of economizers built in stacks for the purpose of extracting heat as the gas of combustion leaves the boiler furnace. This might be worthy of consideration as one of the factors tending toward economy. Outside of the above, a somewhat Utopian scheme which hardly appeals to a practical man consists in the suggestion to utilize some of the heat lost in the walls of a kiln through water tubes built therein to generate steam, but it seems to me that a project of this kind, if at all practical, calls for enlarged fireboxes and more fuel to generate extra heat

units necessitated by the rapid absorption of heat in the kiln walls necessary to generate the steam.

Discussing the same problem from the power side of the question under three heads: First, a plant equipped with steam exhausting into the atmosphere and old-fashioned kilns, up or down draft.

Plan A. The simple and economical plan here would be to place a system of exhaust steam pipes throughout the plant, or in drying tunnels as called for by existing conditions, utilizing the exhaust steam in the day and live steam at night, or, better still, if construction of kilns will permit, utilize the hot air from cooling kilns passed through a box containing steam coils and then to buildings or tunnels as desired. During the day the hot air from cooling kilns, meeting the heated steam coils from exhaust of engine, would furnish a large quantity of heat ordinarily allowed to go to waste, and at night only the heated air from kilns plus steam used for fan and electric lights, if any. Objections lie in the use of live steam at night in the one instance, and in the other to the use of power to run the hot air fan day and night, but this is not a serious hindrance, as the power used would not make cost appreciable against the area heated.

The above methods are in use successfully in several places. Of course the heat lost through the kiln stacks by the passage of the unused hot products of combustion must be very large.

Plan B. Combining the above exhaust and live steam heating



L. W. Penfield, Willoughby, Ohio.

with continuous kilns should result in a saving of from 30 to 50 per cent. of fuel used in kilns and permit of heating entire plant where power enough is used, free of all costs, for ten hours in the day, and live steam for fourteen hours at night, or about 40 per cent. saving on the plant heating item, resulting in a saving of 40 per cent. of entire fuel bill for kiln firing and heating. Overcoming this waste of live steam while power is not used, is the problem to be considered, and remains a problem still unless the steam power were used day and night. To this point, therefore, neither proposition A or B is satisfactory; they are only steps in the right direction, the great difficulty being that we have to use heat when it is not possible to get it as a waste from power or other source, except as in case A, which has its drawbacks of loss of products of combustion to stacks.

Plan C. Were the various schemes of fuel gas power satisfactorily carried out on a soft coal basis, we might find a means of some further economy, as it is claimed a large saving results in using explosion engines over that used in converting heat into power through steam. Steam, of course, is an ideal way to furnish both power and heat, but it is too costly if the more direct method of obtaining power from fuel gas were available on a practical basis, and with it a good way of using the waste heat generated by the explosions.

The whole problem lies in the proper use of two by-products called hot products of combustion and the stored heat, usually

allowed to go to waste through our boiler stacks and out of cooling kilns.

My experience on a plant only partially equipped with fuel-saving devices, shows, taking an average for ten years, with drying rooms containing 90,000 square feet, or 2,000,000 cubic feet of cubic area, and 57,000 cubic feet of kiln area and 200 horse-power in power required about one-half of a ton of coal per ton of burnt product. Of course red brick yards might make a much better showing, because they do not need the high burning temperatures required for firebrick, and the power used for manufacturing purposes is very much less. (Applause.)

Vice-President Blair: Is there any discussion on this paper, or if you have any questions you wish to ask Mr. Parker, now is the time.

The Observance of the Law—A Resolution.

L. W. Penfield: Before we get too far into the serious questions we have to consider today, I have a resolution I would like to offer, and I would like to speak about sixty seconds on the resolution. The matter that I wish to bring to the attention of the gentlemen of the convention this morning is one in which we are all, as manufacturers, intensely interested. It is the decision recently handed down by Justice Wright in the Federal Court of the District of Columbia in the case brought against Samuel Gompers, William Morrison and John Mitchell for contempt of court, growing out of the case of the Buck Stove and Range Company against the American Federation of Labor. I think that decision is one that ought to receive the thoughtful attention of every business organization in the country, and especially every association of manufacturers. It is of more than ordinary significance. You are doubtless all familiar in some degree with the facts of the case, so I will not attempt to rehearse it. Gompers and his associates were enjoined from interfering with the Buck Stove and Range Company. They decided to disregard this injunction of the Supreme Court of the United States, and willfully and determinedly set themselves to disregard it. They were brought before Justice Wright under charges of contempt. Any of you who have read the proceedings in the daily press and the decision as set down by Justice Wright, must certainly recognize that he could not give any other decision and follow the law. Gompers and his associates are engaged in a great campaign of education directed at at least 2,000,000 members of the organization he leads, and he is wrong. If he were right, we could only commend him for the persistence and determination to declare himself before his followers, but we never could commend him for resisting the order of the court. I believe it is our duty as business men to go on record as favoring the decision of Justice Wright, and it is with that in view that I have prepared this brief resolution. Mr. President, I submit the following resolution and move its adoption:

Whereas, Justice Wright of the Federal Court has recently rendered a decision in which it was held that Messrs. Gompers, Morrison and Mitchell were adjudged to have violated an order heretofore issued by the court, and

Whereas, Certain labor organizations and so-called unions have seen fit to condemn said judge and to condemn unflinchingly the decision so rendered, and have by their resolutions, speeches, etc., undertaken to bring into ridicule, contempt and disrespect the law as represented by the courts of justice; be it therefore

Resolved, That such conduct and such threats and such resolutions are deemed by this association to be uncalled for, unpatriotic and anarchistic, and should be condemned by every patriot and lover of his country; therefore, be it further

Resolved, That such conduct deserves the severest condemnation on the one hand, and the courts and tribunals of the law deserve and will have our unreserved support in any and every contingency.

Mr. Ittner: I want to second Mr. Penfield's motion for the adoption of the resolution, and, at the same time, move that the rules be suspended for the action on this resolution, and if you will listen to me a moment, I will try to give reason for the faith that is within me and my purpose in desiring to have this resolution adopted now, without going to the Committee on Resolutions.

Vice-President Blair, in the chair; Not so fast, Mr.

Ittner. Let us proceed exactly along the rules. We can not consider this resolution unless we suspend the rules, and your motion for suspension of rules has not been seconded.

Mr. Bloomfield: I second Mr. Ittner's motion for suspension of rules.

Motion carried.

After considerable discussion the resolution was finally passed to the Committee on Resolutions, on motion of Mr. Will Purington.

Secretary Randall: This brings us to the Questions for General Discussion on yesterday afternoon's program, and I think it would be well to skip these questions now and take them up later with the questions on today's program. The next paper is one by Mr. W. S. Ravenscroft, of Ridgeway, Pa., an old-time member, who is not able to be here, but he has sent his paper.

INNOVATIONS IN THE CLAY FIELD; DO THEY TEND TO THE MATERIAL BENEFIT OF THE MANUFACTURER?

BY W. S. RAVENSCROFT.

Mr. President and Gentlemen of the Convention:

I have been requested to write upon a subject which I feel thoroughly incompetent to discuss in a manner interesting to the many brilliant members of the association, and I know, as do these members, how awfully they are bored at times by being compelled to listen to maiden efforts of beginners in clay-working; and I also know how the same maiden effort is looked forward to, as it shall appear in print with our name in large type, as its author, in the official report and the various trade journals. How, as we show it to our wives and friends with a wholesome pride, the wives will read it (if one has them well in hand), and the friends, if friends indeed, accept a copy for the pigeon-hole, well knowing that it could not be other than high-class.

We have listened to discussions as to "How I Set Brick," "My Manner of Using Fuel So that the Consumption Is Reduced 95.04 Per Cent," "How I Have Produced a Sky-Blue Pink Shade, Not Consecutively, But It Can Be Done."

We have listened to arguments from members on the floor of the convention who were hard to get on their feet, but once on them it became necessary to asphyxiate them to cause them to assume a sitting posture.

We have seen the man with samples of his product—beautiful works of art—(his factory is miles and miles away) and he brought these evidences just as he happened upon them, "kiln run."

We have seen the "old-timer," one of the original "firsts," blase and in some instances retired; in other cases, "a never was."

Last, but not least, we have seen the Secretary, to whose untiring energy, ability, tact and generalship is largely due the excellent condition and possibly the existence of this association. God bless him, *the best fellow ever*, whether it is pushing a convention or holding onto a rope.

With all these passing in review, having accomplished the maiden effort ourselves and having survived it, by closing our ears, as we advise others similarly situated to do, it is not to be wondered at that we feel constrained to remain with the quiet mass—the laymen who say nothing, look wise, listen, sleep, fumigate or irrigate, as the taste may incline.

With the quiet mass who know more than their impassive features imply, and who, when they know a good thing, an economy, do not rush to print or pulpit to proclaim to competitors, new discoveries, processes or plans.

It is the quiet man, the receptive man, who profits at these conventions, not the brilliant orator, nor the bright and shining light whose incandescence dazzles you for the time.

The question briefly is: "Do innovations pay?" Answer, "Yes and No." Yes, if adopted with judgment. In other words, if you know what you want when you want it; if you don't, you had better stick to the old plan. I might name many instances, but I shall touch just a few.

If you have a plant and have had unsatisfactory results, have lost money and can not say for a certainty why, *get a brickmaker*, one who can tell you why; they are not found everywhere. Don't accept a man who tells you before he sees your proposition what the trouble is. Nine times out of ten he wants a job, and after he leaves you, you will be a poorer, though I will admit, a wiser man. The getting of a brickmaker on many plants is an *innovation* that is *often overlooked*. If you *are* a brickmaker, but not a business man, lose no time in employing such talent; they are not indigenous to brickyards.

Incidentally, a salesman is sometimes needed, though a fine product *seldom grows moldy*.

Economy in the treatment of clays, in the handling and in mechanical appliances, should always receive consideration. It *often costs money to know it all*; it is well to be "from Missouri," but once *shown* and *satisfied*, adopt. Thus you are abreast of the best, and will go under the wire a good length ahead of the general entry.

Do innovations tend to the material benefit of manufacturers? Viewpoints are at different angles. You should judge.

Respectfully submitted,

W. S. RAVENSCROFT.

(Applause.)

President Parker: If there is no discussion of this paper, we will pass on to the next, a paper on the "Strength of Brick," by Lieut. J. E. Howard, of Watertown, Mass., who has favored us in a similar way at previous conventions. (Applause.)

Lieut. J. E. Howard, Watertown, Mass.: Mr. President and gentlemen of the convention—With your permission, I will read by title a short paper on "Some Notes on Brick and other Strong Materials," which you will perhaps peruse with some interest when it appears in print.

STRENGTH OF BRICK.

BY J. E. HOWARD, WATERTOWN, MASS.

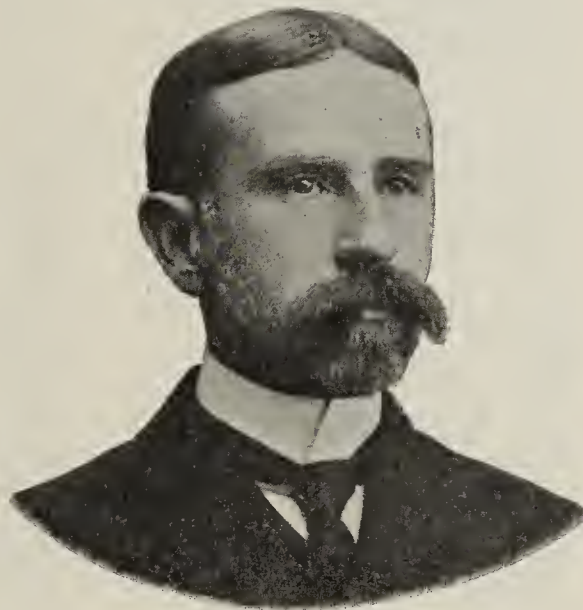
A FEW NOTES ON BRICK AND OTHER STRONG MATERIALS OF CONSTRUCTION.

Mr. President and Gentlemen of the Convention:

Brick occupy a prominent place among the strong and reliable constructive materials of the world. The confidence and feeling of security which rests in this product is reflected in the specifications governing the use and acceptance of brick. While elaborate specifications have been framed pertaining to many other classes of constructive material, brick have been singularly exempt from restrictive limitations. In so many directions are the excellent properties of brick clearly made evident that little has been said in a mandatory way as to what a brick must be.

In no other material is the product under so great control and at the command of the manufacturer as burnt clay.

Greater or less strength may be imparted, the density and elastic properties changed at will, all within limits of course,



W. S. Ravenscroft, Ridgeway, Pa.

while as to artistic results through modifications in color and texture of surface, brick pre-eminently occupy a unique position.

Constructive art may not yet have reached that state where the more delicate and distinctive properties are availed of, yet they exist, and if perchance the art of brickmaking is in advance of the practical uses of the product, as it seems, then the possession of these reserve properties is a cause for congratulation.

As to the compressive strength of brick, great possibilities have been shown in many instances. It is recognized, nevertheless, that the possession of great strength is not always required, perhaps in only a few cases is it imperatively needed, some of the other features previously alluded to exerting a dominating influence in the use of the material.

Some maximum values will be presented on the compressive strengths of different kinds of material:

Kind of Material.	Compressive Strength. Pounds per sq. inch.
Mild steel	85,000
Glass, rough plate	51,770
	77,700
Glass, polished plate	45,000
	84,000
Tiles (American Encaustic Co.)	81,264
Granite, Salisbury, N. C.	51,990
Granular quartz, Swanton, Vt.	50,848
Marble, Friedman, Arizona	more than 50,000
Shale brick, St. Louis	38,446
Portland cement, set under high pressure	21,000
Portland cement, set without initial pressure	9,000

It must not be expected that these values will be often met in constructive materials; they represent only the very highest strengths which have been exhibited in the range of testing, which has been done at the Watertown laboratory, covering a period of twenty-eight years.

The strength of mild steel refers to a period of continuous

flow which has been found to take place under a constant load of 85,000 pounds per square inch.

The Portland cement of 21,000 pounds strength was set under an initial pressure of about 15,000 pounds per square inch, the material being confined in a steel cylinder at the time. When set in the ordinary way, a crushing strength of 9,000 pounds per square inch is a high value.

The tile which showed a crushing strength of 61,264 pounds per square inch was 6 inches square by 58 inches thick, and was tested on edge. The total load sustained by this tile was 213,200 pounds. At the time of rupture it burst into a myriad of fragments.

This manner of failure also characterized the plate glass specimens of highest strength, as well as some of the stones.

The shale brick was made in St. Louis, and seems to have

been a regular product. Probably its phenomenal resistance was not suspected by the manufacturers, although its high degree of excellence could not have escaped notice. Brick of 25,000 pounds per square inch crushing strength have been tested on a number of occasions, but so far as known, the St. Louis shale brick represents the highest strength yet attained.

SOME ABSORPTION TESTS OF BRICK.

For a number of years past it has been customary at Watertown in reporting tests of brick to state the amount of absorption, both by volume and by weight, the period of immersion being one week.

The difference in specific gravity of water and of burnt clay is such that a statement of the absorption taken by weight does not adequately express the actual voids which are in the brick,

TABLE NO. 1.

TESTS OF BRICK. RATE OF ABSORPTION. TAKEN BY VOLUME. BRICK INITIALLY DRIED.

Manufacturer.	Kind.	Color.	Absorption, per cent., by volume, after interval of immersion of				Absorption after 1 week's immersion followed by 4 hours' boiling.	
			1 Minute.	1 Hour.	1 Day.	1 Week.		
			%	%	%	%		
Illinois Brick Co.....	Common	Brown	....	5.7	8.6	12.1	16.4	
Hydraulic Press Brick Co.....	Face	D'rk Red	18.6	....	20.8	21.3	24.6	
Hydraulic Press Brick Co.....	Face	Gray	8.4	....	10.8	12.0	15.5	
Hydraulic Press Brick Co.....	Face	Buff 58	9.7	....	13.2	14.3	17.7	
Hydraulic Press Brick Co.....	Face	Buff 79	7.5	....	11.5	12.7	15.	
Barr Clay Co.....	Paver	Brown	....	....	.8	1.9	4.5	
Barr Clay Co.....	Paver	Brown	....	....	....	1.7	2.2	
Fernwood Lumber Co.....	Common	Brown	18.3	....	18.8	20.4	28.2	
Townsend Brick and Contracting Co.	Paver	Lt. Brown	....	2.0	4.4	7.1	10.3	
Shawmut Mining Co.....	Paver	Lt. Brown	.8	....	2.8	6.	8.9	
Coffeyville Vit. Brick and Tile Co...	Face	Lt. Red.	19.	25.6	27.0	27.5	30.	
Coffeyville Vit. Brick and Tile Co...	Face	Med. Red	18.8	23.6	24.6	25.6	27.5	
Coffeyville Vit. Brick and Tile Co...	Face	D'rk Red	3.8	12.8	16.5	17.9	21.2	
Canton Pressed Brick Co.....	Face	Buff	8.7	....	13.3	13.3	15.8	
Canton Pressed Brick Co.....	Face	Col. Red	7.2	....	13.2	13.8	16.8	
Coffeyville Vit. Brick and Tile Co...	Paver	D'rk Red	....	....	....	1.9	3.7	
Coffeyville Vit. Brick and Tile Co...	Paver	D'rk Red	....	....	....	1.3	3.9	
Tuna Valley Pressed Brick Co.....	Face	D'rk Red	12.1	....	12.7	13.3	16.9	
Tuna Valley Pressed Brick Co.....	Face	D'rk Red	15.3	....	18.1	19.2	21.4	
Jewettville Press'd and Pav. Br'k Co.	Face	D'rk Red	1.2	2.9	7.5	8.7	10.4	
Jewettville Press'd and Pav. Br'k Co.	Face	D'rk Red	....	....	2.9	5.9	7.6	
Texarkana Brick Co.....	Face	Med. Red	12.5	....	15.5	15.5	17.9	
Texarkana Brick Co.....	Face	Lt. Red	11.8	....	16.8	17.4	19.1	
Texarkana Brick Co.....	Face	Salmon	20.1	28.	29.6	30.1	31.7	
Denny-Renton Clay and Coal Co....	Face	Buff	20.7	....	22.7	24.7	27.8	
Denny-Renton Clay and Coal Co....	Face	Gray	20.1	....	22.1	23.7	27.3	
Denny-Renton Clay and Coal Co....	Face	Red	11.9	....	14.5	15.	18.1	
Denny-Renton Clay and Coal Co....	Paver	D'rk Red	....	....	3.1	4.1	5.7	
Western Brick Co.....	Common	D'rk Red	1.3	....	....	4.6	6.6	
Brick, Terra Cotta and Tile Co....	Paver	D'rk Red	....	....	1.5	2.6	7.2	
New York Brick and Paving Co....	Paver	D'rk Red	....	....	....	.7	1.4	
New York Brick and Paving Co....	Paver	D'rk Red	....	....	....	2.2	3.5	
New York Brick and Paving Co....	Paver	D'rk Red	....	....	....	.3	.9	
New England Brick Co.....	Common	D'rk Red	....	....	....	4.4	5.9	
Townsend Brick and Contracting Co.	Paver	D'rk Red (From top of kiln)	....	....	5.5	8.2	11.3	
Townsend Brick and Contracting Co.	Paver	D'rk Red (From bott'm of kiln)	....	....	2.7	8.0	10.6	
Sand-Lime	Face	White	....	7.1	19.9	22.4	22.9	
Star	Fire Br'k	Buff	17.4	....	18.3	19.2	25.1	
Mt. Savage	Fire Br'k	Buff	15.8	....	17.2	18.5	24.9	
Beech Creek	Fire Br'k	Buff	12.3	....	13.2	14.2	18.4	
Clearfield	Fire Br'k	Buff	....	....	10.4	11.3	17.2	

TABLE NO. 2.

TESTS OF BRICK. SPECIFIC GRAVITIES AND WEIGHTS PER CUBIC FOOT. SPECIFIC GRAVITY DETERMINATIONS MADE WITH GROUND MATERIAL.

Manufacturer.	Kind.	Specific Gravity.	Weight per cubic foot, based on Specific Gravity.	Actual weight per cubic foot of brick entire.	Computed weight, based on actual weight and total absorption.
			Lbs.	Lbs.	Lbs.
Illinois Brick Co.....	Common	2.75	171.6	122.2	146.2
Hydraulic Press Brick Co.....	Face	2.60	162.2	120.3	159.5
Hydraulic Press Brick Co.....	Face	2.54	158.5	123.3	149.8
Hydraulic Press Brick Co.....	Face	2.52	157.2	129.2	152.0
Hydraulic Press Brick Co.....	Face	2.54	158.5	129.3	153.0
Coffeyville Vit. Brick & Tile Co.....	Face	2.71	169.1	111.5	159.3
Coffeyville Vit. Brick & Tile Co.....	Face	2.67	166.6	112.4	155.0
Coffeyville Vit. Brick & Tile Co.....	Paver	2.69	167.9	119.8	152.0
Coffeyville Vit. Brick & Tile Co.....	Paver	2.62	163.5	145.4	151.0
Coffeyville Vit. Brick & Tile Co.....	Paver	2.63	164.1	144.9	150.8
Canton Pressed Brick Co.....	Face	2.62	163.3	132.0	156.8
Canton Pressed Brick Co.....	Face	2.72	169.7	135.4	162.7
Barr Clay Co.....	Paver	2.63	164.1	140.0	143.3
Barr Clay Co.....	Paver	2.64	164.7	139.8	146.4
Fernwood Lumber Co.....	Common	2.42	151.0	100.0	139.3
Townsend Brick and Cont. Co.....	Paver	2.70	168.5	139.6	155.6
Townsend Brick and Cont. Co.....	Paver	2.72	169.7	136.4	153.8
Townsend Brick and Cont. Co.....	Paver	2.70	168.5	135.6	151.7
Shawmut Mining Co.....	Paver	2.67	166.6	137.7	151.2
Tuna Valley Pressed Brick Co.....	Face	2.70	168.5	127.6	162.3
Tuna Valley Pressed Brick Co.....	Face	2.69	167.9	135.8	163.4
Jewettville Press & Pav. Brick Co....	Face	2.68	167.2	139.9	156.1
Jewettville Press & Pav. Brick Co....	Face	2.67	166.6	142.6	154.3
Texarkana Brick Co.....	Face	2.59	161.6	129.8	159.0
Texarkana Brick Co.....	Face	2.61	162.9	127.5	157.6
Texarkana Brick Co.....	Face	2.61	162.9	111.1	162.7
Denny-Renton Clay & Coal Co.....	Face	2.64	164.7	130.5	159.3
Denny-Renton Clay & Coal Co.....	Face	2.57	161.4	112.3	154.5
Denny-Renton Clay & Coal Co.....	Face	2.53	157.9	110.0	152.4
Denny-Renton Clay & Coal Co.....	Face	2.62	163.5	143.4	152.1
Western Brick Co.....	Common	2.69	167.9	143.0	153.1
New York Brick & Pav. Co.....	Paver	2.66	166.0	138.6	140.6
New York Brick & Pav. Co.....	Paver	2.62	163.5	148.3	153.7
New York Brick & Pav. Co.....	Paver	2.65	165.4	140.2	141.5
New England Brick Co.....	Common	2.63	164.1	144.4	153.5
Simons Brick Co., Laguna.....	Common	2.68	167.2	115.5	154.4
Sand Lime	Face	2.54	158.5	119.9	155.5

therefore figures which state the absorption taken by volume are given the preference.

It has been realized, however, that simple immersion of the brick, even for a protracted period of time, is not calculated to yield entirely satisfactory results, the absorption in most cases being underrated. Although the results obtained in this way approach more closely to the truth in the case of salmon than in cases of harder burnt and denser brick. More water will be taken up by most brick, at the end of a week's immersion, if they are then boiled for a few hours, but even this treatment does not always result in the complete saturation of the material.

Taking the specific gravity of the ground brick as a basis of comparison, the voids are greater than indicated by the method of immersion followed by boiling, excepting the case of very porous and underburnt material as previously mentioned. In hard and light hard building brick, and particularly with paving brick, it is impracticable to get the water into all of the interior voids, and this results in accrediting the material with a lesser volume of voids than actually exist. Since the method of determining the voids by comparison of the specific gravity of the ground material with the weight per cubic foot of the intact brick shows higher absorption values than shown by other methods, this performance is regarded as the more satisfactory one. Obviously, it is not to be expected that more voids will be found, according to any method, than actually exist.

The tabulated results herewith were obtained on material contributed by members of the National Brick Manufacturers' Association.

Table No. 1 shows the progressive rate of absorption, observed

one week, also the increased amount of absorption which took place upon finally boiling the brick a period of four hours.

The less dense brick absorbed in the early stages of immersion the principal part of the total amount of water ultimately taken up, while the denser brick absorbed, in comparison, more water during the later stages of immersion.

Table No. 2 was prepared to show the specific gravities of the material and weights per cubic foot based upon different premises. The specific gravities of the ground material were determined by the use of a Schumann Volumeter in which the volume of the ground material is indicated by the displacement of an equivalent volume of benzine in the flask.

The weights based on the specific gravity of the ground material were obtained by multiplying the specific gravity by 62.4, the weight in pounds per cubic foot of water. One column is the equivalent of the other, therefore, merely stating the results in different units. These figures, however, show the greatest weight per cubic foot which now seems attainable in brick, the range being from 151 to 171.6 pounds per cubic foot. The actual weights of the brick were found to range from 100 to 148.3 pounds per cubic foot. This minimum weight seems very low, but there were several instances of weights of about 110 pounds per cubic foot.

The last column of the table shows what weights would have been found had such of the voids as were determined by the absorption tests not existed. The figures in this column were derived by dividing the actual weight of the brick by 100 less the percentage of absorption and taking the quotient 100 times. Provided the voids were completely filled in the absorption tests, this last column of weights would be identical with the weights based

TABLE NO. 3.
TESTS OF BRICK. ABSORPTION BY IMMERSION, AND AFTER IMMERSION AND BOILING.

Manufacturer.	Kind.	Absorption after immersion one week.		Absorption after immersion 1 wk., followed by boiling one hour.		Computed value for absorption, based on sp. gr. of material and actual wt. of brick.		Difference.
		By Wt. %	By Vol. %	By Wt. %	By Vol. %	By Wt. %	By Vol. %	
Illinois Brick Co.....	Common	6.7	12.1	16.4	28.8	28.8	12.4	
Hydraulic Press Brick Co.....	Face	11.1	21.3	24.6	25.8	25.8	1.2	
Hydraulic Press Brick Co.....	Face	7.3	14.3	17.7	22.2	22.2	4.5	
Hydraulic Press Brick Co.....	Face	6.1	12.7	15.0	17.8	17.8	2.8	
Hydraulic Press Brick Co.....	Face	5.8	12.0	15.5	18.4	18.4	2.9	
Coffeyville Vit. Brick and Tile Co....	Face	19.9	27.5	30.0	34.1	34.1	4.1	
Coffeyville Vit. Brick and Tile Co....	Face	14.2	25.6	27.5	32.5	32.5	5.0	
Coffeyville Vit. Brick & Tile Co.....	Paver	9.3	12.9	21.2	28.6	28.6	7.4	
Coffeyville Vit. Brick & Tile Co.....	Paver	.8	1.9	3.7	11.1	11.1	7.4	
Coffeyville Vit. Brick & Tile Co.....	Paver	.6	1.3	3.9	11.7	11.7	7.8	
Canton Pressed Brick Co.....	Face	6.3	13.3	15.8	19.2	19.2	3.4	
Canton Pressed Brick Co.....	Face	6.4	13.8	16.8	20.2	20.2	3.4	
Barr Clay Co.....	Paver	.8	1.7	2.3	14.7	14.7	12.4	
Barr Clay Co.....	Paver	.8	1.9	4.5	15.1	15.1	10.6	
Fernwood Lumber Co.....	Common	12.7	20.4	28.2	33.8	33.8	5.6	
Townsend Brick & Cont. Co.....	Paver	3.5	7.1	10.3	17.1	17.1	6.8	
Townsend Brick & Cont. Co.....	Paver	3.7	8.2	11.3	19.6	19.6	8.3	
Townsend Brick & Cont. Co.....	Paver	3.7	8.0	10.6	19.5	19.5	8.9	
Shawmut Mining Co.....	Paver	2.7	6.0	8.9	17.3	17.3	8.4	
Tuna Valley Press Brick Co.....	Face	9.4	19.2	21.4	24.3	24.3	2.9	
Tuna Valley Press Brick Co.....	Face	5.8	13.3	16.9	19.1	19.1	2.2	
Jewettville Press & Pav. Brick Co.....	Face	3.9	8.7	10.4	16.3	16.3	5.9	
Jewettville Press & Pav. Brick Co.....	Face	2.6	5.9	7.6	14.4	14.4	6.8	
Texarkana Brick Co.....	Face	7.5	15.5	17.9	19.7	19.7	1.8	
Texarkana Brick Co.....	Face	8.5	17.4	19.1	21.7	21.7	2.6	
Texarkana Brick Co.....	Face	16.9	30.1	31.7	31.8	31.8	.1	
Denny-Renton Clay & Coal Co.....	Face	7.2	15.0	18.1	20.8	20.8	2.7	
Denny-Renton Clay & Coal Co.....	Face	13.2	23.7	27.3	30.0	30.0	2.7	
Denny-Renton Clay & Coal Co.....	Face	14.0	24.7	27.8	30.3	30.3	2.5	
Denny-Renton Clay & Coal Co.....	Face	1.8	4.1	5.7	12.3	12.3	6.6	
Western Brick Co.....	Common	2.0	4.6	6.6	14.8	14.8	8.2	
New York Brick & Pav. Co.....	Paver	.3	.7	1.4	16.5	16.5	15.1	
New York Brick & Pav. Co.....	Paver	.9	2.2	3.5	9.3	9.3	5.8	
New York Brick & Pav. Co.....	Paver	.1	.3	.9	15.2	15.2	14.3	
New England Brick Co.....	Common	1.9	4.4	5.9	12.0	12.0	6.1	
Simons Brick Co.....	Common	10.4	19.2	25.2	30.9	30.9	5.7	
Sand Lime	Face	11.5	22.4	22.9	24.4	24.4	1.5	

TABLE NO. 4.
TESTS OF BRICK. WEIGHT PER CUBIC FOOT, ABSORPTION AFTER ONE WEEK'S IMMERSION FOLLOWED BY BOILING FOUR HOURS, COMPRESSIVE STRENGTH AND MODULUS OF ELASTICITY.

Manufacturer.	Kind.	Wt. per cu. ft. Total Absorption.		Compressive Modulus of Elasticity.	
		Lbs. brick entire.	% By Volume.	Lbs. per sq. in. between loads of 1,000-3,000.	Lbs. per sq. in. between loads of 1,000-3,000.
Hydraulic Press Brick Co.....	Face	120.3	24.6	4,268	1,081,000
Hydraulic Press Brick Co.....	Face	123.3	17.7	8,536	1,786,000
Hydraulic Press Brick Co.....	Face	129.2	15.0	13,506	2,778,000
Hydraulic Press Brick Co.....	Face	129.3	15.5	13,470	2,439,000
Coffeyville Vit. Brick & Tile Co.....	Face	111.5	30.0	2,253	*833,300
Coffeyville Vit. Brick & Tile Co.....	Face	112.4	27.5	6,046	2,632,000
Coffeyville Vit. Brick & Tile Co.....	Paver	119.8	21.2	8,828	5,263,000
Coffeyville Vit. Brick & Tile Co.....	Paver	144.9	3.9	18,745	6,667,000
Canton Pressed Brick Co.....	Face	132.0	15.8	7,816	1,852,000
Canton Pressed Brick Co.....	Face	135.4	16.8	11,314	†3,704,000
Townsend Brick & Cont. Co.....	Paver	139.6	10.3	15,385	7,692,000
Tuna Valley Press Brick Co.....	Face	127.6	21.4	7,820	2,494,000
Tuna Valley Press Brick Co.....	Face	135.8	16.9	14,186	‡5,556,000
Jewettville Press & Pav. Brick Co.....	Face	139.9	10.4	23,760	6,250,000
Jewettville Press & Pav. Brick Co.....	Face	142.6	7.6	25,302	7,692,000
Texarkana Brick Co.....	Face	129.8	17.9	8,889	3,448,000
Texarkana Brick Co.....	Face	127.5	19.1	5,164	1,563,000
Texarkana Brick Co.....	Face	111.1	31.7	1,754	\$342,500

*Modulus of Elasticity taken between loads of 1,000-2,000.

†Modulus of Elasticity taken between loads of 1,500-3,500.

‡Modulus of Elasticity taken between loads of 1,500-3,500.

§Modulus of Elasticity taken between loads of 500-1,000.

upon the specific gravity determinations, but since these corrected weights are all smaller, it shows the brick were not completely saturated, even after a week's immersion, followed by four hours' boiling. The figures are practically identical, however, in one instance, that of the Texarcana Salmon brick. Many of the pavers and hard brick are noticeably low in corrected weight, indicating that many voids were not reached during immersion.

These results are taken to mean that current methods can hardly be accepted as reliably indicating the real values in absorption tests.

The matter will be presented in a little different manner in the next table, No. 3, but arriving at the same ultimate result.

Table No. 3, in the first column of figures, shows the absorption taken by weight, the manner in which results are frequently reported. Next follows a column stating the absorption by volume. Each of these columns represents the absorption after a period of immersion of one week. The additional absorption resulting from boiling the brick is included in the figures of the next succeeding column, here showing the total absorption which it is thought practical to obtain.

As previously stated, these results fall short of correctly stating the real volume of the voids in the brick. Were the voids completely filled, in accordance with the evidence of the specific gravity determinations, the absorption values would be considerably greater, corresponding to the figures in the next column of this table.

It may be remarked that the computed values here given, representing the maximum absorption of the brick, are strikingly different from those which ordinarily are presented. These computed values are derived by dividing the actual weights of the brick by the weights based upon the specific gravity of the material which gives the per cent. of solid material, the differences between the amount of solid material and 100 representing the voids or absorption values. The differences are seen to be greatest among the hard burnt and the paving brick.



W. D. Richardson, Columbus, Ohio.

According to these figures, the absorption is generally under-rated in amounts from, say, 2 to 8 per cent., with occasional examples reaching as high as 12 to 15 per cent. There are paving brick in the table which would be reported as showing less than 1 per cent. absorption when taken by weight, but which, according to the method of basing the voids upon the specific gravity of the material, would have an absorption, when taken by volume, of more than 15 per cent. Results such as these would indicate that the exterior portions of the brick were nearly impervious to water and masked interior voids.

Table No. 4 shows the compressive strengths and moduli of elasticity of a number of brick, together with their weights and absorption.

The highest values of three of these features are found in the same brick in conjunction with the lowest values for absorption. A hard burnt brick of uniform structure will have a low absorption, but will be a heavy brick, have a high compressive strength and comparatively very rigid, that is, possessing a high modulus of elasticity. On the other hand, high values for absorption are associated with low compressive strength, low modulus of elasticity, and, of course, lightness in weight.

The specific gravities of three samples of clay were found to be as follows:

	Specific gravities.	Corresponding weights per cubic foot.
New Jersey fire clay.....	2.69	167.8
Dover (N. H.) clay.....	2.77	172.8
Kittanning clay.....	2.74	171

The specific gravity of these samples is above the average value for the burnt material. The relation between the specific gravity of the unburnt and the burnt clay would be shown by tests not comprised in the series here reported. As to the degree of burning affecting the specific gravity of the material, the average

specific gravity of five samples, each from the hard burnt and the softer burnt ends of the same brick, showed the material of the hard ends slightly less dense than that of the softer ends.

It must be recognized that the relative density of the material is a different matter from the relative density of a brick. The material appears slightly more dense in a soft burnt brick than in a hard burnt one of the same clay, although the relative densities of the two bricks themselves would be just the reverse, that is, while the soft burnt material is more dense, the brick itself is far less dense than the hard burnt one.

The determinations on which these last remarks are based are, however, too few in number to regard these inferences as being final.

The experimental data were as follows:

Samples from the New England Brick Company.

Specific gravities of opposite ends of the same bricks.

	Hard Burnt End.	Soft Burnt End.
Hardest burnt	2.63	2.71
	2.65	2.67
	2.65	2.67
	2.66	2.72
Least hard burnt	2.66	2.67
Means	2.65	2.69

In conclusion, it would seem desirable to consider some modified method for the determination of the absorption of brick over current practices, provided these experimental results are found to have reliably indicated the real absorption which should be credited the material.

General Discussion.

President Parker: I would like to hear from Prof. Orton in the discussion of this paper.

Prof. Edward Orton: Mr. Chairman and gentlemen of the convention—I have been greatly interested in the collection of data shown by Maj. Howard. It seems to me that it illustrates very clearly some facts as to the internal structure of clay wares, that have been approached in a somewhat different way by those of us who are studying the manufacture of clay products, rather than the clay products themselves. Maj. Howard has been approaching this problem from the standpoint of a study of the material itself, and without consideration of the causes which produce it. He selects his samples from all sorts of materials which are brought to him, and makes an absolutely impartial study of them, without regard to the way they were manufactured, or the kind of clays that were used. We have been studying the same problem at the Ohio State University, also at the University of Illinois and the newly-established Government Technological Laboratory at Pittsburg, more from a standpoint of the clayworker, and somewhat less from the standpoint of the material as a material. Maj. Howard's data has given a beautiful demonstration of a situation which has been but recently brought to light from our side of the house. If I understand his paper correctly, he shows that after he has accounted for the voids which are penetrated and filled by the water by soaking the brick thoroughly, and accounted for the weight of the actual clay matter composing the skeleton of the brick, that there is a discrepancy between the calculated weight and the actual weight, and he reaches the conclusion that there must be other voids inside the mass of clay which are not penetrated by the water.

Prof. Purdy, I think, was the first to call attention strongly to that point, in his work at the University of Illinois, and published in the bulletins of that school. He had some sections cut from bricks which had been burned at different temperatures, beginning at 010 and running up by regular stages to Cone 11. These brick covered the range between very soft, salmon brick up to very hard, vitrified, overfired material. These sections, studied under the microscope, showed that there were numerous cavities in the mass of bricks, which to the eye alone were apparently absolutely solid. The microscope cavities actually cut through these cavities, and they appear as little vesicular blebs or bubbles. It is surprising to know that this bubbled condition developed at a temperature of Cone 010, in clays which were a soft salmon grade, at which point it seemed almost impossible that the clay could have reached a degree of fusion where such bubbles could have developed.

The question has therefore been raised as to how these bubbles developed and what they mean, and what influence they have on the strength of brick. There are several ways in which they may form. The most important mode of growth is as follows: The brick is in a spongy state when it comes from the dryer and after the chemical processes of firing have expelled the chemical water

and the carbonic gas, the structure is still further spongy or porous. Then as the temperature of firing increases and the brick begins to shrink, you have a closing together of the particles and elimination of large numbers of the pores. This process goes on with increased rapidity, as the material gets hotter and hotter, and more and more of the clay assumes a semi-fluid character. At the same time, there are many of these little pore cavities which are sealed up, but not eliminated. In the process of firing, the walls which limit them in one direction or another, fuse and adhere and then prevent the little quantities of gases enclosed in these cavities from escaping. Like any other gas that is imprisoned and heated, these gases begin to swell, and as the clay gets softer and softer and more fused, these gas-filled cavities expand in balloon-like shape and produce the microscopic bubbles in the body of the clay. These bubbles expand by heat and increase in number until the ware becomes so spongy that the clay will float. Such a thing has come to my notice, time and time again. It is nothing more than a great expansion or increase of the same thing which begins to occur at much lower temperatures, when the ware is still sound and good. These bubbles or blebs are not reached by water when we boil the samples in making an absorption test. The cavities are parts of the old or original pore system of the clay, but they are now cut off or isolated from each other by the fusion of the pore walls around them, and hence are not capable of being filled by mere scaking or boiling in water.

Suppose, now, you have a piece of clay which is about to begin this vitrification process, and it is still in a spongy stage and has not yet begun to shrink. Then these little cavities begin to be sealed up and as the heat rises they begin to swell, and the brick also begins to undergo the usual process of shrinking. Then we find there are two forces working in the body of the clay, one tending to shrink the body and make it denser, and the other to make it spongy and to swell it up like a loaf of bread. The volume of brick necessarily changes, according as the one or the other force dominates when these changes are taking place. While the shrinking force is predominating, the body of the ware gets smaller and smaller, until it reaches the point we call maturity or complete vitrification. If the heat is still carried higher the swelling force overcomes the shrinkage and we find that the ware begins to get bigger again, and to expand until we have what we call a porous, overfired or cindery brick.

Every vitrifying clay, if properly fired, stops at the point of greatest shrinkage or below, but if overfired it swells. The change in volume is the resultant of the two contending forces. In clays which vitrify well and which are said to be each to fire safely, the temperature zone in which the shrinking force and swelling force approximately neutralize each other, and in which the volume therefore remains about constant, is a broad one—perhaps six or eight cones. In sensitive cones, which are said to be difficult to fire, this temperature zone where the body remains constant is very narrow—the clay shrinks rapidly down to its minimum volume and begins almost at once to expand again by development of these sealed gas cavities in the inside of it. It is the existence of these sealed pores or cavities which Maj. Howard's calculations have discovered, though his process has been entirely different from the one followed by Prof. Purdy.

Maj. Howard has raised the question as to whether we ought not revise our system of determining the porosity of clays, in view of the fact that the absorption process does not really give correct or truthful ideas of the porosity. I doubt if it is wise to make any change in our methods. To begin with, I have not much use for the absorption test, anyway. I think the absorption test as a means of testing paving brick has outlived its usefulness. The real test depends on the wearing qualities of the brick, and not on how much absorption it will take up. I have proved in former researches that a brick which has physical strength enough to resist the rattler test also has strength enough to resist the freezing test, unless there are large internal cavities in it. If there are large internal cavities, so that a considerable amount of water can get together at any

one place, then the brick will burst on freezing, no matter how strong or how hard burned it is. If the brick is of uniform and fine-grained texture and its cavities are all small, you need have no fear of the brick failing in the freezing test, if it has strength enough to resist the rattler test.

For building brick I do not see where the absorption test is of very great importance. It is, of course, important not to place a porous brick in wet places or too close to the ground, where they can absorb large amounts of moisture. If they are caught full of water by a sharp, sudden freeze they will suffer disintegration. But in the general run of building construction, it never has seemed to me that the absorption test was of great importance. We all know that the brick put in most walls are not non-absorptive, and yet they last for centuries in spite of their porosity. Brick which take as much as 10 or 15 per cent. of water will often last for long periods of time without any bad results.

I do not see that the absorption test is doing the paving brick manufacturer much good, or the building brick manufacturer much good, and yet, on the other hand, I feel that the absorption test is going to be called for by architects and engineers for some time to come. We will have to educate the public along this line, as we have done along other lines, but it will be some time before we can get outsiders to see that the absorption test is really of little use. The question raised by Maj. Howard is, shall we continue to make the absorption test as we have been doing,



J. H. Chambers, Philadelphia, Pa.

or shall we try to get a means of measuring the actual porosity of the ware; i. e., the volume of the sealed pores as well as those penetrated and filled by water. It seems to me that there is no particular benefit to you as tradesmen in going into this matter of determining the volume of these sealed cavities. Their measurement is possible, as Maj. Howard has shown, and the process is an interesting one to us from the scientific point of view. It is interesting as a means of studying the different processes which take place in the vitrification of clays. But I do not believe it will be any more useful to an engineer or architect in a practical way than the simple absorption test, which anyone can make with a pair of scales and a bucket of water.

To sum up my position, I do not attach much value to the absorption test, but I think it is an easy way of getting a certain kind of data, and while the data is not of very much value, still it is called for by brick users. It would hardly be profitable at this time to go into the question of a more elaborate, more refined and more delicate method of determining the actual porosity of bricks, when, as a matter of fact, we do not think that even the crude and simple method is very worth while. In short, the absorption test is not worth refining or elaborating. Let us use it as it is until we can do away with it altogether. (Applause.)

Mr. Alfred Yates: I would like to ask Prof. Orton if these gases form after the brick have been thoroughly oxidized, where it comes from. As to the absorption, I dis-

agree with Prof. Orton. I know from actual experience, from practical experience, that it is the surest test we have in the paving brick business today. In burning paving brick I take four tests, one from the top, one from the middle, one from the bottom and an average, and if my burner has overfired his kiln or fired it at too high a temperature and immediately caused it to shrink, I catch it in the top course, and if he has fallen asleep and allowed it to get cold I will catch it in the middle course, and I have seen the same thing occur in the bottom. I can take my absorption test on that kiln and give it to you right along. You have to have a good, dense brick to stand the rattler test, and so the absorption test is a sure guide.

Mr. W. H. Hill, Kushequa, Pa.: I move that we extend a vote of thanks to Lieut. Howard for his very able paper, and to the United States officials of the Watertown Arsenal at Watertown, Mass., through whose courtesy he was able to present the paper.

Seconded by Mr. Ittner and carried.

President Parker: We will pass on to the next paper, which I will ask Mr. Randall to announce.

Secretary Randall: The next paper on the program is, "Relation of Setting to Burning in Down-Draft Kilns," by Mr. Julius J. Koch, of St. Louis, Mo. Mr. Koch is unable to be present, but he has sent his paper to be read for him.



J. J. Koch, St. Louis, Mo.

SETTING AS RELATED TO BURNING.

BY J. J. KOCH.

Mr. President and Gentlemen of the Convention:

I presume that you are all aware that when Brother Randall asks one to contribute a convention paper, that it is a difficult matter to refuse, hence your humble servant is on the program, with the subject entitled, "Setting as Related to Burning," in various types of kilns.

In reading the descriptions published in THE CLAY-WORKER of the various plants scattered throughout the country, one comes across different ways of setting, and, in general, always claiming good results in burning. Such terms as 3 on 1, 5 on 2, 8 on 3 are frequently met with. There surely must be a good reason for these various ways of setting brick, and, therefore, our concern delegated the following task to me for investigation: What are the effects of these various setting propositions in use? The subject was of vast importance to us, because we went at it blindly, changing our setting simply because our managers had read in the clayworking journals that the X-Y-Z Co. were setting their brick so and so. It was clear to us that the setting had a great deal to do with the burning, and it was absolutely necessary for us to have "guide posts" for our burning problems, for, as it was, our experimental burns were a good deal along the line of the mariner who had no compass.

The first proposition we took up was the common up-draft kiln, as they were largely used by our company, and the second proposition was the down-draft kiln, of which we used quite a number, and contemplated the future erection of more. We began our investigation of the problem by adopting a unit factor of twelve brick long, with the various setting and spacing across, and thus we had:

3 on 1 equals 36 on 12
11 on 4 equals 33 on 12
8 on 3 equals 32 on 12
5 on 2 equals 30 on 12
7 on 3 equals 28 on 12

CLAMP KILN.

We will call the length of twelve brick equal to 102 inches, and, as before stated, the 3 on 1 or 3 on 3, as it is sometimes called, is equivalent to 36 on 12. Now I will call your attention to line "A," in Table I, where it is stated that thirty-six brick, each $2\frac{1}{4}$ inches thick, have a total surface area over the twelve brick of 81 inches, and this would leave 21 inches in the clear for flues or draft space. Then comes line "B." In this case the thirty-six brick, each $2\frac{3}{8}$ inches thick, would give a total surface area over the twelve brick of $85\frac{1}{2}$ inches, and thus would leave only $16\frac{1}{2}$ inches total flues or draft area.

These two conditions are shown to cover the results when brick are made thicker than usual, one size being the common brick size, and the other face or stock brick size.

If the flue space as 100 per cent. in "A" is normally correct, then in "B" we would have only $78\frac{1}{2}$ per cent. of such draft space, or a loss of $21\frac{1}{2}$ per cent., which is an item to be considered in the operation of the kiln.

Then, again, if we consider the quantity of the clay as normally correct in "A," or 100 per cent., then we have 55 per cent. more clay in the given space in "B." Assuming the rate of heat absorption by the clay as a fixed definite factor, then it will take 55 per cent. more fuel and time in the case of "B" than in the case of "A."

It can readily be seen that with the draft space cut down $21\frac{1}{2}$ per cent., and the time of heat absorption and the quantity of fuel consumption increased 55 per cent., that there is bound to be some trouble ahead for the brick burner. For further illustration, let us cite this condition:

The burner has a time limit to burn his kiln in, and his past experience has taught him that burning a certain amount of fuel in a given time (dependent upon the stage and progress of the burn), gives him the best results, when the kiln is set as in "A." But with the kiln set as in "B," it is antagonistic to this way of ordinarily burning, and in all probabilities the following will occur, to wit: Firing as before, he may or may

TABLE No 1

Setting	Surface Area	Flue Space	Clay
A-36 on 12	$36 \times 2\frac{1}{4} = 81"$	$21" = 100\%$	$81 = 100\%$
B-36 on 12	$36 \times 2\frac{3}{8} = 85\frac{1}{2}"$	$16\frac{1}{2}" = 78\frac{1}{2}\%$	$85\frac{1}{2} = 105.5\%$
		Diff. $21\frac{1}{2}\%$	Diff. 5.5%

TABLE No 2

Setting	Surface Area	Flue Space	Percentages
C-36 on 12	$36 \times 2\frac{1}{4} = 81"$	$21"$	60.9 100
D-30 on 12	$30 \times 2\frac{1}{4} = 67\frac{1}{2}"$	$34\frac{1}{2}"$	100. 164.3
		Diff.	39.1 64.3

not obtain perfect combustion. If a reducing fire results, the damaging effect will be primarily loss of color, if nothing worse occurs. If he obtains the same volume of heat as formerly, sluggish draft will hold the heat down, the arches will not stand up, and give way, and the top will be soft, as the proper burning heat can not get there in time.

For successful burning, as in "B," it would be about as follows: Fire as light as may be necessary for the restricted draft, and for so much longer time as the quantity of clay indicates. By a comparison of the two conditions, "A" and "B," it is readily seen that setting is of vital influence relative to burning results.

However, the case cited is a little to the extreme, but in that way it serves better for the purpose of illustration.

DOWN-DRAFT KILNS.

In this case we will assume that the brick are all of the same thickness, but the setting changes from 3 on 1 to 5 on 2, or, taking the unit factor of twelve brick, as described under "clamp kilns," it would result as shown in Table II. Line "C" would be 36 on 12, with a surface area of 81 inches and with a draft area of 21 inches. Line "D" would be 30 on 12, with a surface area of $67\frac{1}{2}$ inches, and a draft area of $34\frac{1}{2}$ inches.

We will take this problem up along the lines of a stack proposition, as we have already taken up the other phases under "clamp kilns."

If we assume that you have only stack power for $34\frac{1}{2}$ -inch flue space, then with but 21-inch flue space your stack can not pull it on account of the proportionately increased friction, as it is shy 39.1 per cent. flue area in the kiln, and the results will be overburnt brick on top and soft brick along the kiln bottom.

If, however, you have stack power for 21-inch flue space, then with $34\frac{1}{2}$ inches you have 64.3 per cent. in excess, and if the stack is not properly dampered, then you can not hold the heat in the kiln, and fuel is sure to be wasted.

Of course, it is the experience of brickmakers that a relative proportionate opening in the kiln floor should exist, as com-

pared to the area of the fire boxes and stack. If, however, the setting should not be in line with the above condition, then unfavorable results will be sure to occur.

With the riddle bottom or tile floor the danger is not so apt to occur as with the solid floor, where only comparatively a few large openings are at disposal.

CONTINUOUS KILN.

Too much care can not be exercised in the setting of a continuous kiln, where the draft is generally in a duplex form, that is, horizontal and down-draft. Improper setting will cause improper burning, in that in some spots the fire may run ahead and at other places hold back, especially so when one figures on the long distances the fire in the kiln has to travel on the way to the stack.

For illustration, we will show the draft record in a coal top-fired continuous kiln, where the draft in the stack flue is 12.60 degrees, where smoke leaves the kiln at 7.20 degrees, and with the following draft running toward the main fire: 7.00 degrees, 6.8 degrees, 6.6 degrees, 6.3 degrees, 6.1 degrees, 5.3 degrees, 4.7 degrees, 3.9 degrees, 3.5 degrees, 2.0 degrees, 1.5 degrees, 0.8 degrees, and 0.4 degrees. With these figures staring one in the face, it can readily be seen that differences in setting are sure to result in differences in burning.

By looking after the proper setting, in part, European brick-makers have been able in some instances to burn about forty-eight running feet every twenty-four hours.

FLASH BRICK.

Great care must be taken in setting such brick, as a fundamental principle of ordinary brick burning must be eliminated at times, namely, the "combustions mixing chamber" for the gases. The gases should not be permitted to commingle, but allowed to travel side by side as it were, so as to get reducing effect in the kiln. It is a well-known fact that large flues will cause flashing, and the proper calculation affords one method of ascertaining the best flue area looking to the best results, and largest kiln capacity as well. Or, in plain words, too large flues cuts down the capacity of the kiln, and flues too small do not permit of perfect flash brick results.

SALT-GLAZED BRICK.

In this kind of ware, extraordinary care must be taken to have the proper setting to take care of existing conditions, namely, the high temperature that it takes to volatilize the salt and glaze, and also bring back your heat quickly that was lost during the salting process.

It is the aim of this paper to call the attention of the brick-maker to the fact that "proper setting is one of the necessary factors to obtain good burning results, and that correct calculations will serve as 'guide posts' in the brick burner's journey."

I thank you. (Applause.)

President Parker: If there is no discussion on this paper, we will pass on to the next.

Secretary Randall: This brings us to the last paper of the morning's session. This is to be illustrated by lantern slides, and as the lantern man will not be here until afternoon, I think it will be well to pass this paper for the present and take up the questions for general discussion which were left over from yesterday afternoon's session.

Questions for General Discussion.

No. 19, "What Can be Accomplished in Annealing Brick, and at What Stage of the Cooling Can This Best be Done?" I think Prof. Orton can best answer this question for us.

Prof. Orton: I did not come here anticipating the discussion of this question, but I can simply recite to you some experiments that were carried on about a year or so ago by Mr. Coulter, working in my laboratory at Columbus. The investigation was made entirely independently from me. I did not suggest it nor urge it, nor have anything to do with it other than permit him to use my laboratory and kiln. Mr. Coulter sent down to the southern part of Ohio and procured a couple of thousand of salmon paving brick that had been burned and come out from the kilns much too soft. He put them into our small test kiln in batches of about 100 at a time. He fired each batch of those brick up to the same finishing temperature as near as he could. The first of the kilns he cooled at a normal rate, in two or three days; considering the size of our little test kiln, that was certainly much slower in proportion than a large commercial kiln. In the second kiln he increased the time of cooling and went on increasing the time little by little, until he was spending seven days in cooling a batch of 100 brick down from the finishing temperature to the ordinary atmospheric temperature.

Then he began another series of burns, shortening the time of cooling. When he got down to a point where he

could not cool them any quicker by opening the wicket and exposure to the air of the kiln room, he fixed up a little fan near the wicket of the kiln, and began to hasten the cooling by blowing in streams of air. He finally cooled off a kiln in eighteen hours. That was the shortest cooling time reached in his experiments, and he made a considerable number of separate burns. Mind you, these brick were all made of the same material and all treated alike in every respect, except in the rate of cooling.

Finally Mr. Coulter took the brick from the different kilns and tested them in the rattler. He found that the brick cooled in seven days were no tougher or stronger than those cooled in three and one-half days, and the three and one-half brick were no tougher than the two and one-half, or the two. He finally showed that twenty-eight hours was the shortest time in which he could cool that kiln without weakening or making the brick brittle; below twenty-eight hours he found the brick became brittle and glassy. In those burns in which he had turned in the artificial streams of air from the fan, there were some parts where the air had not reached the brick, but in the parts where the air had reached the brick quickly the brick were very much weaker than they were in the other parts. Mr. Coulter's tests seemed to indicate that we have been placing more importance or weight on the annealing question than it deserved. The thing which has produced the weak brick in our kilns is the actual contact of cold air streaming against



George H. Drew, Columbus, Ga.

the brick while they are still very hot. But if the air can be tempered a little before hitting the bricks, and the temperature brought down rapidly yet uniformly, the loss in strength is very small, if any, so far as I can throw light on the situation.

When I was making paving brick, years ago, we used to cool in four and five days, but I have on occasions of great emergency cooled a kiln down in three days, instead of four or five days, and was not able to discern any particular difference in the toughness from it.

Secretary Randall: The next is Question No. 20, "What Is the Relative Advantages of Steam vs. Air for Spraying Oil for Burning Brick." I think Mr. Geo. H. Drew, of Columbus, Ga., can answer this question for us.

Mr. Geo. H. Drew: That would depend a great deal on whether it was pressed brick or common brick. We found that we got little better results using steam instead of air, while air is a little more economical. In using air we cut the price down about a quarter of a cent, but the steam was better for the ware. Of course, we burned common brick in Chicago and got them out as quickly as we could.

Secretary Randall: The next is Question No. 21, "Is the Vertical Drive for Wet Pans Superior to the Ordinary Drive?" I wonder if Mr. Moroney could not give us some information on this question?

Mr. John J. Moroney: I really don't know much about it.

Secretary Randall: An honest confession is good for

the soul. (Laughter.) Perhaps Mr. Haigh can tell us something about this.

Mr. Hervey Haigh: I should say no, and I'll tell you why I say that. We changed the driving of our pans, eight of them, which we had been driving with a belt. We got a shaft almost directly over the pans, and it don't work so well as with the belt coming more horizontal.

Mr. Wm. Hammerschmidt: The horizontal belt is better than the vertical drive.

Secretary Randall: The next is Question No. 22, "What Advantage Has Forced Draft for the Burning of Down-draft Kilns?" Perhaps Mr. Boss can answer this question for us.

Mr. John C. Boss, Elkhart, Ind. The time is too limited to go further than to make a mere statement that there are distinct advantages in the use of forced draft, or what we are pleased to call air under pressure, in the burning of down-draft kilns. To go into the question in a way that would be of any valuable to the convention would take up too much of our valuable time, and I would not like to start the subject and then have to quit my talk half finished. I do not want to be disrespectful to our Secretary, and want to give all the information at my command, but our time is too limited. If there is any particular point on which you would like information, I will answer any question I can.

Mr. Hammerschmidt: Mr. Boss addressed our Illinois



J. C. Boss, Elkhart, Ind.

convention at Champaign on this question, and it would be a good paper to put in pamphlet form. I presume it will be printed in the different papers, and you can get some information from that.

Mr. Boss: I would say along this line that I have been requested at different times to write papers on this subject, to be read at conventions, and I have shrunk from the responsibility for the reason that at these conventions we have able men who are gifted to address the convention and write papers for your enlightenment, and it has always seemed more proper for me to receive instruction than to give it. I am only a common brickmaker and a country brickmaker at that, but the little address I gave at the Illinois meeting contains some ideas on the use of air under pressure, or forced draft for up-draft and down-draft kilns, and if anyone who is interested in this matter will address me at Elkhart, Ind., I will be glad to give them the desired information.

Secretary Randall: The next is No. 24, "Is It Possible to Make a Speckled Brick from a Brick Burning Light by the Reason of the High Content of Lime? If so, What Is the Minimum Temperature at Which This Can be Done?" I wish Mr. Smit, of St. Paul, were here this year; they make that character of brick, and it may be the party who asked the question had that particular brick in view. Mr. Smit's partner says it is not the clay, it is knowing how to do it. Perhaps Mr. Marion Blair can give us some information on this question.

Mr. Marion Blair, St. Louis: I have been in the plant

in which that brick was produced, but I want to say to you that it will take you a long time to go in that plant and find out how to do it. (Laughter.) They do not tell up there how they do it. Their burner says he does not know. They have a German burner, and you ask him how he gets that effect and he says, "I smoke him. You see that pink brick, I smoke him and here he is." That is all the satisfaction I could get out of him. It is in the knowing how. The brick are there all right and it can be done.

Secretary Randall: Question No. 30 reads, "How Should Barium be Introduced Into the Clay to Get the Best Results in Overcoming Scum?"

Mr. E. K. Kane, Kushequa, Pa.: I am only a young member in this convention, but this is a subject I would like to have some of our old brickmakers talk about. I do not know who sent this question in, or why it was sent in, but I presume it was because someone wanted information on the subject. We have been having trouble with scum on our brick and we want to get rid of it. We want to know how to use barium; we have tried it in several different forms, but have not accomplished anything.

President Parker: Prof. Orton is here, probably he can give us some information.

Prof. Orton: Mr. President, I wish to call your attention to the fact that we have some other gentlemen here, who represent other schools of ceramics than mine. Perhaps it would be fair to give them a chance. I see Mr. Ashley, of the Government Laboratory at Pittsburg is here; perhaps he can tell us something on this topic.

M. H. E. Ashley, Pittsburg, Pa.: Mr. Chairman, I think Prof. Parmelee has done some work in this line, and I would suggest you call on him. (Laughter.) Personally, I have nothing to say.

President Parker: Prof. Parmelee is not in the room at present, and it looks like we would have to fall back on Prof. Orton.

Prof. Orton: I am perfectly willing to tell you what I know about this subject, but I don't know very much. I never worked on a plant where they used this barium commercially. All my experiments have been on a small laboratory scale, and not worth much for that reason. Mr. Ellis Lovejoy wrote a paper several years ago for the American Ceramic Society, which I think is a highly practical paper for the members of this body to read. He discussed the various forms in which barium could be added to the clay, but the most important point he brought out was that the carbonate of barium, which is the common form of barium which you buy for this purpose, and which is the cheapest one you can get and is the one which all the dealers want to supply you with, is rather an unsoluble material, and that it does not usually do the greatest amount of good it is able to do, because it does not get into contact with the soluble salts that are producing the scum. Also, he pointed out that you have got to use three or four times as much as is theoretically required to get results, and even then you don't always get satisfaction. Lovejoy suggested that carbonate of barium could be made very much more soluble without weakening it or rendering it less efficient in any way by converting it into the bicarbonate. Being more soluble, it is much more likely to get into a contact with the sulphur salts, and thus precipitate them. I think his suggestion is worth looking into.

One of the gentlemen here said that he had tried barium and did not get results. You must know that barium is useful only for overcoming sulphuric acid or its salts. If your clay is impregnated with any other salts than those of sulphuric acid, then barium will not relieve the scumming. The proper thing to do in that case is to have your material analyzed for soluble salts and find out what kind of salts are making the trouble, and then possibly some other preparation than barium can be used with good results.

The scum we ordinarily meet with is sulphate scum. Down in the alkali country, Arizona and New Mexico, they have large quantities of other salts that cause scum besides the sulphates, but in this wet climate we have no accumulation of alkali, and we have much more of this

scum than of any other. I would like to ask the gentleman where his plant is located.

Mr. Kane: My plant is located in Pennsylvania. We have tried a number of experiments in order to get rid of the scum in our brick, but up to the present time we have not been able to do it with barium. I do not know whether barium loses its strength or not. It may be that the barium we have is too old.

Prof. Orton: I should not think so.

Mr. Kane: We tried by dissolving the barium in water according to the formula which came with it, but we did not get any considerable results, except the most miserable looking brick you ever saw. So we gave it up, but lately I have been trying it again. I tried it first in the liquid form and we had about the same results as we had before, and then I conceived the idea of throwing some of it in the pug mill, just dry, and we ran through about 500 or 1,000 brick, and it would make you laugh to see those brick. And now the proposition comes up from quarters since I have been here that this barium should be pulverized up fine like a powder and introduced in the dry pan where you grind the shale. It seems to me it would be just as well to introduce it in the pug mill, where we get our clay and shale both, while in the dry pan we get the shale only. We are anxious to get rid of this scum if we possibly can. We have the barium in the crystalline forms.

Prof. Orton: Will it dissolve in water?

Mr. Kane: Yes.

Prof. Orton: You are probably using chloride of barium, and while you are killing one scum, you are producing another. There is no advantage in adding a chloride of barium in that way, because you produce a chloride of calcium when you precipitate the sulphate salts by barium chloride. Chloride of barium is easily soluble in water and will come out and make a scum. It is a different sort of a scum, but it is a scum, just the same. The chloride is of very little use in this connection. I have seen a little of it used occasionally, but I could never see any advantage in its use, unless possibly where the drying conditions are perfect and the scum is small. The chloride scum is more easily gotten rid of, perhaps, than the sulphate. If you want to use barium right, get carbonate of barium and try that, or use carbonated water to mix it with and get a bicarbonate of barium.

Jas. L. Breed, Syracuse, N. Y.: I think if you will call on Mr. Merrick, of Syracuse, he can give you some information on the subject.

Mr. C. L. Merrick, Syracuse: We used to water-smoke with wood and had very little scum. Afterward we water-smoked with coke and had considerable scum. We find we get much less scum with wood with our clay, so we water-smoke with wood altogether.

Mr. C. A. Bloomfield: What I don't know about making brick would fill a large book. I am what you would call a brand new brickmaker. After arriving at a point where I thought I would retire from the business, I became interested in a fireproofing plant to help out a friend. We were not getting our money back and we decided we would make front brick, and we burned a kiln of brick in a down-draft kiln and our kiln came out white, every one of them. That would not do, so we went back to fireproofing, and I started out skirmishing. The result was, I found out that we had used in the dryer heat from the burning kiln, burning soft coal, and had used ordinary crude oil in the machine. Some of my friends had advised me to get kerosene oil and mix it with parafine and then water-smoke the kiln with coke instead of soft coal, and be careful in using any heat from the burning kiln. We made these changes and we are making as beautiful front brick as anyone would want, and we are not getting any more scum.

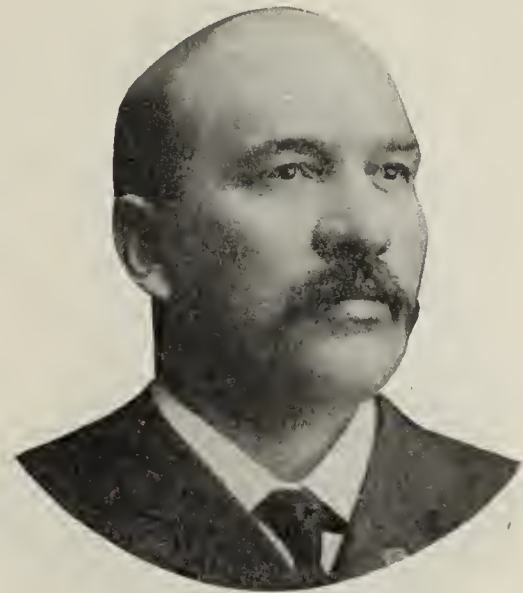
Mr. Boss: Did I understand that this question related to the whitewash on brick after burning or when they are laid in the wall? What would do away with this latter feature?

Mr. Kane: Our brick did not scum in the wall, but in the kiln or dryer.

Mr. Boss: My experience has proven this, that the whitewash or scum produced on brick comes from three

different sources, the first of which can be produced in the dryer, the second in the kiln, and the third in the wall. The first two problems could be brought about by the lack of sufficient burning and from the latter source it would develop in the wall, and the appearance would be almost the same as in the burning. The situation is this, if the brick in the dryer be urged and forced too rapidly, you pull the moisture out of the brick and liberate it too rapidly, and, as a result, the moisture goes back into the brick and produces a condition which can never again be liberated from the brick, and in burning it will show a scum in the brick. My experience is that if a brick kiln be water-smoked too rapidly the same identical scum can be produced by drying too rapidly, and you burn the scum into the brick and it can never again be corrected, and the scum will show on the brick immediately when the kiln is opened, so the remedy for trouble of this sort is to dry your brick carefully and water-smoke carefully and then burn carefully. If the same brick are burned sufficiently hard to withstand the elements and the action of the water, they will not show any scum in the wall. That has been my experience through a long period of investigation.

Mr. Will Purington: We find that we do not have this trouble when we dry with steam; in other words, we are drying on one yard with steam and have no trouble from scum, and on another yard we are using waste heat and are getting all the scum we want.



Wm. Hammerschmidt, Lombard, Ill.

Mr. H. E. Ashley: Prof. Parmelee told me of some buildings which had been made of brick that scummed badly, and they wanted to use some more of the same brick in a new building, but did not want the scum. But they suspected the cement and mortar were responsible for the condition in the former building, and so they overcome the scum in the new building. It was the soluble salts in the mortar that had come out on the old building, and by correcting the mortar they got rid of the scum.

Mr. R. G. Eisenhart: I would like to ask Prof. Orton if water that is strongly impregnated with lime is used in the pug mill, if that will have any effect on the scum?

Prof. Orton: Undoubtedly it will. You get scum on the brick from soluble salts, no matter where you introduce them. They come from the water you use in the tempering; they may come from the clay itself as it comes from the bank; they may be produced in the brick in the dryer from the gases passing through the dryer. It may be formed in the water-smoking, the sulphur being taken up from the coal gases, and it may be taken from the mortar, as Mr. Ashley pointed out. There are five different, separate ways by which soluble salt may be produced on the surface of the ware.

Mr. Hammerschmidt: How can that water produce soluble salt after it has been boiled?

Prof. Orton: You can not boil the sulphides out of it.

Secretary Randall: The next is the last question, No. 31, "Should Not the Clay Industry, as Well as Every Other

Industry, Establish an Insurance Association to Provide for Employees Who May be Injured or Disabled, for the Families of Those Who May be Killed, for Sickness During Service, Etc., as Is Done in Some European Countries?"

W. S. Purington: There are insurance companies now that handle matters of this sort for a consideration, and I hardly believe it is good policy for this association to consider it. You might just as well consider fire insurance. It is a business in itself, and I think we had better let men handle this business who are capable of doing so.

Mr. C. M. Crook: The question as it is put here could not be solved in a week's discussion because it involves the whole social fabric, and if we have reached the end of the morning's program, I would move to adjourn until the afternoon session.

Motion seconded by Mr. Keppler and carried.

FIFTH SESSION.

Friday Afternoon, February 5, 1909.

President Parker: Gentlemen, it is time to get to order for our last session. The Secretary will announce the first number on the afternoon program.

Secretary Randall: The first number on the afternoon program is a paper on "Advantages of Electricity as Motive Power in the Brick Business," by Mr. G. A. Guignard, of



C. J. Holman, Sergeant's Bluff, Iowa.

Columbia, S. C., which was to have been illustrated by stereopticon views. Mr. Guignard has been unable to get away, or to send the desired pictures, but he has sent his paper to be read for him. Mr. Guignard is one of our old-time faithful members, and I am disappointed that he is not with us today.

ADVANTAGES OF ELECTRICITY AS A MOTIVE POWER IN THE BRICK BUSINESS.

BY C. G. GUIGNARD, COLUMBIA, S. C.

Mr. President and Gentlemen of the Convention:

It is almost invariably the case that when an industry is started the managers or founders select methods, equipment, and entire outfit, with the view of economy in cost of product.

But few, if ever any, manufacturers adopt a particular method, or special apparatus, in their factories from mere fancy, but because they think that their particular selections are most suitable for the most economical production of their wares, although it is often hard to convince all of the advocates of other methods that we are getting the very best.

Particularly with the brickmaker is it necessary for him to look to the most economical systems, though, sad to relate, many of us miss the mark very far at times. But almost always local circumstances or conditions govern us, sometimes against our best judgment, in these matters. As but few of the brickmaking plants of today have been started as a complete whole, their owners or managers have not had to consider at the outset as to whether they would adopt this or that particular equipment throughout the plants, but have added to their plants from time to time as necessity required it, usually in an unsystematic way, until they

find themselves with a more or less adequate plant, succeeding to a degree in accomplishing its purpose. But nearly always those who have reared such plants would like today to tear down and rebuild the whole outfit, adopting, in some instances, entirely different apparatus or methods from those they have been using.

We are of this class, and, having had no experience with a plant fully equipped with electric power, are somewhat at a loss as to just how the subject in hand should be treated. However, from a limited experience and a little thought on the subject, we will offer a few thoughts for consideration by those interested.

The general question of using electric power on a brick plant involves other questions. As the successful operation of each part of a well equipped plant depends upon the successful operation of another part, the question of adopting a motive power is also dependent upon the adoption of other methods.

First of all, the advantages of the use of electricity on a brick yard will depend upon the availability and cost of current, for we do not think it would be good judgment to use electric power at a much higher cost than steam, nor would it appear wise to use steam or gas to generate a current for distribution to individual motors about a plant, for generally a plant can be so arranged that the power from a few engines, located not too far from the boilers, will be quite sufficient, and the exhaust from steam engines could be used for drying. Thus in selecting a power drying would have to be considered.

To go backward a little, the accepted most economical way of burning is the continuous kiln, and a model plant should use it, and the ideal continuous kiln utilizes to advantage within itself all of the heat that should be generated there. Therefore, there is no waste heat from this source that might be used for drying. Then drying must be done either by direct firing or from radiated steam heat. Provided more of the heat units from fuel can be utilized through a directly fired dryer than from radiated steam, we think it would be better to use motor power for making and handling rather than steam engines, the electric power being so much more pliable.

The two general methods of drying, by radiated steam heat and direct heat, each have their advantages, which can be better presented by some of our distinguished friends here at this gathering.

It would seem that if a constant electric current can be had at reasonable figures that there are many points in favor of its use. With a constant current ever waiting at the switch, much time and annoyance may be saved.

The method of application, whether to use individual motors for different machines, or drive them all from one common line shaft driven by a larger motor, would be determined by local conditions, but we prefer the individual motor plan, though the first cost of this might be a little higher. A machine for making brick or preparing clay, with a motor attached, is, we think, most desirable. It is very nice to have only to throw in the switch to make things go. The motor requires less attention, deteriorates less, requires less oil, than does other machinery. Each machine may be equipped with its own motor, enabling it to be started and stopped independently. Wiring does not cost a great deal and can be run in close places, around any corner, under ground or overhead, with little loss in transmitting the current. Motors may be set at any angle, on floor, ceiling or wall, and occupy little space. Small motors with cable connecting to wire line can be placed on portable elevators or conveyors and carried to different points for loading and unloading kilns or cars. If it is more convenient to locate a fan or blower at some remote place in the building, wire will carry the current far or near. In connection with mechanical apparatus for handling brick from machine to dryer and dryer to kiln, such as some patented systems, the electric motor for handling cranes is indispensable. A motor-driven transfer for handling small brick cars to and from the kilns is not impracticable. Small motor fans for ventilation in hot kilns in summertime are found very useful. In hauling clay from pit to plant, where any distance is to be covered, there is nothing better than the ever ready trolley system. This may be installed heavy enough for shifting cars loaded for shipping. In operating a shovel for digging clay the motor shovel is far better than steam. Having a constant current, the shovel is always ready to start; no frozen pipe in cold weather; no waiting to get up steam; motor occupies much less space than engine and boiler; there is less upkeep; no water and coal to be hauled to shovel, and fireman's services are dispensed with. No expense is incurred in keeping the fire going between trips or over noon hour. In other words, there is no cost except while actually working. This is the same with all motor installations.

The use of electric current for lighting the plant is, of course, far better than any other system, as well as being much safer. The portable lights on long cords are most convenient about dark kilns or sheds in setting and unloading.

However desirable is a model plant fully equipped with electric power, it should not be thought that its partial use on a plant has no advantages. In many of the details of operation, some of which were mentioned above, one might adopt the electric drive, and reap the benefits therefrom, even though he were not able to equip his whole plant electrically.

As stated above, the plant with which we are connected was not designed for an electrically equipped one. However, in the last few years we have installed several motors, which we find very satisfactory. A motor for driving one brick machine, disintegrator and elevator, two motor-driven exhaust fans, motor-driven triplex pump for supplying water for plant and fire protection, small fan motors for ventilation in summer, lights throughout the plant and a motor-driven shovel in clay pit. We have not been able to make all changes that we have wanted, but would like to put in additional electric equipment along other lines when conditions will permit. (Applause.)

President Parker: If there is no discussion, we will take up the next paper.

President Parker: The next paper on the program, "Economy and Influence of Waste Heat Dryer," by Mr. C. E. Fuller, of Buffalo, Kans., has not materialized. Mr. Fuller was unavoidably detained at home and did not send his paper, so we will take the next number, "Burned Clay, the Best Medium for the Expression of Art in Architecture," by our good friend, W. D. Gates, of Chicago, to be illustrated with stereopticon views. (Applause.) Bear patiently with him, he is young and nervous and just a little backward, but after he once gets warmed up, he is all right. (Applause.)

BURNED CLAY, THE BEST MEDIUM FOR THE EXPRESSION OF ART IN ARCHITECTURE.

Mr. Gates: I certainly appreciate your fortitude in staying to hear this. I have been doing a great deal of thinking during this convention, thinking back to the time we started and of the changes since that time, and there have been radical changes, very, very radical changes. A literature has grown up in that time that we can all be proud of. There have been improved methods all along the line, and we have all been getting along in years. I realize that, and have been thinking it over very seriously. I have, as most of you have, seen men who have belonged to organizations of this kind who have been "butter-in," and have talked until people have longed to go to them and say, "You are getting old, and it is time that some kind friend came to you and told you that you were in the past tense. Told you in kind and endearing, but convincing terms that you have come to be of the past." I have been telling myself that story.

I had thought that I had probably said my last word to the N. B. M. A., but friend Randall came to Chicago one day and caught me with a few lantern slides, and in his masterly, effectual manner, put me on this program for a swan song. One fault that I have been showing symptoms of is that of fault-finding, and I want to say to you that I think there has been possibly one fault in this organization that I have seen in looking back over twenty-three years; I think this is my twentieth meeting. We have had such royal good times and have met such royal good fellows, that we have come together and patted each other on the back and said, "We have the best line of manufacture there is; we have the most enduring building material on earth." We each of us know it and tell the other fellow, and feel glad of it. We have gone on perfecting our methods, trying to make what the architect and owner wanted, but we have not been as emphatic and busy in the advertising and pushing of our materials as we should have been. Early in the session, when this matter was up, they called on me when I was tired and did not expect to say anything, and I did not say anything, but we have not been just like manufacturers in other lines who have a good thing. You must remember that an inferior article, if pushed more vigorously, will often surpass and exceed in use a superior article. In this swan song of mine, I want to say you are enthusiastic and believe strictly in what you are making yourselves. It is one of the principles of our profession that we do honestly believe in the goods we are making, but you want to carry that out and impress it on the world at large.

Since I was with you last I have been a wanderer, and in going the 600 miles up the Nile River, going into the dust of buried centuries, into a clime that is comparatively unchangeable, free from the action of frost and disintegrating influences on that account, I came back prouder than ever of the vocation in which I am engaged. Proud in many ways, for there in that country, more pregnant with history than any other section of the world, in the dust of untold ages, the only history of the country is in the buildings left by the builders—the kings who went out and met their enemies and brought back their slaves, who were the governing forces at that time, have passed into dust, but the work of the builders who went on and made their ware and put up their buildings is all that is left to show the history of the people.

I was somewhat surprised to find that in a climate which we regard as unchangeable, that the buildings put up of stone are broken and disintegrated. In all of the statues of Rameses II, who apparently spent all of his time putting up statues of himself, of what he considered the most enduring material of the time, polished granite, I failed to find a single one that was not broken to pieces. Some of them were immense and all crumbled and broken. A man standing by the shoulder of the figure showed the thickness of a man's shoulder through the arm—60 feet of granite in one piece, now scattered in a thousand pieces—simply the long continued action of the difference between the heat of the sun and the cool of the night.

There were brick there made at the time of Moses, bearing the imprint of a hand, the signature on the brick of the man who made them. The one thought that impressed me was that while most of us have been busy breaking different sections of the commandments, Moses was the only man that broke all of them at once. (Laughter.)

I came down to the wonderful museum at Cairo and studied there the works of the past generations, and saw there the vessels wrought by hands which had long years ago gone into dust. They had each a beautiful idea, and by his cunning hand each had wrought that idea into a permanent object by means of clay, and through all the succeeding generations from Moses down the object has attracted one generation after another, and as one genera-



W. D. Gates, Chicago, Ill.

tion after another has passed by, it has been left there for future generations to admire. And all these royalties from Alexander and Anthony and beautiful Cleopatra, more beautiful than them all, and I don't believe she has thick lips and curly hair. All these have passed away, and yet the ideas wrought in clay have remained and been carried down through all these generations, and will be carried down through succeeding generations.

I am rather ashamed to come before you with so little preparation. I am glad most of you are wearing the Glad Hand badge, for what I have to say in regard to the few slides I have gathered together in an off-hand way may look to be far from the subject, but a few of them will come near the subject. (Applause.)

Mr. Gates exhibited some very interesting views from pictures taken by him during his trip up the Nile, and concluded by showing views of a number of interesting brick and terra cotta structures, concluding with a series of views of the beautiful bank building at Owatonna, Minn., for which his firm furnished the terra cotta, and which were illustrated on pages 29 to 31 of the January CLAY-WORKER.

Mr. W. S. Purington: Mr. President, I do not think this association ever listened to any paper that has been as interesting as this talk of Mr. Gates, and I move a rising vote of thanks be given Mr. Gates.

Seconded by several and carried.

President Parker: I am sure we have all enjoyed this talk of Mr. Gates. The Secretary will announce the next.

Secretary Randall: We skipped a paper this morning on "Setting Brick by Machinery—A Report of Progress," by Mr. C. G. Buckles. Mr. Buckles is not here, but Mr. Raymond Penfield, whose company has purchased this brick setting machine, will deliver the paper and show a number of illustrations.

SETTING BRICK BY MACHINERY.

BY R. C. PENFIELD, BUCYRUS, OHIO.

Mr. President and Gentlemen of the Convention:

Mr. Buckles, whom all attending the convention at Columbus will remember most pleasantly, presented a very interesting paper upon this subject last year.

He predicted that before the flowers bloomed in the spring



View No. 1.



View No. 3.

again in Kansas his company would be setting stiff mud brick by machinery, and we very much regret that Mr. Buckles is not present to make a report in person.

After the convention last year the writer visited the plant of the Coffeyville Vitri-fied Brick and Tile Company, where this machinery is in operation, in the interests of the American Clay Machinery Company, of Bucyrus, Ohio, and being thoroughly satisfied of the advantages possessed by this method of mechanical brick setting, made, on behalf of our company, an arrangement with the Francis Brothers for the sole right to manufacture and sell the Francis patented apparatus for handling and setting brick, as well as the sole right to license others to use this apparatus.

Because of this arrangement and Mr. Buckles' inability to be present, the writer has been requested to make this report.

During the past year our company has been engaged in developing the brick setting apparatus and endeavoring to adapt it to the varying capacities and conditions of brick manufacture.

In designing new plants we are so arranging them as to secure the greatest possible results from the brick setting and handling system.

As many of those present have already examined these machines on exhibition at convention hall, we will not attempt to give any detailed description of this machinery, more than to state the broad principle upon which it operates, which is, namely, building up unit stacks of brick in a prearranged order—with the bottom course spaced apart—then lifting and transporting this unit stack of brick by a pinching strain exerted upon and between the bricks of the basic layer and lifting and transporting the entire stack intact, depositing this unit stack and disengaging the apparatus therefrom without disturbing the stack formation.

This invention has been covered by a broad method patent as well as apparatus patents, and forms the foundation for improvements in brickmaking which we believe are destined to have a far-reaching and very beneficial influence on this great industry.

The fact that bricks have been set in kiln by hand so many hundreds of years, while other departments of the manufacturing have been so highly developed, makes the changes now to come all the more interesting and important.

We have prepared slides for the stereopticon which will show the machines in use, setting both stiff mud and dry pressed brick. We shall first look at the setting of wire cut brick.

This first picture represents the hand setting gang in one of the kilns of the Cherryvale plant, taken just before the introduction of the brick setting machine. The men, as you will note, are not setting brick, but are having their pictures taken. This gang consists of fifteen men, including the men who sand the brick



View No. 2.

(for they are setting paving brick in this kiln) and two men who transfer the cars of brick from a dryer to kiln. Please notice the irregular appearance of this brick setting in order to contrast it with the next picture.

No. 2. This slide represents the interior of a kiln, in which, you will observe, a traveling crane has been erected and upon which an operator has been located, whose duty it is to pick up the unit stacks of brick from the dryer car by the aid of the man who adjusts the setting machine to these stacks of brick. He then moves the crane and the brick to the face of the kiln, where a man in attendance, who is called the "spotter," spots, or properly locates these brick, and then disengages the setting machine therefrom.

You will observe the dryer car has been run into the kiln, and already three stacks of brick have been removed from this car: one is just now about to be set by the operator, who is located on the second bench of the kiln. The crane and setting machine in use are adapted only to handling about 100 to 120 brick at a time, consequently a stack of brick half the length of the car is handled at a time. As there are three rows of brick on the car, it thus takes six lifts to empty the car. It takes about forty seconds to engage the brick with the setting machine, lift the brick from the car and properly set the same in the kiln, and then return the setting machine to the dryer car for its next load.

This apparatus, when working, operates at the rate of 120,000

brick per day, lifting these small loads, and the ordinary day's work of 80,000 to 90,000 is placed in the kiln very easily with, of course, considerable time when the crane is not in continuous operation.

No. 3. In picture No. 3 you will observe that the operators are setting arches. The lower portion of the arch is composed of one of the unit stacks which you observed on the car in the last picture.

These are properly located to form the arch, and then a cap piece is put upon the arch, as shown in this picture, fully completing the arch without any handsetting of brick. These arches are built on the cars at the machine, the brick being taken directly from the belt. The men soon become familiar with this work, and no loss of time or extra expense is involved in making these arches.

The setting and handling of stiff mud brick, as shown by these pictures, has been accomplished without difficulty, and, in fact, with greater ease and facility than the setting of the dry pressed brick, which was first undertaken by this company.

Upon the size of the setting machine and the size of the crane depend the capacity which it is possible to secure by the system. There is no difficulty in arranging the machines to lift 500 or 1,000, or even a much larger number of brick, and by this means it is possible, with a single equipment, to set 200,000, 300,000, or even a larger number of brick per day of ten hours.



View No. 5.

We will now rapidly look at the views showing the manufacture, transfer and setting of dry pressed brick, which are shown in the following seven views:

A few years ago the cement manufacturers broadcast throughout the land, heralded the coming of age of cement. Having attracted the attention of the public, these same manufacturers soon changed their cry.

They now say, the age of cement is not coming—it is here. So we say setting brick by machinery is not coming. It is here, and, we verily believe, here to stay; and why should it not be so? We have all watched the rapid development in every other department of brick manufacture. The steam shovel, that wonderfully improved machine, the automatic cutters, the kilns and dryers of greatly improved efficiency, have all contributed under wise and experienced management and to produce this result.

While this development has been taking place, the millions and billions of brick required in building up this vast country have been set and rehandled by human brawn, with little hope that machinery could successfully perform this service.

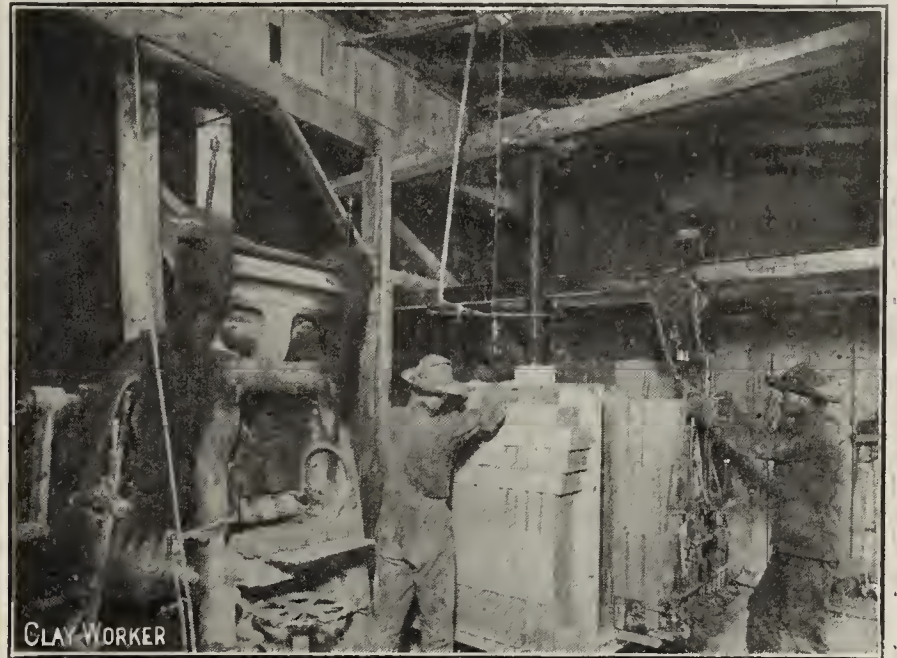
Nearly all great inventions are marked by simplicity. This invention certainly has the mark of greatness, for it is exceedingly simple, and we fully believe that the problem of successfully setting brick by machinery has been solved.

Mr. Houston, of New York, has pointed to the great results

obtained by the cement manufacturers by thoroughly and intelligently advertising their product; we fully believe we can learn much from this example, but let me point out another lesson the brick manufacturers can learn from these cement manufacturers.

If every brick manufacturer here has not visited one of the new, thoroughly modern, cement plants, he should do so at his first opportunity. We believe there is a great lesson to be learned here. We must admit our own surprise in visiting recently the plant of the Western States Portland Cement Company, of Independence, Kans. We were taken through the plant by Mr. A. C. Stisch, the treasurer of this company, who is also the president of the Coffeyville Vitrified Brick and Tile Company.

Here we found the highest grade of power plant, magnificent electrical installation, electrically driven machinery throughout the plant, with labor-saving appliances in use wherever possible. Every effort had been made to reduce the cost of production and the cost of maintenance. After viewing this magnificent property and hearing Mr. Stisch explain the great advantages of building thoroughly with the best possible equipment, we finally ventured to inquire: "Why is it, Mr. Stisch, that you build such a magnificent cement plant and yet consider any old equipment, building or construction



View No. 4.



View No. 6.

good enough for a brick plant?" We are pleased to record that Mr. Stisch went on record as having been for years an advocate of high-grade construction for brick works.

Now it so happened that this company, with which Messrs. Chas. and W. H. Francis are also connected, were just about moving an old plant from Kansas to Oklahoma, where it was intended to install the old equipment again. We pointed out that this would be a good time to put some of the good equipment, good construction, and all labor-saving and fuel economizing appliances into operation. Without going into further detail, let me say that our company designed and are supplying this equipment for a very modern plant, where every effort is being made to save both labor and fuel and cost of maintenance.

The building is made of brick with fireproof roof. There will be no insurance to carry. The brick will be set by the Francis brick setting machine and burned in a continuous kiln for the purpose of saving fuel, although gas is now very cheap at Collinsville, Okla.

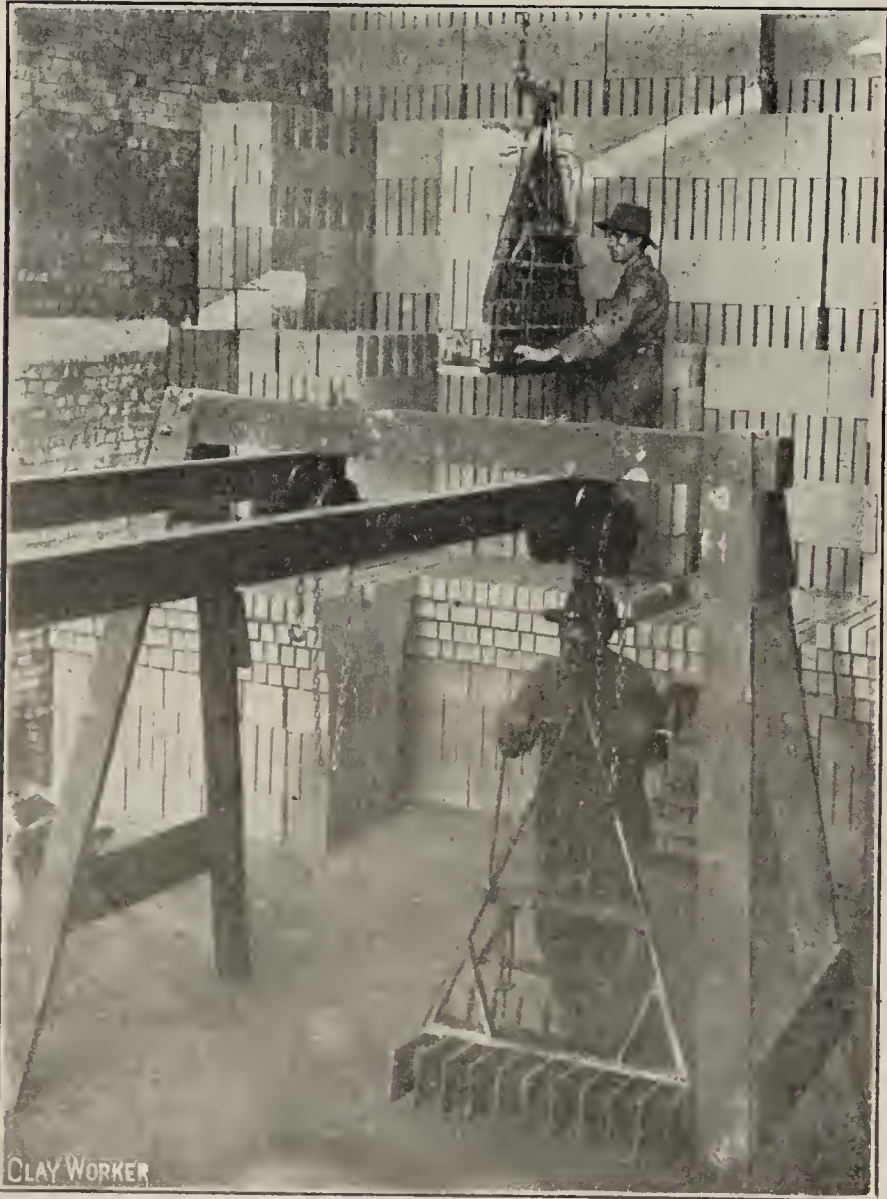
We believe that every brick manufacturer who rebuilds an old plant or constructs a new one, should take into account the fact that cost of production in the future is going to be, even more



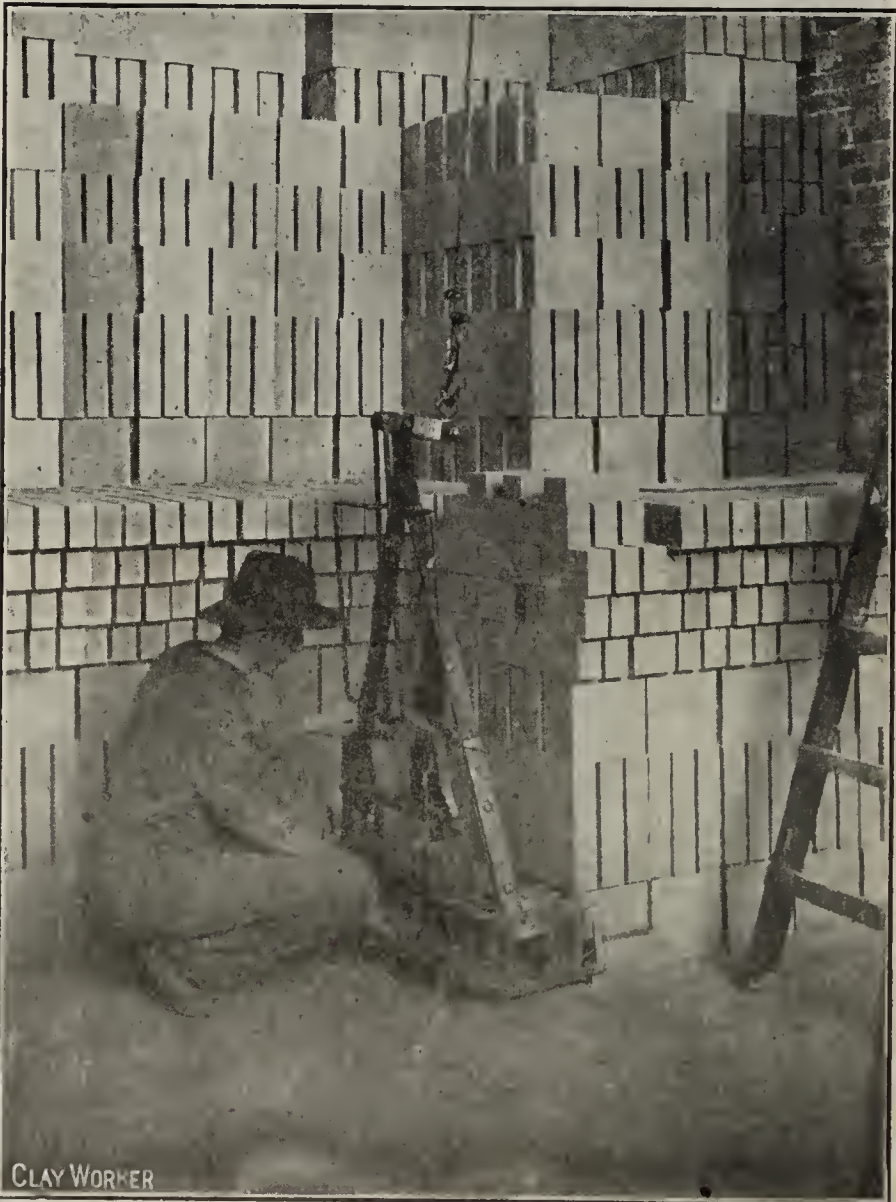
View No. 7.



View No. 8.



View No. 9.



View No. 10.

than at the present time, a very vital question. With the handicap of the great cost of laying brick to enable us to compete with cement, every possible effort should be made to reduce the cost of production, and thus increase the possible margin of profit.

We believe the plants of the future will be better built and should be fireproof, and should be designed with low cost of production and low cost of maintenance as prime factors. We also believe that plants of larger output will be built. Here, again, we can follow the cement manufacturer to good advantage. The plants of large capacity make possible a lower cost of production. In these plants the brick setting machine will play an important part. On a plant of from 200,000 to 300,000 daily capacity, when properly arranged for, this entire output can be set in the kiln with the labor of but three men, assuming that the brick have been delivered into the kiln shed from the dryer.

We fully believe that the time is now here when a manufacturer of brick can no more afford to build a new plant of large capacity, or where conditions are favorable, even to operate an old one, without providing for the mechanical setting of brick, no more than he would be justified in starting such a large yard without a steam shovel or automatic cutter.

We believe firmly in the great future of the clayworking industry—that the great deposits of clay and shale and coal have been placed there, out of which to produce the most perfect building material known to man. We heard yesterday from a gentleman on the floor of this convention hall, who, after fifty years of observation and experience, expressed the firm belief that cement would in the end be found wanting. We know that while the glories of the Roman Empire have departed, the good clay brick of which her buildings were constructed are as good as ever. But I must bring this paper to a close, and, thanking you gentlemen for your kind attention, let me express a sentiment in the following lines:

Cement decays and crumbles,
Empires wane and pass away,
But eternal everlasting
Are the bricks of well-burned clay.

(Applause.)

General Discussion.

President Parker: Gentlemen, you have heard the paper, which is a very interesting one. We will be glad to hear discussion on same.

Mr. W. S. Purington: I would like to ask Mr. Penfield if he has found any way by which the brick can be set in a round kiln.

Mr. Penfield: I can only say the brick setter is at present setting in an ordinary rectangular down-draft kiln. The machine is supposed to enter the door of a kiln not over 8 feet high and 8 feet in width, and set all the brick in the kiln excepting a small space immediately opposite the door. We can set the brick on the side of the door, leaving a space 8 feet wide and then back out of the kiln.

Mr. Purington: This machine is adapted more to dry press brick than to brick made by the stiff mud process, is it not? Do you figure on taking the brick to the cars by this process?

Mr. Penfield: The lower course of the brick on the car are spaced apart. I think the system is much more applicable to stiff mud brick than the dry press brick. There is one thing I might say, that was not mentioned in the paper, and that is that the results obtained in burning were better than when setting the old way, owing to the uniformity of setting of the brick throughout the kiln.

President Parker: If there is no further discussion, we will pass on to the next, "The Report of the Committee on Technical Investigation," by Prof. Edward Orton. (Applause.)

REPORT OF THE COMMITTEE ON TECHNICAL INVESTIGATION.

Prof. Edward Orton: Mr. President and gentlemen of the convention—I shall only occupy your attention for a brief moment in this connection. The situation is about as follows: Last year, at Columbus, I showed you a sketch and explained briefly the mode of operation of a test dryer which had been invented by Mr. Richardson, and had been turned over to the Committee on Technical Investigation as a means of studying the drying of clays. We have carried through, altogether, a year and a half of experimentation on that apparatus, and, after making a large number of experiments, of anywhere from twenty to thirty hours' duration each, we have finally reached a halting

place in the work, and our report is now ready for publication, so soon as I can take the time to edit it. The same condition prevails in regard to the publication of the preceding investigation on the relation between the rattler test and the absorption test, the results of which I presented to the association two years ago.

We therefore have two years' work completed and ready to publish. Both should have been published long before this. There is no one to blame for the delay but myself, and I am to blame only to the extent that I have more on my hands than I can accomplish, and that I have undertaken to do work for the association in good faith, and have found my ambitions have exceeded my powers. I could not allow the association to continue on with this investigation work, if it had to depend upon me personally to supervise the work and publish the results.

Some three years ago I came before this convention with a statement similar to what I am making now, and at that time asked to have Prof. Purdy, who was then an assistant in my department, made secretary of the committee in my place, and allow me to take the position of chairman, with advisory duties only. I thought that Prof. Purdy, being a younger man, and with fewer duties on his shoulders, could do the work more effectively than I could. You kindly agreed to that proposition, and Prof. Purdy took hold of his duties as secretary, and promptly edited and published one bulletin of the work I had already done prior to his coming into the position. He was just about to start an



R. C. Penfield, New York City.

investigation of his own when he was appointed to take up the ceramic work in the newly-established department of clayworking in the University of Illinois, and he necessarily resigned his secretaryship. He remained in Illinois two years, at the end of which time he resigned and came back to the Ohio State University again as assistant professor in my department, and incidentally that he might complete his work for a degree. He has now received his degree, and he has been promoted to be associate professor in our department, and is doing fine work. Prof. Purdy was here yesterday, but was not able to remain over today, otherwise I should have been glad to have brought him onto the platform and shown him to you. Many of you know him, and know what a fine fellow he is.

Thus, you see, that while we have been taking your money, we have been using it intelligently, and have been supplemented it by money contributed by the Ohio State University, and that the publication of the results only is in arrears. We have two complete investigations ready to publish. This year we started with a residue of last year's appropriation on hand, amounting to about \$150. To this is to be added the current year's donation of \$250, making \$400 in all, owing partly to the fact that we did not at the beginning of this year have a suitable student who wanted to take up this work, and partly because I did not have time myself to supervise it, and partly because the

Secretary neglected to send the money until a couple of weeks ago. The matter was allowed to stand until about two weeks ago, when Secretary Randall sent me the check for the usual amount, saying that it had been overlooked and should have been sent earlier.

The proposition I have to make to you is this: Prof. Purdy is now back in the department, ready, willing and able to serve us. I would like to turn over to him once more the practical management of this investigation work for this association. The connection I would like to retain with this work myself is merely the position of one of the members of the committee. You have a regular committee of four for this work. Mr. Charles A. Bloomfield, Mr. D. V. Purington, Mr. Anthony Ittner and Mr. W. D. Richardson compose that committee, and, with one more man on the committee, myself, and with Mr. Purdy as secretary and active executive officer, we will again do effective work. There is no reason why just as good work should not be done in the future as in the past, but with the best intent in the world to serve your interests, I have, for the last two or three years, done less and less of this work, and am now where I can not give it hardly any of my own personal supervision. I can give it enough time to do my duty as a member of the supervising committee, who look after the nature of the investigation to be undertaken.

Now, in view of all these facts, I recommend to this asso-



Prof. Edward Orton, Columbus, Ohio.

ciation the appointment of Prof. R. C. Purdy as secretary of the Committee on Technical Investigation, and request that I be appointed as a member of the committee.

General Discussion.

President Parker: You have heard this report of the Committee on Technical Investigation, and also Prof. Orton's suggestion. What is your pleasure?

Mr. Bloomfield: Day before yesterday I was re-elected to succeed myself on that committee, on which I have only been a figurehead, and I am not of a disposition that being a figurehead sets easily upon. I am going to request of this convention that you accept my resignation. I fully appreciate the honor, but would suggest that you elect someone else.

We have donated or set aside a sum for this technical investigation, and I think that purpose should be carried out, and if it can not be done in the Ohio State University, there are other clay schools, and we ought to get someone in the other clay schools who can do it. There are propositions coming up year after year that require solution, and the matter ought to be put in the hands of some clay department that can do the work.

I have been connected with this committee practically from its start, but now I desire to present my resignation and suggest that you elect my successor.

Mr. Purington: I move that we act on Prof. Orton's suggestion, and elect Prof. Purdy as permanent secretary

of this committee, and elect Prof. Orton for the term for which Mr. Bloomfield was elected and which he has resigned.

Seconded by Mr. Dillehay.

Motion carried.

Mr. E. L. Cook, State Farm, Mass.: While this subject is before the meeting, I would suggest that the amount of the scholarship in the Ohio State University be donated this year to the Winona Technical Institute for three scholarships in the bricklaying department. Just figure up how many bricklayers we could turn out in the course of the next few years, because this money would be paid back and used over again, and some forty or fifty bricklayers could be turned out in the course of a few years, and be a lot of good to the brick men of the country. Not that I decry the work that has been done at Columbus, but they have \$400 ahead, and it looks as though they had more money than they could handle, and if we could devote this sum to the Winona Institute this year it would do a great deal of good. I will make this as a motion.

Mr. Bloomfield: As I understand it, without 1909 there is already in the hands of the Committee on Technical Investigation about \$400. In 1909 we will pay \$250 more, and I want to second Mr. Cook's motion. Instead of using that \$250 and putting it in the hands of the Technical Committee, that it be expended in scholarships in the bricklaying department at Winona for one year, and following that we can put it up to the convention.

Mr. Cook: This will only be a departure for one year, and after we have tried it one year we can leave it to the sense of the convention to do as they see fit, but think of the bricklayers we could turn out in the next ten years. As I understand it, the money is turned back every two years, and after it has run along for ten years, I can not undertake to say the number of bricklayers we will have.

Mr. C. M. Crook: I have a firm belief in the school at Winona. I was one of the first to subscribe for a scholarship, but I do not want to go too fast. I am opposed to abandoning in any way or manner the matter of technical investigation. It has been a wonderful benefit to us all in the past, and it will continue to be a benefit, and I think Prof. Orton should be consulted as to whether this money can be advantageously expended. I do not think we are so poor that we want to rob the technical investigation fund to benefit the Winona School. After a talk with Mr. Pierson, I have decided not only to renew the scholarship I took last year, but to take an additional one. I do not want to see our technical work, which is of very practical benefit to us, all abandoned in the least.

Mr. W. S. Purington: As Mr. Crook has said, he subscribed for a scholarship in the school of bricklaying at the Winona Institute last year, I will say that I subscribed for two last year and I will subscribe for two more, and I may take another later on. (Applause.) The suggestion in regard to the Illinois School is a suggestion only. Some of the young men who Prof. Orton has educated have gone over to Illinois and are competent to carry on these investigations. I know they are taking a vital interest in the matter of technical education.

Prof. Orton: There is a little misapprehension in regard to the matter as to how much money we have on hand. The association has donated \$250 a year, and the State University has, in addition to that, contributed \$100, making a total amount of \$350 to be expended each year for investigation work alone. This money, of which I have a part still left, has been partly contributed by the Association and partly by the Ohio State University. Part of this money will be expended in getting out the reports of the last two investigations, which are ready for publication. It was not my idea to abandon the work of investigation in any way, but to carry it on under a change of management.

Mr. Eb Rodgers: It seems to me that so far as the condition of the fund is concerned, that it should adjust itself very largely according to the good judgment and discretion of the Committee on Technical Investigation. We have entrusted that committee with the fund in the past with good results, and I do not see why we should not do so in the future. I should be very sorry indeed if this association should abandon its technical investigation of

subjects of which we know so little. Just look at the questions which are coming up from time to time and from year to year—the questions which come up here for general discussion and the questions we asked of each other in the lobby talks only demonstrate the fact that we need this technical investigation to go on. I am very enthusiastic myself over the little undertaking in this line that is going on by the Government, but we know that the efforts of the Ohio State University and the Government, too, are only a drop in the bucket, and are hardly commensurate with the importance of the question itself, and I hope that we will not abandon this feature of the association work.

Mr. C. A. Bloomfield: I do not want to be misunderstood. I do not want to stop the investigation, but according to the report of our good friend, Prof. Orton, the work has been neglected, and, according to his report, there is about \$400 to be expended, which could be expended this year, and then there is the \$250 to be added to that. I deem it good policy for the Committee on Technical Investigation to look into this thing. This year the \$250 could be turned over to the Winona Technical Institute and then could be given to the Committee on Technical Investigation again next year if the association saw fit.

Mr. Alfred Yates: This is rather a conflicting question. I believe in praising the bridge that has carried us over. We can one and all stand here and point to the career of Prof. Orton with pride. He has been of inestimable value to this association. When I first came to this association it did not measure up to the high standard it does now. I can say frankly, Prof. Orton has proven of untold value, and again I say, let us stand by the bridge that carried us over. (Applause.) These various matters which come before us at the conventions, such as the school for bricklayers, I would not speak despairingly of, and if you want to make a separate fund for this purpose I have nothing to say, but I want to see the investigations in the scientific department carried on in the future as in the past, and if you make any changes it should be to strengthen and stand by the man who has proven in the past a success, and brought this part of the association to its present standing. (Applause.)

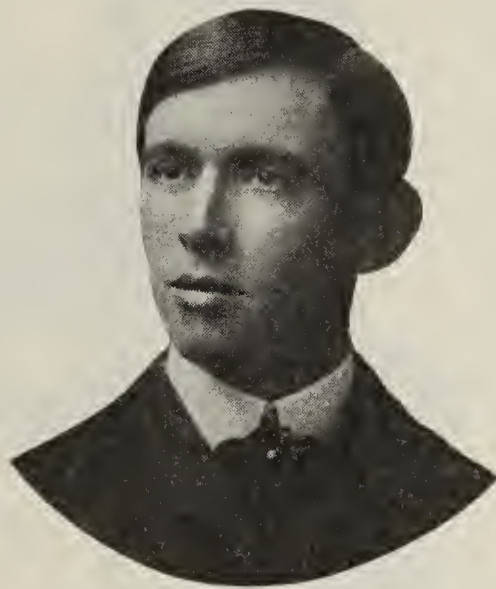
Mr. Boss: Mr. Cook, in his statement, said things which were logical and good in its line, and Mr. Yates is still more logical. Prof. Orton is one of the foremost men in his line, and who is there who can fail to see what this man has done for the association. (Applause.) We can all point with pride to his record. I can well remember when some of the publications first came out in regard to his investigations. I just delved and delved into them, and I got more out of that book than I ever dreamed was possible, and if nothing further ever comes of it than that, the investigation should be continued and supported. In regard to this Winona Technical Institute, I think we ought to give it our support also, and I will be one of a number who will put up \$250 for the Winona Institute if necessary, for I think it a worthy cause. But I think it would be disrespectful to Prof. Orton to drop this investigation matter now.

Mr. W. P. Blair: I look at this matter from another viewpoint, and leave Prof. Orton out of the question altogether. I do not know whether there are any of these ceramic departments that have sprung up in this university and that university, that look upon the Ohio University with a jealous eye or not. I do not know anything about it, nor do I care. I know sometimes that the young fellow thinks he knows more than the old one, and he probably does, and I will take off my hat to him. But I want to say that if it had not been for the Department of Ceramics of Ohio, we would not have one at Illinois, and we would not have the new department that has just been opened up at the Geological Survey at Pittsburg. (Applause.) It seems to me that if there is any sort of feeling in this association that it ought to be wiped out, because we are knocking at the very tree that has born us fruit, and I don't want to see it cut down. Another thing, it is not treating the State of Ohio exactly right. There was a time when it

took a lot of persuasion and time and talk to persuade the State of Ohio to give us \$100 to support the department of which Prof. Orton is at the head. The State of Ohio has set an example at our request, and I think it is a monument to the brick industry of the United States which overshadows everything else. I do not like to see these two things mixed in together. I think as much of the work at Winona as anybody, and I hope this association will support it, but I do not think we should take the \$250 from the technical investigation fund and give it to the Winona Institute.

Mr. W. S. Purington: Perhaps you may think I was speaking against the spending of this money by the Investigation Committee, but I was not. I want to say that the one thing that this technical investigation has done for the paving brick manufacturers is worth more than anything else that has ever happened in this association, and that is the establishment of a standard rattler test, and brought out of the chaos a rattler test which is carried on in every city in the United States. I do not think we ought to touch a cent of that money for any other purpose. (Applause.)

Mr. Parker B. Fiske: Mr. President and gentlemen—Do you realize that there is a fundamental principle before us in the discussion of this question, and that principle is whether the National Brick Manufacturers' Association shall endorse and otherwise support the technical investigation? If this association refuses to appropriate the money which



F. R. Kanengeiser, Bessemer, Pa.

they have heretofore appropriated, it means that they do not endorse technical investigation. We do believe in it, and those who have attended these meetings have seen the great benefit that has come to the brickmaking and clay-working craft by reason of this technical investigation, and I believe we should refuse to consider for one moment the question of not supporting and not endorsing the principle of this investigation. I believe this matter of educating bricklayers is immensely important; but it is just as different from this technical investigation as daylight is from dark. I think it would be a very sad state of things if this association is so poor that it can not afford \$250 for two equally good causes.

A number of members then asked for a division of Mr. Cook's motion.

Vice-President Blair, in the chair: A division of the question before the house has been called for, and the question I now ask you to vote for has nothing under the sun to do with the question that has been raised as to whether there is a surplus or as to whether Prof. Orton has too much money, or what not. The question you will now vote on is: Shall we take away the \$250 from the Technical Investigation Committee?

The motion was lost.

Vice-President Blair: Now the next question is: Shall this association appropriate \$250 for the Winona Technical School for its bricklaying department?

Secretary Randall: I would like to say in the discussion of this question, that \$250 is a small amount with which to help out the Winona Institute. Last year some forty of us agreed to pay \$60.00 each for scholarships for that year. A few of those who agreed to take scholarships did not pay the amount subscribed, but most of us who did pay have agreed to take an additional scholarship this year, but even so, for such an important movement, for a work of such vast importance to the brickmakers of this country, it is a paltry sum. Now, instead of giving a still smaller sum, would it not be better for us to ask the entire membership of this association to give, say \$5.00 each, and so support the school of bricklaying in an effective manner?

Mr. R. C. Penfield: The suggestion has been made that we make an effort through the Secretary to raise \$2,000 for this Winona fund, asking the members to pay \$5.00 each and then turn over this sum to the Winona Technical Institute.

Mr. E. K. Kane: I move the adoption of the suggestion of Mr. Penfield.

Motion seconded by Parker B. Fiske, and, being put to the convention by Chairman Blair, was carried.

President Parker: Now that this matter is disposed of, we will proceed with the program.

Secretary Randall: This brings us to the last formal number on the program, the Report of the Committee on Resolutions. Mr. A. R. Root, of Philadelphia, is the chair-



A. R. Root, Philadelphia, Pa.

man. Mr. Root is the only member of the association aside from myself who has never missed a convention, and it is fitting that one so faithful during all these twenty-three years, since our first meeting at Cincinnati in 1886, should be entrusted with the duty devolving upon this chairmanship.

Mr. Root was heartily applauded, and the committee report then considered. The resolutions were then taken up, and on motion of Mr. Anthony Ittner, that relating to the decision of Justice Wright was acted on first, and passed by unanimous vote amidst much applause.

On motion of Howard Chambers, Philadelphia, the balance of the report was heard, each resolution being acted upon separately and afterward adopted as a whole by a unanimous vote.

REPORT OF THE COMMITTEE ON RESOLUTIONS.

Mr. President and Gentlemen of the Convention:

Your Committee on Resolutions begs to submit their report, as follows:

WHEREAS, The National Brick Manufacturers' Association has gathered together here for this Twenty-third Annual Convention, in an assembly greater than ever before, and showing a national importance and influence, leading to a constantly larger membership and a continuous extension of its usefulness, and more original and widespread plans for the future as especially marked by this meeting;

WHEREAS, It was a happy and fortunate selection for this association when the executive officers decided upon the city of Rochester, in the far-famed Genesee Valley, as the place to hold this convention, for it is one of the most up-to-date cities of the East,

and many of the members at this convention have passed through it often in their travels east and west, and are glad of this opportunity to visit its many business activities and other attractions;

WHEREAS, Although this Twenty-third Annual Convention has been held at the end of an off year for business, and particularly the building trade and the brick industry, the members of this association hold with practical unanimity an optimistic view of the future, they feel assured that good times will soon be with us again, and, judging by their smiling faces all about us, we can feel sure that the brickmakers perceive in the near future an activity greater than ever before;

Resolved, That we extend to the Local Committee and their able assistants, the ladies, our warmest praise and appreciation of the successful way in which they have carried out their arduous and exacting duties; they have earned and deserve the thanks of all the members present at this convention;

Pledging Support to the N. B. M. A. Publicity Club.

WHEREAS, We believe thoroughly in the necessity of a publicity work which shall place the merits of our wares before the American people; and

WHEREAS, An affiliated organization known as "The Clay Products Association of America" has been organized among the members of the National Brick Manufacturers' Association, for the express purpose of promoting the use of burned clay building materials; be it therefore

Resolved, That the National Brick Manufacturers' Association approves and endorses the work of its Publicity Committee, and hereby extends to it hearty thanks for the work already accomplished, and, furthermore, that this association approves and endorses the new body organized for publicity purposes, and urges each and every member to give it his loyal support, both moral and financial.

Law and Order vs. Anarchism.

WHEREAS, Justice Wright of the Federal Court has recently rendered a decision in which it was held that Messrs. Gompers, Morrison and Mitchell were adjudged to have violated an order heretofore issued by the court; and

WHEREAS, Certain labor organizations and so-called unions have seen fit to condemn said judge, and to condemn unstintingly the decision so rendered, and have by their resolutions, speeches, etc., undertaken to bring into ridicule, contempt and disrespect the law as represented by the courts of justice;

Be It Therefore Resolved, That such conduct and such threats and such resolutions are deemed by this association to be uncalled for, unpatriotic and anarchistic, and should be condemned by every patriot and lover of his country, therefore,

Be It Further Resolved, That such conduct deserves the severest condemnation on the one hand, and the courts and tribunals of the law deserve and will have our unreserved support in any and every contingency.

In Support of Interstate Railway Commission and Deep Waterways Projects.

WHEREAS, We also recommend that Congress should pass such laws as will give the Interstate Railway Commission the power as outlined in their last annual report. This with special reference to such amendment of the Hepburn Bill as will restrain rate advances pending full investigation and decision by the commission, and also for an appropriate remedy protecting shippers from erroneous rate quotations made by railroad agents, which should in no way open up an opportunity to re-establish the old rebate custom.

WHEREAS, That this association does heartily endorse the work of the Lakes-to-the-Gulf Deep Waterways Association, the Atlantic Coastwise Canal project, and also the good work of the Ohio River Improvement Association, and all other associations that have for their object improvement of the streams and harbors of our Nation; be it therefore

Resolved, That we recommend to Congress an appropriation of such sums as will eventually give us a comprehensive plan for the general improvement of our rivers, to the end that it will reclaim our natural waterways, and thus conserve the public interest of our transportation problems.

The Further Investigation of the Structural Materials of the United States by the Geological Survey.

WHEREAS, The National Brick Manufacturers' Association, in convention assembled, desires to heartily endorse the work which has been begun during the past year in the Government laboratory at Pittsburg, under the auspices of the U. S. Geological Survey, in investigating the problems of the clay industry; and

WHEREAS, The manufacturers of clay products in this country have felt for years the urgent need of such help as has been freely extended by the Government to other industries, notably in the work of the Bureau of Agriculture, and hails the beginning of this work for the clay industry at Pittsburg as the most important step that has been taken in our field within the past decade; therefore be it

Resolved, First, That we express our gratitude for the work undertaken and most heartily approve of the organization of the department, and agree, both individually and collectively, to do all in our power to assist the Government in promoting the work undertaken.

Second, That we endorse the action of establishing a properly equipped laboratory at Pittsburg, and urge its support and enlargement as the needs of the department become better known.

Third, That we most strongly urge Congress to pass the proposed appropriation in the Sundry Civil Service bill, "for the further inves-

tilgation of the structural materials of the United States, such as clays, cement, stone, etc., in the sum of \$150,000, for the Geological Survey division." Inasmuch as this work will be of great importance and help to these vast industries, which are of vital importance to the entire populace.

In Support of Trade Schools and Committee on Technical Investigation.

Resolved, That this association appreciates the work done by the different members who have taken great pains to prepare their able and instructive papers on the different subjects read before these meetings, and that they hereby receive a vote of thanks from the association;

Resolved, That this association is now, as it always has been, in accord with the different trade schools of the country, especially their departments for the training of bricklayers, and that it recommends that they should have the personal interest and moral support of each member, as well as this recognition of the work already done;

Resolved, That we would advise that the Committee on Technical Investigation should have the hearty support and endorsement of each individual member, as well as that of the association, and that the association should encourage it in its work in every way, financially and otherwise. It is a fact that it has become necessary at the present day for a company that desires to build and operate an up-to-date brick plant to have as manager a man who has both a scientific knowledge and a practical training in the business to make it a success. The Committee on Technical Investigation deserves our thanks for the able work done by its members.

In Memoriam.

WHEREAS, We have learned with deep regret that during the past year seven of our members, men of high esteem with us and in their sections of the country, and greatly beloved by all of us who knew them—Messrs. Wm. H. Brush, of Buffalo, N. Y., president of this association in 1899; H. C. Dunn, Erie, Pa.; G. Godchawk, Abbeville, La.; Rush A. Jones, Gilmore, Tenn.; Arthur Koppel, New York City; A. Wagner, Dearborn, Mich., and P. L. Youngren, Milwaukee, Wis.—have passed to the Great Beyond, we desire to place on record our profound sense of the great loss which this association and the individual members who were personally acquainted with them have sustained. This association desires to convey to their sorrowing families its heartfelt sympathy for the irreparable loss they have suffered;

Resolved, That this token of respect and condolence for our departed members and associates be placed upon the records, and that a copy of this resolution be sent to the family of each of them.

WHEREAS, Our hosts have certainly done high credit to their city in their hospitality and in the delightful entertainment, which has been enjoyed to the utmost by all the members, who will go home with a pleasant and grateful feeling towards Rochester and its good people; and

WHEREAS, The success of this meeting is also in a large part due to the president of the association and the other executive officers, and to the hard-working secretary, to whom in particular is due credit for the proud record of this association since that first meeting of a handful of brickmakers at Cincinnati in 1886; therefore, be it

Resolved, That the outgoing president, the executive officers, the secretary, and all others who have contributed to the grand success attained, receive the thanks of the association hereby expressed;

Respectfully submitted,

A. R. Root, *Chairman*, Pennsylvania.

J. W. HAHN, Massachusetts.	W. H. BRECHT, Iowa.
F. W. HYATT, North Carolina.	J. W. ROBB, Indiana.
P. J. CONNELL, Michigan.	A. L. HUNTER, North Dakota.
S. J. Fox, Canada.	E. T. LEWIS, Tennessee.

Secretary Randall: This closes the regular formal order of business, and I am pleased to announce that we have invitations from Atlantic City, N. J., Denver, Colo., Detroit, Mich., Cincinnati, Ohio, and Nashville, Tenn., urging the claims of these several cities as the most desirable point for our next convention.

President Parker: Gentlemen, unless there is a motion to the contrary, all of these invitations will go to the Executive Committee, and the Secretary, as is his custom, will make the usual acknowledgements, thanking the gentlemen on behalf of the association for extending the invitations. Is there any further business to be considered?

Mr. W. H. H. Rogers: Mr. President and gentlemen of the convention—I want to again claim your attention for just a moment to tell you how much my associates and myself here in Rochester have enjoyed your presence here in our city. It is a source of great gratification to us to know that the convention has been successful. It is our earnest wish that you may carry away none but pleasant recollections of your visit here, and now, on the eve of your departure, we wish you Godspeed, a safe return home, and a prosperous business during the ensuing year. (Loud applause.)

President Parker: Gentlemen, without formal motion, I declare the convention adjourned sine die.

TUESDAY EVENING'S FROLIC.

The Glad Hand Brigade, consisting of the entire Local Committee, took possession of the Seneca Hotel Tuesday evening at 7:30, and proceeded to make each and every visitor feel that all Rochester rejoiced in their presence there. Megaphone in hand, W. H. Vicinus, the inimitable fun-starter, bade everyone assemble in the great banquet hall, where an orchestra discoursed popular music, and a male quartet rendered songs galore. Prior to the introduction of a number of professional vaudevillians, President Gregory, Secretary Randall, W. H. H. Rogers, E. J. Burke, and C. R. Clarke were called on for extemporaneous remarks, and responded briefly. An attempt was made to get Will Gates, Parker Fiske, Arthur Rogers and others in the calcium, but they made their escape. Champagne punch and a light luncheon was served in an adjoining room. The evening's festivities, which were enjoyed immensely by everybody, were closed by dancing.

The Grand Finale by Ittner and Chambers, and How it Appeared to the Onlookers.

MY DEAR RANDALL:

Following the convention adjournment, Mr. and Mrs. Purington, Mrs. Chambers and myself had our customary day of frolic and fun, reaching Philadelphia Saturday evening.



It was a touching scene
Which men can ne'er forget.—Ex.

ing. In addition to pleasant reminiscences of many kindnesses from Rochester's good people, W. S. undertook to enlighten the ladies as to an incident in connection with the report of the Committee on Resolutions. He evidently thinks he failed to do justice to the occasion, for now he sends the enclosed picture, which he says is the whole show, side lights and all. I had kept quiet, hoping to save the family from a rude

awakening, but I find it useless. I insist, however, that if Purington's interpretation of the theme is merited by the tow-headed man of the duet, it fails entirely to reach the gentleman from Missouri. With kind regards,

Philadelphia, Pa., Feb. 17, 1909.

Yours sincerely,
J. H. CHAMBERS.

WEDNESDAY EVENING'S ENTERTAINMENT.

The convention hall, contrary to custom, was thrown open Wednesday evening, and for an hour or two after dinner those who were so disposed were afforded an opportunity of inspecting the various displays in the exhibition hall. Then all present were invited to take seats, and an excellent male quartet delighted the audience with a number of songs, after which J. E. Randall delivered an illustrated lecture, describing and illustrating the brick plants in and about Rochester, adding for spice and variety descriptions and views of the plants of President Gregory, at Corning. R. G. Eisenhart, of Horseheads, N. Y., and that of Vice-President Crook, at Bessemer, Pa., after which there was more music and a further inspection of the displays. The evening was voted a pleasant one by all who participated.

THE ANNUAL BANQUET

A Rare Combination of the Good Things of Life—Brave Men, Beautiful Women, Sweet Music, Amusing Anecdotes and Splendid Oratory.

OF ALL OF THE many delightful occasions that have been enjoyed during the past conventions, none will be remembered with greater pleasure by those who participated than the splendid banquet at Rochester. The setting was perfect; the banquet hall in the Seneca Hotel is a beautiful room. It was decorated in good taste, and from the time the orchestra played the march, which was the first of the musical numbers, until Auld Lang Syne was announced, there was not a dull or tiresome moment. A good dinner was served promptly and well, and at its finish Toastmaster Balkam started the oratory with a grace and wit that was contagious, and not only occasioned peals of laughter, but elicited clever responses from each and all of his victims. There were nearly 600 participants, nearly one-third of whom were ladies, who not only added color to the scene, but seemed to enter into the spirit of the occasion with extreme zest. Between courses an excellent quartette rendered popular songs, and at frequent intervals the voice of the man behind the megaphone, the inimitable Vicinus, was heard in odd joke or quip. With the menu card at each plate there was a little book of songs, and these were taken up one after another by the entire assembly and sung so heartily that encores were frequently demanded. All in all, it was an occasion of unmingled pleasure.

The Rev. C. C. Albertson said grace, after which for an hour those assembled gave their attention to the following

Menu.

"America"	Song 1
BLUEPOINTS	
"School Days"	Song 13
CREAM OF CELERY, CROUTONS	
CELERY RADISHES OLIVES	
"Honey Boy"	Song 5
CUTLET OF LOBSTER VICTORIA	
"Dreaming"	Song 9
SORBET CURACAO	
"Harrigan"	Song 15
FRIED SPRING CHICKEN	
POTATOES GREEN PEAS	
"Waiting at the Church"	Song 6
HEART OF LETTUCE	
"Wurzbürger"	Song 14
INDIVIDUAL BRICK ICE CREAM	
ASSORTED FANCY CAKES CHEESE AND CRACKERS	
COFFEE	
"Auld Lang Syne"	Song 12

After confections had been served to the ladies and cigars and cigarettes to the gentlemen, Mr. Rogers called for order and started the oratory and introduced Toastmaster Balkam.

A Brickmaker's Welcome.

Mr. W. H. H. Rogers: Ladies and Gentlemen of the National Association and Guests—His Honor the Mayor welcomed you to our city yesterday. It is now my pleasant duty to welcome you to the hospitality of the brick manufacturers and dealers, who join in extending to you a hearty welcome.

One year ago we could not have invited you to our city, as we were lacking the necessary accommodations for your care and comfort; today we feel our hotels are ample and of the best. We now have a convention hall adequate for your needs, and feel you will be made comfortable during your stay.

I am not going to dwell upon the merits or demerits of our city, as we have speakers with us tonight to whom I know you will be delighted to listen.

We trust at the close of this convention, as you bid good-bye and Godspeed to its members, you will carry with you pleasant recollections of your visit to the Flower city.

In introducing the toastmaster for the evening, I take unusual interest; he is well qualified for the task assigned him—a real treat is in store for you. I take great pleasure in presenting Mr. W. F. Balkam. (Applause.)

Toastmaster Balkam: Mr. Chairman, ladies and gentlemen—If you will try to preserve reasonable order, all of the eloquent speakers, as well as myself, will endeavor to make ourselves heard in the outlying wards of the city. (Laughter.)

I believe on an occasion of this sort, when a clergyman is present, it is always proper that an invocation should be offered. I believe if any of us becomes involved in the law, that we should consult Judge Lynn or some other able attorney. If we are sick we should send for the doctor, and when, as here on this occasion, the ladies graciously grace the gathering, I feel the fact should not be permitted to go unnoticed. It has been said by some one in speaking of the ladies, that

"With health's bright flag unfurled,
The breathing angels of the world."



Toastmaster W. F. Balkam, Rochester, N. Y.

And I ask you all, every man jack of you, even the unmarried ones, who do not know yet the real happiness of life, to rise and join with me in drinking in this pure element, water, the health and happiness of good women, the breathing angels of the world. (Applause.)

After drinking the health of the ladies, someone proposed three cheers for the ladies, which were given with a will.

Toastmaster Balkam: When your genial and always kindly chairman of the Local Committee, my friend and your friend, Mr. Rogers, came and asked me to act as engineer on this occasion, I prepared with a great deal of trouble and some study, a lengthy and somewhat profound discourse, in which I praised all you gentlemen and thanked you in the name of my countrymen for what you have done and are doing to improve the physical appearance of our cities and towns, and what you are doing for the health and happiness and for the well-being of all the people. But when I saw this list of toasts—why every man at this table is either down on the list or wants to speak (laughter)—I have decided to forego my address, which, I tell you confidentially, is really eloquent. I think we shall get through with this list before morning. I am an optimist. Someone has said that a pessimist is one who, given the choice of two evils, will take both, while an optimist will refuse both and look around for a club with which to destroy whatever evil there may be. I always had a kindly feeling for Mrs. Maloney, who went to condole with Mrs. Finnegan on the death of

her husband. "Well, well," asked Mrs. Maloney, "and what did your poor husband die of?" "Sure, and he died of gangrene." "Well," she said, "thank God, the color was right." (Laughter.)

I would like to talk in this strain for some time, but as I have said, we have a great many eloquent and ambitious speakers. The gentleman who will respond to the first sentiment, "True Greatness," is a man well-known in this city, and well-known almost all over this country. He is eloquent and earnest, and when you have heard him talk ten minutes you will realize he does as but few men can do, scatter the metaphorical gumdrops of words and the sweetest confections of speech with lavish hand. (Laughter and applause.) It is with undisguised pleasure and absolute confidence that I now project upon you Reverend Dr. Charles C. Albertson, of this city.

"TRUE GREATNESS."

"Strong renown as time shall ne'er deny."

BY REV. CHARLES C. ALBERTSON, ROCHESTER, N. Y.

Mr. Toastmaster, Ladies and Gentlemen:

I am exceedingly obliged to my good friend, Col. Balkam, who, if he was not born in Ireland, at least has kissed the Blarney stone. The recommendation which he has given me tonight, I am not altogether sure I deserve. Indeed, I am altogether sure I do not deserve it. He meant to be complimentary when he spoke about gumdrops, but in some respects Col. Balkam at times, with all his eloquence, his learning and ability, and his effectiveness as an after-dinner speaker reminds me of the Irish orator on the return of a gallant regiment from the war. He offered a toast to this effect: "Here's to the gallant Sixty-ninth, the last to enter the field of battle and the first to retreat." (Laug-



George O. Berry, Columbus, Ga.

ter.) On seeing that he had made a mistake, he said, "Here's to the gallant Sixty-ninth, equal to none and excelled by all." (Laughter.)

In these busy days of a minister's harvest time, I could not have accepted your invitation to be present this evening but for the fact that I am strongly inclined to your company. From my knowledge of the thorough manhood and sturdy character of the members of this association with whom I have the honor to be acquainted, I could not turn away the invitation that came to me. It was to me like the little girl and the little boy who were swinging in the garden swing, and the little girl said, "Billy, this is great fun, but I would like to know what it is, that when you go up makes you come down. Why don't you keep on going up and up?" Billy said, "That is easy; don't you know. It is the attractive power of gratification." (Laughter.) That explains my appearance here tonight—"the attractive power of gratification."

I am to speak to you about true greatness. I am very much, in the brief time that I have allowed myself and that has been allowed me, like the man who finds himself at the railroad station with a very wholesome appetite and a very hospitable table at popular prices, and only ten minutes in which to eat. I am reminded by the subject itself of the discussion which arose some time since between two members of two different races—a descendant of Abraham and one who hailed from the Emerald Isle—as to which of the two races, the Hebrew and the Irish, had produced the greatest number of famous men. By and by they made a wager that for each member of his own race who had acquired great fame, the person who mentioned that name was to pluck one whisker out of the beard of the other man. The problem was which would last the longest. It began with the Hebrew. He said, "Abraham." The Irishman acknowledged that he was a great man, and the Hebrew reached out and plucked one whisker.

The Irishman said, "Edmund Burke," and he reached across and pulled out one of the Hebrew's whiskers. The Hebrew said, "Moses," and took another of the Irishman's whiskers. "Daniel O'Connell," said the Irishman, and the Hebrew lost a whisker. "The twelve apostles," said the Hebrew, and the Irishman lost the better part of his beard. "The Ancient Order of Hibernians" (laughter), and the Hebrew's beard disappeared en toto. (Laughter.)

Greatness sometimes depends upon one's nationality, and sometimes upon the age in which one lives. The great men of one age do not always measure up to the standard of another age. There was a debate in the black belt of Alabama, so Mr. Booker Washington says, some time ago. The debate was in a school house, and the question was thus stated: "Resolved, that de great men ob today am not so great as de great men ob herebefore." After discussing it for some time the judges retired, and presently returned with this verdict: "De great man of today am not so great as de great man ob herebefore, but dere is more ob 'em." (Laughter.) That contains a great deal of practical truth, for though we have not the great outstanding names of other ages and other lands, the general average of manhood has been lifted, and the very term manhood, or the very term greatness as applied to manhood, stands for more in many ways than ever before in the history of the world. The time was when greatness was estimated by physical standards, when they measured a man around the neck for brawn and strength. He was greatest among men who could hit the hardest, was the fleetest of foot, or the keenest of eye, and the sturdiest of frame, like Saul of Israel, of whom it was said, "He stood above his fellows from his shoulders up." It is singular but true, as Macaulay, in one of his essays reminds us, that the common word "king" comes from the Anglo-Saxon word "cannig," which means "one who can"—one who not only can, but *does*. The first kings among men were crowned kings by virtue of their physical powers, but as the years went by the thoughts of men were changed, and after a while the man of brawn was compelled to step down, and into the places of power there stepped the man who was greater in the power of his mind—the man of brain, the man upon whose forehead God has set the seal of genius. In the last few hundred years, since the revival of learning in Europe, a man is crowned king by virtue of his intelligent grasp, his ability as an independent investigator of truth. Is there anything better than the kingship of mind? Yes. We shall see. More than eighteen hundred years ago there lived a Man, if it be possible to call Him man, who was both brave and wise. He had in Him the love of the morally beautiful, the love which Plato calls the highest courage. He was not only true, but the truth, and He gave us a standard of greatness beyond which the world has never gone and shall never go. "Let him that will be the greatest among you, be the servant of all." It has taken the world a long time to learn that lesson, but the world is beginning to learn it, and the world is beginning to crown with its greenest laurels and most unfading crowns, the men and women who are great in their capacity for service. The sun is the center of our solar system, because it serves the largest part, and he is greatest by virtue of true moral grandeur who has capacity and desire to be useful to the largest number of people. Charles Lamb and a number of his friends were talking about what would happen if the great men of the past should come into the room. Homer, Virgil, Dante, and Milton were all mentioned, and finally one said, "What if Shakespeare should come here?" Someone said, "We should all rise up to greet him, that kingly intellect." Then it is recorded by the biographer of Charles Lamb, that someone asked, "What if Jesus of Nazareth should come in?" There was a silence. Charles Lamb broke that silence and said, "If He should come in, we should not rise up, but fall down upon our knees to acknowledge Him King of Men."

If you have studied our national history, you have marked two great names emblazoned on the roll of its leaders, great with the lustre of deeds which can never die. One the Father of his Country, the other the saviour of his country. (Applause.) One a Virginian, the other a Kentuckian by birth. One an aristocrat, and the other a plebian. Just one week from tomorrow we will celebrate the one hundredth anniversary of the birth of Abraham Lincoln, and not alone in the United States, but throughout the world men will pause for a moment to think of that little Kentucky cabin, between whose chinks the winter's snow and summer's sun fell with equal ease—the hut in which he was born, whom all the world delights to honor.

It is said that "Abraham Lincoln loved the poor man more than the rich, the black man more than the white, loved both more than himself, and loved God more than all."

When we come to celebrate the centenary of the birth of the savior of our Union, let us remember that he was supremely great, not chiefly by virtue of his splendid size, though he was a chief among men; not by virtue of his magnificent intellect, though he had a brain of vast power, but because he had within himself the elements of gentleness, loyalty, truth and patience. "If any man would be greatest among you, let him be servant of all." So I leave you with this concrete instance of true greatness, upon whose modest brow we shall lay our laurel before many days. In these lines, somebody has summed up the lessons of a life in which true greatness resides:

"Battling with fate, with men and with myself, up the steep summit of my life's forenoon,
Three things I've learned, three things of precious worth, to guide and help me down the western slope:
I have learned how to pray and toil and save;
To pray for patience to receive what comes, knowing what comes to be divinely sent;

To toil for universal good, since thus and only thus can good come unto me;
To save, by giving whatso'er I have to those who have not—
This, and this alone is gain."
(Loud applause.)

Toastmaster Balkam: The remarks of the gentleman to whom you have listened to the effect that I had kissed the Blarney stone, reminds me of the story of the poor Irish woman, who stood looking down into the face of her dead husband, and she said, "Oh, Mike, I wish you could just be alive for a few minutes to see all these beautiful flowers that have been sint in here, and then you would know how many people there was that loved you. Just look at that beautiful broken column sent in here by the Knights of St. James, and that sickle and sheaf of wheat sint by the ladies of the Hibernian Society. Oh, Mike, I wish you could be here just a few minutes and get an idea of how many of the people loved you. Here are the beautiful flowers sint in by the little girls livin' on the street. Mike, you did not know that the little girls loved you, but they did." Then she looked around and her eyes fell on a floral anchor, and she said, "But who the hell sint that pickax?" (Laughter and applause.)

Now while I get my breath for the next speaker, I will call on the quartette for some music.

After the quartette had rendered a popular song, Mr. Balkam resumed.



L. L. Stephenson, Lovick, Ala.

Toastmaster Balkam: I do not quite understand what this next sentiment means, "The Fair Impeachment," but from the words given below:

"And when a lady's in the case,
You know all other things give place."

I think it must be the ladies, and I am reminded of the Kentucky colonel, who was unexpectedly called upon at a wedding breakfast to respond to the sentiment, "The Ladies." You will see how he got two poets mixed: He said, "I am sure, suh, that any gentleman would be honored, suh, to respond to such a sentiment—these hand maidens of joy and hope and light. They help us through our hardships of life and share with us our joys and adversities. As the poet so eloquently puts it:

"Oh, woman, in our hours of ease,
Uncertain, coy and hard to please;
But seen too oft, familiar with her face?
We first endure, then pity, then embrace."

(Laughter.)

This sentiment will be responded to by a gentleman from the Sunny Southland, the land of hospitality and good fellowship—the land of beautiful flowers and lovely women. I take great pleasure in introducing Mr. L. L. Stephenson, of Lovick, Ala.

"THE FAIR IMPEACHMENT."

BY L. L. STEPHENSON, LOVICK, ALA.

Mr. Toastmaster, Ladies and Gentlemen:

I think the toastmaster interpreted that toast right. I did not know myself what it meant, and I had to go to my dictionary and really it seemed to me, after I went there, that it meant most anything that you might want it to mean. I am somewhat disappointed in my subject, and no doubt you will be somewhat disappointed in me before I get through, for I am obliged to decline the honor or dishonor, as I would construe it, if I had to impeach the ladies. When I referred to my dictionary, I found it meant an obstruction or hindrance. (Laughter.) Well, I did not see where that was for the ladies, in any way, shape or form, so I most decidedly refuse to qualify. Since I found that I had partially accepted the invitation to respond to this toast, before I really knew what it meant, I immediately wired the Secretary that I could not meet the emergency, but he said, "It is too late, too late."

In this subject it seemed to me there was, as we say down South—you may know what it means up here—a "nigger in the wood-pile." We know quite well what that means down our way. I want to say to our worthy Secretary and toastmaster right now, that we never have allowed any man to impeach the ladies, and he had better not come south to get them impeached, especially as far south as Birmingham. (Laughter.) I may say I know just what it is, having myself a grown daughter whom I have never been able to get rid of. (Laughter.) I have been looking and listening for something to happen down home, so I have brought her with me on this trip north to see if there would not be something doing. (Laughter.)

I can not see how this subject can refer to the men, "The Fair Impeachment," for you know the men are unfair, and they stand impeaching without trial. I think a speech from me on this subject from the definition that I found in my dictionary—and that is all I had to go by—would not be in any way in keeping with the toast which our worthy toastmaster proposed in his opening speech, and so I will not try to make any. (Applause.)

Toastmaster Balkam: A colored man on the occasion of the death of his fifth consecutive wife, was asked how he felt, and he replied, "I feel as though I was in the hands of a Divine but unscrupulous Providence." (Laughter.) Now I want to be a little careful in introducing the next speaker, who will speak to the sentiment, "The Common Weal."

"When public blessings public peace attend,
When glory is our motive, and not our end."

Someone has said of him:

"There is gladness in his gladness when he's glad,
And sadness in his sadness when he's sad;
But the gladness of his gladness when he's glad,
And the sadness of his sadness when he's sad,
Is not in it with the madness of his madness when he's mad."
(Laughter.)

I am reminded of a story of two men who were talking about a certain Kentucky colonel, and one said, "He is really a wonderful fellow; he will drink all night with the boys, and come up smiling in the morning at eight fresh as a daisy." And the other one said, "Yes, I know the colonel, he is a wonder, he reminds me of the mountain ibex, as he leaps undaunted from jag to jag." (Laughter.) Now I do not mean the sort of a jag you gentlemen are thinking of, and I tell this story in introducing Mr. Fiske because it is so unlike him. I have very great pleasure in introducing to you Mr. Geo. M. Fiske, of Boston.

"THE COMMON WEAL."

GEORGE M. FISKE, BOSTON, MASS.

Mr. Toastmaster, Ladies and Gentlemen:

I think you must be congratulating yourselves that I am not mad tonight. It seems to me, Mr. Toastmaster, you have given a heavy subject to a rather light man. In these days of rapid transit, wireless telegraphy, navigation of the air, and close relationships and friendships between the nations, growing stronger every year, the common weal is coming to mean the weal of the world.

I heard recently of a preacher who made rather an unfortunate break in announcing his text. He said, "I will speak to you this morning, my friends, of the world, the flesh and the devil. I shall dwell for awhile upon the world, then take up briefly the flesh, after which I shall pass on to the devil." (Laughter.)

Now I am going no further than the world tonight; that is, if I can help it. I am not over ambitious; like most of you, if I can get the earth I will be satisfied. Now if you do not quite

understand what I say, I hope you will ask me no questions. Questions, you know, are often hard to answer.

I heard of a poser that was put to a Philadelphia man recently. This man was going home rather late one night, and he came across another man who was going home like a man who had evidently been indulging a little too much, and was somewhat muddled. He could not find the house he lived in, so this man, whose name was Paul, took pity on him, found the house, helped him up the steps, and took his latch key and opened the door for him. He was profusely grateful for the service, and finally said, "May I ask you your name?" "Certainly, my name is Paul." The man looked at him in surprise, "Paul, Paul, you don't say," he exclaimed. "Well, Mr. Paul, I hope you will be rewarded for your kindness to me." "Oh, that's all right," said Mr. Paul, and went his way. He had gone only a short distance, when he heard someone running behind him and calling out, "Mr. Paul, Mr. Paul." He stopped and his muddled friend came up. "Excuse me, Mr. Paul," he exclaimed, "but I do want to ask you one question." "Well, what is it?" "Did you ever, Mr. Paul, receive any answer to that long letter you wrote to the Thessalonians?" (Laughter.)

We Americans are quite fond of patting each other on the back and saying what a great country is this, and how we are a real schoolhouse for the nations. How they come to us for free educations, etc., but not all our pupils reach perfection in knowledge. I read the other day of a Tammany judge down here in New York City. An officer brought in a prisoner, and the judge asked, "What is the charge against this man, Mr. Officer?" "Bigotry, your Honor; he has three wives." And the judge said, "Bigotry! Mr. Officer. Three wives! That isn't bigotry, that's trigonometry." (Laughter.)

Well, now for a few figures, and I shall impose only a few upon you. The population of the United States at the close of the war was 35,000,000. Today is 85,000,000. The same ratio of increase for the next fifty years, only fifty years, a very short period, at least so it seems to we older men—at the same ratio of increase, I say the population of the United States in fifty years from now will be 200,000,000 souls. Now just think, fellow brickmakers, what that means for business, make a little mental calculation, if you please, as to the quantity of brick it will require to build homes and business houses for all these people, besides providing brick to rebuild all these cement houses, most of which will have tumbled down before that time. Why, friends, by that time the population of New York City will be between 8,000,000 and 9,000,000; that of Philadelphia, 3,000,000; Boston, 2,000,000, and Chicago and St. Louis—my, I am not at all sure but that they will be as large and important by that time as, well, say as they think they are now. (Laughter.)

Yes, we are a schoolhouse of the nations, and they are coming here more and more. Do you know that New York City is today the largest Italian city, the largest Irish city, the largest Jewish city, and the largest German city but one in all the world? So these immigrants have been coming and settling down, side by side in our cities, on our farms and in our villages. The immigrants of different races do not mingle much, but their children mingle, more and more every generation, on our streets, in the schools, in business. They intermarry more and more every generation, and so there is growing up here a new race of men—a composite race, strong in purpose, lofty in ideals and ambitions—mighty in enterprise and achievements. A race which is now saying to the world, "Follow me," and the world is beginning to follow.

Let me read you a few lines from a recent magazine article. This was published a year or so ago, but is more than ever true:

"European markets are inundated with our goods, our cottons, chemicals, agricultural implements, electrical apparatus, cereals, meats, tobacco, manufacturers of steel, brass, wood and leather. Within the last few years this American tide arose in France from \$40,000,000 to \$100,000,000.

"Old Europe, studying the tides of trade, is awakening to the fact that these tides are carrying away her supremacy to the shores of the new world.

"Her statesmen now recognize the fact that a new power has entered the council chamber of the nations, and is elbowing its way to the head of the table.

"They are asking upon what food has this Yankee fed that he has become so great, and they are studying American habits and American books. Last Christmas, it has been claimed, that there was scarcely a business man's son in Germany who was not presented with a copy of 'The Letters of a Self-Made Merchant to His Son.'

"With the beginning of last year, the Municipal Council of Paris placed a copy of Roosevelt's 'The Strenuous Life,' in every public school, that young France might study, as they said, 'the valiant, energetic American soul.' (Applause.)

"Signor Ferrero, of Italy, a leader among modern sociologists, pictures America as bound to go the Roman way, increasing in power, drawing incalculable wealth from that Orient which enriched Rome. Forced, in spite of hereditary, democratic ideals to make itself strong on land and sea, in order to hold its own and protect its world-wide trading flag, overshadowing the whole modern world, as Rome did the little civilization of the Mediterranean."

Now this mingling of the races of the world upon American soil is a powerful agency in carrying us forward toward that goal which so many are striving for today, a world of citizenship and a world of patriotism. Now patriotism has always been considered one of the noblest of virtues, but how often has it happened that two great nations, even Christian nations, have rushed

madly at each other's throats, each seeking to tear the other to pieces, and each urging on its forces in the name of patriotism.

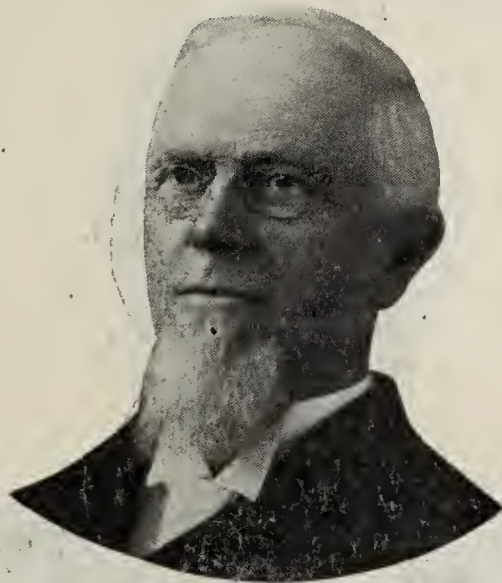
Well, then, what is true patriotism? We say, love of country. Very well, what is our country? We sing:

"My country, 'tis of thee,
Sweet land of liberty,
Thy name I love.
I love thy rocks and rills,
Thy woods and templed hills."

But is it the rocks and rills and woods and templed hills that we love? Why, yes, to some extent. But suppose you and I stood alone here, and there was nothing here but rocks and rills, woods and hills, would we love our country then? I think not. It is because our country is peopled that we love it. Because we love the people and because their interests are our interests, and ours theirs, and we love righteousness and equity among them. Because we touch elbows and clasp hands with them. We shall all be better citizens and stronger patriots for this convention of ours, and so we see that patriotism is, after all, but the love of our fellow men. (Applause.)

This love of our fellow men has its origin in the home, where the strongest ties of affection exist. Then it spreads outward in ever-widening circles, taking in next a little wider circle of friends, then the neighborhood in which we live, then the town or city. Then the county, perhaps, then the state, and then the nation. And if this is the definition of true patriotism, we must admit that it can not be confined within the limits of any country, but must extend outward and around until it includes every nation and tongue and tribe and people in all the world.

Now we have given the world an illustration of this world patriotism in our war with Spain. Not for glory, not for money or conquest, or for any gain to ourselves did we take up arms against Spain, but for the rescue of a downtrodden and oppressed people, and that, too, for an alien race. We poured out



George M. Fiske, Boston, Mass.

our money like water, we shed war blood for Cuba, and when the tyrant was driven from her shores, we did not leave her wounded and bleeding by the wayside. Figuratively speaking, we bound up her wounds, set her on our own beast, and brought her to an inn and took care of her. We gave her the benefit of our best engineers' skill in the sanitation of her cities, and in laying out her railroads and highways. We gave her the benefit of our best educational talent in establishing her public schools, and when the proper time came we freely gave her all that we had done for her without money and without price. We did all this amid the plaudits of the nations, to whom we had said, "Go ye and do likewise."

In New York harbor there stands a colossal statue, representing liberty enlightening the world. The great figure stands there holding its torch aloft, and from that uplifting torch there radiates today a wireless telegraphy, which needs no Marconi instrument for its transmission or for its interpretation. And the language of that message, which reaches to the uttermost parts of the world, is something like this. It says to everyone who is downtrodden and oppressed: "Come to me, and you may win for yourself that greatest blessing this world has to give—a home. Here are free schools into which you may enter, here are paths which lead to the heights of knowledge—paths which lead to wealth, paths which lead to fame and to those seats of responsibility and power, the occupants of which the nation delights to honor. Behold, I open wide the door and you may enter in. You may set your standard at the very summit, and with patient, untiring energy, steady to your purpose, you may reach the very heights of your ambition, for your failure or your success depends on yourself."

"Oh, Caesar, we who are about to die
Salute you; was the Gladiator's cry
In the arena, standing face to face with death.
And with the Roman populace."

Oh, ye young men of today, we who are old and about to retire from the field, salute you—Caesar held in his hand the destiny of Rome. You hold in your hand the destiny of the world! Never before have the interests of humanity been centered in American history as they are today. Never in all history has any nation had such influence and power in the affairs of the world as has the United States of America today. (Applause.)

Never in all history has a rising generation such opportunities as are yours today. Be ye true! Hold fast to all that which is good in public and private life. Take for the guiding star of your citizenship the genius of that greatest man this country has produced—Abraham Lincoln. Then, indeed, shall ye go out into the future, under a material prosperity such as the world has never seen, while from every summit of our national greatness the touch of Christian liberty shall light the world! (Applause.)

Toastmaster Balkan: A Catholic priest was out walking one day and he noticed several Irishmen working under an Italian boss. He called one to him and said, "Mike, how do you like your Dago boss?" And Mike asked, "How do you like yours?" (Laughter.)

The next speaker will address you on the sentiment, "The Power of Concerted Action." As you will see when he arises, he is gentle and kindly, and when you have heard him talk you will realize that he is eloquent as well. Of him someone has said, "He is a very good fellow in many respects, and a very much better fellow in every other respect." The Hon. John D. Lynn.

"THE POWER OF CONCERTED ACTION."

BY JUDGE JOHN D. LYNN, ROCHESTER, N. Y.

Mr. Toastmaster, Ladies and Gentlemen:

I am in surroundings so strange tonight that I am somewhat modest and abashed. I am not a brickmaker. As I told the



Charles Deckman, Cleveland, Ohio.

gentleman on my right, when he made that query, I am a mere money-maker. Your toastmaster tonight, as I knew he would, opened this affair with a compliment to the ladies. He always does that. I want to tell you that there is a reason for it. He has for many years been a favorite with the fair sex. (Laughter.) He had things all his own way in our city in that regard, until my hair turned gray. When my head was crowned with those dark curls, which you older fellows remember, why, even the chaperons were afraid of me. (Laughter.) But I got gray, too, and now I am disputing with him the celebrity which he so long enjoyed unchallenged.

I am glad to see that so many of you gentlemen, coming from all over the United States, have brought your wives with you. I judge that all those who have not ladies with them are not bachelors. I assume there are good reasons for not having your wives with you—they are probably at home taking care of little brickmakers. (Laughter.) I know these good women did not come with you as guardians, for they must know it was not necessary in Rochester for them to be here to protect you. You have heard from our officials, welcoming you to the hospitality of our city, that there is no place in this well-governed city where any gentleman may not freely enter with safety to property and reputation. It is, of course, possible that the fame of the beauty and the popularity of Rochester's girls may have gone into the distant parts of the Union, and that these good women came along for fear that some of you might forget to return to them. And, looking you over, I can hardly blame the women for having some fear of that kind. (Laughter.) You are, I assure you, a very handsome lot of fellows, particularly intelligent looking; in fact, it would not take much to persuade me that I was

addressing a gathering of our own handsome citizenship of Rochester. (Laughter.)

I know enough of brickmaking to assure you now that I shall be careful to say nothing that will offend you. I would not try it with any body of men who are so clever at handling brick. (Laughter.) I have posted up on the craft since I have been invited to come here, and know all about it—from those ancient days when the Egyptians compelled their slaves to make brick without straw, down to the "Mick who threw the brick," and, knowing what brick can be used for, I shall be extremely civil in your presence. The subject assigned me was first printed "Concentrated Action," but someone thought that sounded too much like an ad for cement people (laughter), and the word was changed to its more harmless form. I have no doubt but that you gentlemen are just as affluent and prosperous as you look; no doubt you are all men of wealth. I understand the business is very profitable, and as I sat here thinking how profitable your business is. I could not help getting a little avaricious myself, and figuring what a desirable lot of clients you would make. We live so far from Washington that we do not know much about "malefactors of great wealth," therefore you notice we receive you with open arms, and, possibly, verdant innocence. We have few rich men here in Rochester, nor have we any very poor. Our poor are contented and our rich respectable. (Laughter and applause.) You can well see this is a remarkable condition in this day of the world.

The power of concerted action, I think, is pretty well known to this body. You have concerted for your advantage, and your advantage will be, in some measure, at least, to the advantage of the entire body of citizens of this republic. I hope you haven't formed a trust. (Laughter.) I was interested in the gentleman from Massachusetts, telling of how our population was likely to increase. He figured from that a permanent increase in your trade. I do not think that is so. I do not want to discourage you, but I don't think when our population doubles, that your business is necessarily going to increase in that proportion at all, because we are becoming a very peaceable people. (Laughter.)

I notice that you have decided here in the moral atmosphere of this beautiful city, that henceforward you will "play the game" above the table, and let the public know all about it. That is the influence our climate, our social life and our business integrity has upon everybody who comes to visit this moral city of ours. They always repent and make resolutions to do better. But it is a strange confession for your body to make. Had you not said it yourselves, I would not have suspected that you had a secret in the world. I supposed that everything was open to the public and plain and frank, so far as the manufacture of brick is concerned. I know it always is on the part of the fellow who hurls the brick.

The time is growing late, and I shall not detain you except with one serious thought. We are all familiar here in Rochester with concerted action, because we have it here. Our entire citizenship is united in one concerted purpose to make this city the most beautiful city in the world; the most prosperous, the most moral, and the most advantageous to live in. We have put ourselves to that purpose with an energy that perhaps few cities have, but I am not here to boast tonight. This house in which you are being entertained is the result of concerted action. It was decided that Rochester needed a place like this to entertain such bodies, and immediately the conclusion of the necessity was reached; this structure was raised here with a rapidity that almost equaled the fabled result of the magician's wand.

Concerted action has grown to be necessary in every trade and profession. In fact, the lawyers are banded together sometimes—the mechanics call us the Lawyers' Union—and I am not sure but that is a pretty good name, if we would only live up to it. The one thing we have not done that I find the manufacturers and all industrial people do, and that is, in our concerted action the thought of self never enters. We lawyers simply get together and put in our time and thought and energy and our client's money, to benefit mankind. (Laughter.) But as I sit here tonight and look over this body a serious thought comes to me, that although removed from the activities of industrial occupation, we are still interested in you gentlemen. We lawyers are much interested in the men who create things, who work and make money. We fairly love all of you. I tell you candidly we do not enjoy all the luxuries we feel capable of enjoying, so we are interested in any movement that will make you more prosperous, and we will undertake then to take care of ourselves in getting our share from you. (Laughter.) I do not know that there is anything practical in this suggestion, but the thought struck me that here is a body of manufacturers, employers, organized for mutual improvement and advantage—no doubt all large employers of labor like yourself organize for advantage—and I am one of those who believe in a most thorough and most effective organization, both for the employers and the employees. Such organizations are productive of great benefit, but the thought that struck me is, why should there be, as there sometimes is, an hostility between this great body of employers and their great body of employees. I think we should give our attention to these matters a little more carefully. I do not think manufacturers can be prosperous until the laborers are sharing alike in the prosperity. I do not think any laboring man can have any real purpose in doing anything that is not to the advantage of his employer. Unless you are all prosperous, from the man who furnishes the money, down to the man who loads the brick and gets it to the consumer—all are interested alike in the successful outcome of that venture—and it seems to me that concerted action on the part of both parties ought to bring all into one harmonious organization, in which the employer and employee would strive

together in one industrial organization for the benefit and commercial advantage of all. If the working man gets more wages the employer gets more money, because only as the masses are prosperous and in a position to purchase can there be any sales. I am myself removed from the practical working of these things, but I am giving this thought to you as it occurs to me. This unseemingly contest that has been waged for years between employer and employe can be ended, and should be ended.

That is enough wisdom from me. I am glad you have come to our city and I shall be delighted, and so will every one of us, if you will come often and stay as long as you possibly can. I would advise you to do so, not so much on our account as on your own. We know it would be a good thing for you, and if any of you here now should take it into your heads to remain and make your home among us, I assure you that our pleasure would be exceeded only by your advantage. (Applause.)

Toastmaster Balkam: Hearing my distinguished friend, Judge Lynn, say he talks seriously, reminds me of an occasion when two young ladies met one morning after having together attended a concert the night before, and one said to the other, "How I did envy that tenor last night." And the other said, "Why I thought he was simply execrable." The other said, "He was, but think of his nerve." (Laughter.)

A ragged, unkempt, dirty tramp was begging food at a country house. He looked up at the woman of the house and said, "Madam, perhaps you will not believe it, but I was once a reporter on the New York Journal." And the good woman said, "Indeed, and how do you account for your rise in life?" (Laughter.)

The next speaker was never a reporter on the New York Journal, possibly fortunate for the Journal, and perhaps well for him. He is a traveling man, has been a newspaper man, is a magazine writer, and an advertising man. He is going to speak to the sentiment, "The Press."

"Mightiest of the mighty means
On which the arm of Progress leans."

It gives me pleasure to introduce Mr. Herbert S. Houston, of New York City.

"THE PRESS."

BY HERBERT S. HOUSTON, NEW YORK CITY.

Mr. Toastmaster, Ladies and Gentlemen:

After doing a little turn at the convention this morning, I hardly expected to have a return engagement during this convention. I shall be greatly obliged to my friend of the megaphone if in eight minutes he will speak up, and you will all probably second the motion.

Mr. Toastmaster, I am really very glad to get up for a moment to respond to the toast "The Press." I am surprised that you, as brickmakers, should fail to make mention of the fact that the brick kiln was the first printing press. Way long before we had white paper, with newspaper and magazine publishers to corner the news, they made their records in hieroglyphics on slabs of clay, which were burned in the kilns. Gentlemen, you brickmakers kept the records of what great men did, of their battles and their achievements, until we got the printing press. But we came to the printing press through a process of evolution, and not of substitution. In deference to the sweet singer from the Southland who plead not guilty to the fair impeachment, I am going to tell a story. It is about the oldest darkey in Richmond trying to substitute a tame turkey for a wild turkey. One of my friends bought a turkey from Uncle Ephraim, and he said, "Is that a good, tame turkey?" And the darkey said, "Oh, yes, that is a tame turkey, there is no question about that, boss." My friend bought the turkey and took it home, and it was duly cooked, and when they were eating it they discovered some shot. A day or two afterward my friend met Uncle Ephraim and said, "You told me that was a tame turkey." "That was a tame turkey, all right." "Are you sure of that, Uncle Ephraim?" "Sure, boss, there is no question about that being a tame turkey." "Well," said my friend, "we found some shot in it." "Say, boss," said Uncle Ephraim, "don't say anything about it, but that there shot was intended for me." (Laughter.)

It is a great pleasure, ladies and gentlemen, to speak to you about the press in the city of Rochester, a city that has given to the press of America some of its great men. I could not help but think of that scholar, O'Connor, who wrote those great articles and his "stuff," as we newspaper men call it was printed far and wide. I think of your statesmen Fitch and Sam Blythe.

I am going to tell you a story Sam told me. I am going to tell it because in the time of Rameses I, I think it had whiskers, but I think it is a good thing to tell it here in Rochester, where he told it to me. He said out in Sedalia, Mo., when Gov. Folk was running for governor, they had a big meeting, and the chairman of the meeting proceeded to introduce Folk. He would always come to this point: "Who is the Hon. Jos. Folk?" and he would stop a moment, and then he would go on, "Who is the Hon. J. W. Folk?" and once again his voice rang through the room, "I repeat, fellow citizens, Who is Joseph W. Folk?" Then

a little weazened man sitting in the front row said, "Oh, hell, I am easy, who is he anyhow?" (Laughter.) I am sure it is almost time for the megaphone man to call me, but I am going to take the last two minutes and twenty-three seconds in leaving this particular word with you.

One summer day I stood before the Strassburg Cathedral and looked across at the little house where Gutenberg had set up one of the early printing presses. There I thought was the real cradle of the modern world. From the marvelous printing art, exemplified in that old house, had gone the printed page which had made men strong and wise and free. The lever to life in the world is the power of the press. In the great cathedral towering above me, the Bible used to be chained for the few to read who could read. When there was a chained Bible in the cathedral there were robber barons on the Rhine, not because one produced the other directly, but because the chained Bible meant a condition of ignorance, and that a condition of vassalage and that of the feudal baron, building his rule on the right of might. But the rattle of the crude press of Gutenberg was the dirge of ignorance. Its printed page, by the power it spread, of necessity meant the free Bible, the free book, the free press, and the free man. Of course, these things did not come quickly. The free man in an ultimate sense is probably only an ideal, but he is an ideal that can be approximately attained.

In that same Germany today, powerful vineyards stretch up from the Rhine where the fortress castles once frowned, and within this present year the whole nation arose as one man to rebuke even the emperor for presuming to exercise authority which belonged to the people. Of a certainty, the power from Gutenberg's press has spread knowledge that makes men free.

Come to our own America, the United States of America, in a real sense the child of printing. The Puritan who came to New England, the cavalier that came to the banks of the James River, the Catholics who came to Baltimore, the Quakers who came to Pennsylvania, were all expressions of intellectual freedom brought about through the Gutenberg press. From the time of the Declaration of Independence to the present day has been felt



Grant Dibert, Pittsburg, Pa.

the power of the printed word. It seems to me that America in a very true sense is a marvelous exhibition of the power of the press.

Have you stopped to think that it is from the printed page that you get your information, that you get the news of the world each day, practically as soon as the things happen. Do you stop to think of the influence of the editorial page of the important periodicals and newspapers of the country? The newspapers of America have a great trust, and I believe they are going to be true to it. (Loud applause.)

Toastmaster Balkam: A couple of years ago, in New York, a couple of Jews went to one of the fine cafes for dinner. They were both very fond of fish, but they did not know what kind to order, so they asked the waiter which were the best fish, and he said the little black bass were the best fish to be had, so they ordered a couple of black bass. The waiter brought them in on one plate, put them on the table, and one was a pretty good-sized fish and one was very, very small. One of them said, "Ike, you serve the fish." And Ike said, "Oh, no, you serve it." And the other said, "Oh, no, you serve it." So Ike placed the small fish on the plate and passed it to his friend and kept the larger one for himself, and the other one said, "That is a hell of a way to serve. If I had been serving those fish, I would have given you the big one and kept the little one myself." "Well," said Ike, "What are you beefing about? You got the little one, didn't you?" (Laughter.)

And so without being in the least degree invidious toward the gentleman, or, in fact, any of the eloquent speakers whom we have heard with such, we have saved the biggest fish for the last—Prof. Charles F. Binns, a most worthy son of a noble sire, a noted ceramist, technician and a scientist. It gives me great pleasure to introduce to you Prof. Binns, of Alfred, whom I know will most fittingly close the set of speeches of the evening on "Our Industries."

"OUR INDUSTRIES."

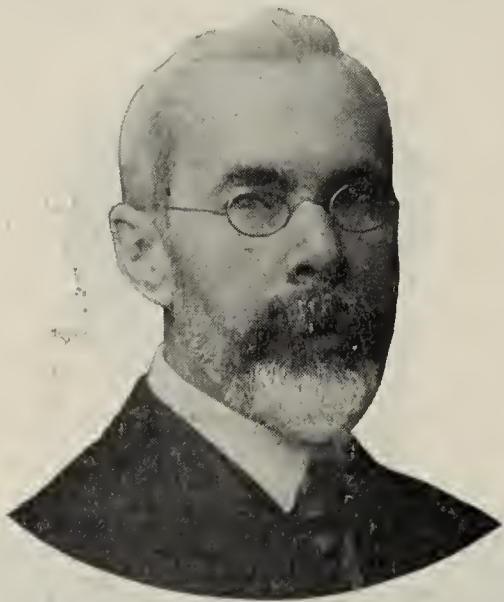
BY CHARLES F. BINNS, ALFRED, N. Y.

Mr. Toastmaster, Ladies and Gentlemen:

At this late hour, even after your too kind remarks, sir, I can not venture to detain you more than a very few moments. The speaker who is called upon late in the evening labors under two serious disabilities. The first is that some of his audience are anxious to seek that retirement to which we all look at midnight, if not before. They are in the position of a certain man who attended church upon an occasion when a very voluble speaker occupied the pulpit. After having preached for an hour, the minister began to sum up. "We have reviewed," he said, "the work of the major prophets, and we have glanced in some detail at the writings of some of those who are called minor prophets, and now I ask, where shall we place Malachi?" Whereupon the man in question arose from his seat and said, "Malachi can have my place; I am going home." And I can hardly blame you, ladies and gentlemen, if you elect to follow his example. (Laughter.)

The second disability lies in the feelings which are experienced by the speaker as he sees the stories which he has treasured up for many years slipping from him one by one.

Your Secretary has allotted to me the subject of "Our Industries," and it is characteristic of his wisdom and tact that he usually assigns the kind of subject upon which one may say just



Prof. Charles F. Binns, Alfred, N. Y.

what he pleases without making a serious departure from the text.

Our Industries may be either national or state or domestic or personal, but we here are engaged for the most part in a great national industry. I sometimes think that in this country we are in danger of expecting results in an unreasonably rapid way, and I am reminded of another scene which took place in a church. The occasion was a series of revival meetings, and the speaker was emphasizing the value of the work being done. "Last night," he said, "there was a man here who was in the depths of despair. Everything had gone wrong, life held nothing more, and he was discouraged to the last degree. He came to the service and presented himself at the mourners' bench, and now, tonight, he sits among you a happy husband and father." Upon this a young lady in the congregation leaned over and whispered to her neighbor, "Was that not pretty quick work?" Sometimes, nay, often, we expect quick work, and often we are doomed to disappointment. (Laughter.)

If you will pardon me, I will illustrate the point by another story: A small boy was very anxious to have a baby brother, and, being seriously inclined, he made this desire a matter of prayer. Night after night he put up a petition for a brother, but the answer did not come. At length he pleaded urgency; it was a case which would admit no delay. About two weeks later the little brother actually arrived, and the boy was taken in to see the baby. He gazed long and earnestly, and then said, "Huh! he's a fine looking object, he must a' got sunburnt in heaven; he ain't got no hair, he ain't got no teeth. Say, pa, he ain't finished! I asked the Lord to hurry him up, but I wasn't in any such darn hurry as that." (Laughter.)

And so we sometimes find that a little more deliberation might have afforded better results.

Some people are inclined to pity those who are engaged in the clayworking industries. They think we are like the Irishman who was working on a summer day with no hat on his head. "Pat," said a friend, "don't you know that to work bareheaded in the sun is bad for the brain?" "Arrah, then," replied Pat, "d'ye think I'd be wurrkin' at this job if I had anny brain?"

But we find that it actually needs a good supply of brain to work at our job. I was very glad to hear the first speaker emphasize the value of brain, and I have no doubt whatever that you all agree.

Of course, the man who essays to work in clay has his troubles, but even in these troubles there is a fascination, and we love to find the remedy.

You have probably heard of the girl whose lover found her in tears one evening. "Sweetheart," he said, "let me kiss those tears away." He proceeded to make good, and then asked, "Is that better?" "Oh, George," answered the girl, "it's nothing but a bad cold, but you may continue the treatment." (Laughter.)

I notice on the first page of the *Scientific American*, published last Saturday, an illustration giving in graphic form the bulk of the clay products of the country. At the bottom was set an immense block of common brick. By comparison, there was a view of the Washington Monument, which was only half as high as the mass of brick. Then there were successively in pyramid form blocks of vitrified brick, face brick, hollow ware, tiles and pottery. I want to suggest that you ask your Secretary to take steps to republish this drawing in a form which can be framed and hung up. It should be in every brickmaker's office. Common brick is the staple of New York State. We yield to Ohio in pottery as to the greatest clayworking state in the Union, but in common brick New York leads.

To speak for a moment of my own industry—you make the brick; I make the men who make the brick. I could enlarge upon the manifest advantages of higher education, but I must draw to a close. I will only say this: The aim of higher education is not necessarily to enable a man to earn more, nor necessarily to provide him with special information upon a given subject. It is to place him upon the heights: to give him a wide view and a broad horizon; to lift him out of the mists of the valley, and to establish him upon the mountain top, whence he can see things in their true perspective, and in their proper relations to each other.

It is true that this attitude makes him a more valuable man. It is true that this position enables him to acquire accurate information, but the value and the knowledge are the result of the education rather than the principal aim.

You make your bricks in the rough, and you repress them in order that they may better fulfill certain functions. Send us your boys in the rough, and if they be of sound material, well-made, and able to stand fire, we will put them through the process which will send them out better fitted to meet the demand which will be made upon them by an exacting world. (Laughter.)

Prof. Binns closed his remarks by telling a story at the expense of Secretary Randall.

Toastmaster Balkam: I beg you to bear with us just a few minutes longer. I have learned something tonight about this Mr. Randall of yours. I have been reminded of the time when the teacher asked the little boy who discovered America. He said he didn't know. "Well," said the teacher, "You ought to know. When you go home this evening you ask your mother, and if she don't know you ask your father, and when you come back in the morning you tell me who discovered America." And when the boy came to school in the morning, the teacher asked him if he knew who discovered America and if he asked his mother. "Yes," he said, "I asked mother and she said she didn't know, and then I asked father and he said he didn't know and he didn't give a damn." (Laughter.) Now the only way I have been able to keep the irrepressible Mr. Randall quiet all evening was to promise to call on him before the evening was over, and so now, not because I want to, but because I must keep my word, I now present Mr. Randall. (Applause.)

SECRETARY RANDALL'S TALK.

Mr. Toastmaster, Ladies and Gentlemen:

I have been 'stung' in this fashion many times, but this is about the worst ever, and yet the toastmaster does it so nicely that I am compelled to like it. In fact, I rather enjoy it, for as I look down this long table and see the seventy-nine others that are to be called on, I know where you will be when they get through. I have listened tonight to about all of the old stories, from the toastmaster down to the last speaker, that it has ever been my luck to hear. (Laughter and applause.) I can scarcely call to mind anything that fits the case. I heard one the other day that would do to tell in the convention, because it pertains to the various building elements. A gentleman named Wood was passing along the street one day with a neighbor named Stone, when a lady wearing a sheathe gown passed. Wood turned to Stone, Stone turned to Wood, and they both turned to Rubber. (Laughter.)

And that reminds me of one of Tim Murphy's curtain stories. If he tells it, it is good, of course, so I am safe in telling it here. Two gentlemen were standing on a corner on a wet day, and a lady passed with her skirts held a little high. One of the gentlemen said, "That lady don't know what she is showing, and I am going to tell her." The other one said, "You had better mind your own business; you will get yourself disliked." The first man replied, "Well, I have a sister and I would thank any gentle-

man who called her attention to anything like that." So he stepped up to the lady and said, "I beg your pardon, madam, but you are holding your dress a little high." The lady scowled at him and said, "Mind your own business; haven't I a perfect right?" "Indeed, you have, madam, and judging from what I can see of it, you also have a peach of a left." (Laughter.)

The evening's ceremonies reminds me of an old story told by an old friend of mine, and also a friend of the mayor's and Anthony Ittner's—John Stevens, of Philadelphia—a good many years ago, about a Christmas happening. A New Yorker left home in the morning with strict injunctions from his wife to have a motto made for her for some Christmas festivities. Like husbands sometime do, he forgot it until late in the afternoon, and then he could not for the life of him remember what the motto was. So, finally, as a last resort, he wired his wife, and a little later the telegraph operator at his end of the line was utterly astonished to receive this message over the wires: "Unto us a child is born and a son is given—three feet wide and nine feet long." (Laughter.)

Now, gentlemen, after listening to the wit and eloquence of our Rochester friends and partaking of their splendid hospitality, I am inclined to think, and I am sure you will all agree with me, that our Rochester friends are all built according to those dimensions. My, my, what a pace they have set for the next convention. I am inclined to think that my friend Blair, who has been

talking of Indianapolis, will hesitate now. We will carry away with us, when we leave Rochester, some of the choicest recollections that will come to us in the years to come of the happiness and the pleasure of our stay in Rochester. We expected a good time, but you have given us much more than we had hoped for. Many pleasant recollections come to us as we look back over these meetings. They are pillars of light along the roads of our business careers. Friendship is the very leaven of life, and at these annual gatherings we make friendships which go with us and stay in our memories as long as we have life.

Mr. Toastmaster, one of the brightest memories that we shall carry with us will be the delightful evening we have spent with you. And now, friends, everyone, I am going to ask you to drink to the long life and good health of our friend, the Mayor, and the citizens of Rochester, and to the splendid growth and prosperity of the city of Rochester and all her people. (Applause.) Mr. Toastmaster, I am glad you are a man of your word; I thank you for calling on me, because I am glad to have had the opportunity of saying these few words. (Applause.)

Toastmaster Balkam: The megaphone man has asked me to request you all to join in singing "Auld Lang Syne," but before we sing he wants me to say that all the flowers on all the tables are for the ladies. May they live long and always be with us on occasions like this.

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F. Wagner.....Chicago, Ill.
Frank W. Butterworth.....Danville, Ill.
Wm. H. Neff.....Danville, Ill.
Wm. P. Whitney.....Danville, Ill.
Chas. T. Hicks.....Drake, Ill.
D. C. Heager.....Dundee, Ill.
M. M. Bushong.....Edwardsville, Ill.
Ben H. Richards.....Edwardsville, Ill.
Frost Manufacturing Co.....Galesburg, Ill.
F. G. Matteson.....Galesburg, Ill.
W. S. Purington.....Galesburg, Ill.
E. L. Swett.....Galesburg, Ill.
Martin Halpin.....Greenville, Ill.
La Salle Pressed Brick Co.....La Salle, Ill.
William Hammerschmidt.....Lombard, Ill.
A. W. Gates.....Monmouth, Ill.
A. Veiock.....Monmouth, Ill.
R. D. Mernaugh.....Mt. Vernon, Ill.
Jansen & Zoeller.....Pekin, Ill.
F. R. Carter.....Peoria, Ill.
John T. Hummert.....Quincy, Ill.
Clifford Chase.....Russell, Ill.
F. O. Corbin.....Sheffield, Ill.
L. E. Snodgrass.....Springfield, Ill.
Underwood Pressed Brick Co.....Springfield, Ill.
C. C. Barr.....Streator, Ill.
C. A. Miller.....Streator, Ill.
Samuel Anderson.....Taylorville, Ill.
Robert Twells.....Walnut Hills, Ill.
G. C. Stoll.....Wheaton, Ill.
Anderson Foundry & Machine Works.....Anderson, Ind.
Fred Minish.....Aurora, Ind.
C. W. Crawford.....Brazil, Ind.
T. S. Rouse.....Brazil, Ind.
J. M. Powell.....Brooklyn, Ind.
J. W. Robb.....Clinton, Ind.
Poston Paving Brick Co.....Crawfordsville, Ind.
Geo. M. Krick.....Decatur, Ind.
John C. Boss.....Elkhart, Ind.
H. C. Kleymeyer.....Evansville, Ind.
A. A. McClamrock.....Frankfort, Ind.
Adams Brick Co.....Indianapolis, Ind.
D. F. Billingsley.....Indianapolis, Ind.
Will P. Blair.....Indianapolis, Ind.
Robert Elliott.....Indianapolis, Ind.
Ed Gerard (National Dry Kiln Co.).....Indianapolis, Ind.
Jas. W. Hensley.....Indianapolis, Ind.
Indianapolis Terra Cotta Co.....Indianapolis, Ind.
Marion Brick Works.....Indianapolis, Ind.
C. & A. Potts & Co.....Indianapolis, Ind.
James E. Randall.....Indianapolis, Ind.
Theo. A. Randall.....Indianapolis, Ind.
W. W. Winslow.....Indianapolis, Ind.
Jake A. Behrick.....Mt. Vernon, Ind.
Jacob Keller.....North Judson, Ind.
Chas. H. Read.....Oakland City, Ind.
Fred Baum.....Orestes, Ind.
G. S. Brubaker.....Peru, Ind.
J. G. Jones.....Pittsboro, Ind.
Madden & Co.....Rushville, Ind.
E. A. Morse.....South Bend, Ind.
J. A. Dailey.....Terre Haute, Ind.
J. M. Hoskins.....Terre Haute, Ind.
C. W. Hoff.....Terre Haute, Ind.
Lawrence F. Culver.....Veedersburg, Ind.
R. D. Culver.....Veedersburg, Ind.
J. C. Kelley.....West Terre Haute, Ind.
Granite Brick Co., The.....Burlington, Ia.
W. L. McKissick.....Carlisle, Ia.
R. W. Besley.....Council Bluffs, Ia.
E. A. Wickham.....Council Bluffs, Ia.
C. A. Marshall.....Cresco, Ia.
H. L. Tramp.....Creston, Ia.
E. A. Brecht.....Des Moines, Ia.
Eagle Iron Works.....Des Moines, Ia.
Flint Brick & Coal Co.....Des Moines, Ia.
C. A. Rawson.....Des Moines, Ia.
H. A. Rawson.....Des Moines, Ia.
S. K. Leacox.....Keota, Ia.
D. F. Morey.....Ottumwa, Ia.
C. J. Holman.....Sergeant Bluff, Ia.
G. N. Fairchild.....Sioux City, Ia.
Tom W. Green.....Sioux City, Ia.
Paul Beer.....So. Des Moines, Ia.
C. B. Platt.....Van Meter, Ia.
Victor C. Vance.....Westpoint, Ia.
Claude E. Fuller.....Buffalo, Kan.
H. J. Huinskamp, Jr.....Buffalo, Kan.
Wm. H. Francis.....Cherryvale, Kan.
W. G. Buckles.....Coffeyville, Kan.
E. R. Dick.....Coffeyville, Kan.
J. J. Amos.....Humboldt, Kan.
Charles Francis.....Independence, Kan.
L. L. Ponsler.....Iola, Kan.
A. R. Batley.....Paola, Kan.
B. W. Ballou.....Neodesha, Kan.
Thomas H. Gwynne.....Pittsburg, Kan.
Willis Edson.....Topeka, Kan.
J. A. McDermott.....Barbourville, Ky.
D. Stewart Miller, Jr.....Cloverport, Ky.
T. W. Spinks.....Covington, Ky.
E. R. Dillehay.....Danville, Ky.
G. S. Perdue.....Firebrick, Ky.
Kleymeyer & Klutey Brick & Tile Co.....Henderson, Ky.
George D. Dalton.....Hopkinsville, Ky.
E. S. Hitchins.....Olive Hill, Ky.
H. W. Katterjohn.....Paducah, Ky.
C. N. Adams.....Alexandria, La.
Chas. Willis Roy.....Lafayette, La.
J. R. Randolph.....Ruston, La.
F. Salmen.....Slidell, La.
John W. Hall.....Baltimore, Md.
Baltimore Brick Co.....Baltimore, Md.
Charles H. Claiborne.....Baltimore, Md.
Independent Brick Co.....Baltimore, Md.
Jacob Klein.....Baltimore, Md.
Louis N. Rancke.....Baltimore, Md.
Slingluff Supply Co.....Baltimore, Md.
Otto Hensel.....Mt. Savage, Md.
T. H. Mitchell.....Salisbury, Md.
Glen Perdue.....Salisbury, Md.
Victor Cushwa & Sons.....Williamsport, Md.
J. A. Dolben.....Boston, Mass.
Edward D. Emerson.....Boston, Mass.
Geo. M. Fiske.....Boston, Mass.
John W. Hahn.....Boston, Mass.
Parry Brick Co.....Boston, Mass.
Rogers & Manson.....Boston, Mass.
Spiers-Fish Brick Co., The.....Boston, Mass.
Tracy Tillson.....Boston, Mass.
A. J. Wellington.....Boston, Mass.
F. L. Wright.....Boston, Mass.
Ernest S. Yates.....Boston, Mass.
Wm. Bassett.....Bridgewater, Mass.
William Mahanna.....Lenox, Mass.
W. A. Bailey.....Northampton, Mass.
Wm. Sanborn.....Somerville, Mass.
R. A. Bailey.....Springfield, Mass.
T. D. Potter.....Springfield, Mass.
E. L. Cook.....Bridgewater, Mass.
B. C. Pierce.....Taunton, Mass.
J. J. Miller.....Benton Harbor, Mich.
G. H. Atherton.....Boyne City, Mich.
Thos. Oliff.....Clio, Mich.
D. Diver.....Deerfield, Mich.
American Blower Co.....Detroit, Mich.
George H. Clippert & Bro.....Detroit, Mich.
John S. Haggerty.....Detroit, Mich.
F. B. Holmes.....Detroit, Mich.
Morehead Mfg. Co.....Detroit, Mich.
Thomas Bros. Co.....Detroit, Mich.
Edward H. Vitaluis.....Detroit, Mich.
W. W. Wallace.....Detroit, Mich.
F. H. Wolf Brick Co.....Detroit, Mich.
E. R. Tyler.....East Saugatuck, Mich.
W. J. King.....Grand Blanc, Mich.
J. F. Lewis.....Jackson, Mich.
H. E. Morehouse.....Jackson, Mich.
Michigan Brick and Tile Machine Co.....Morenci, Mich.
American Sandstone Machinery Co.....Saginaw, Mich.
R. L. Jones.....Saginaw, Mich.
Saginaw Paving Brick Co.....Saginaw, Mich.
H. Brewer & Co.....Tecumseh, Mich.
Davis Brown.....Tecumseh, Mich.
A. H. Finnegan.....Vulcan, Mich.
Zeeland Brick Co.....Zeeland, Mich.
H. H. Farnham.....Brickton, Minn.
F. J. Nixon.....Duluth, Minn.
Ira C. Jones.....Minneapolis, Minn.
A. C. Ochs.....Springfield, Minn.
W. Stewart Smit.....St. Paul, Minn.
W. B. Taylor.....Jackson, Miss.
George White.....West Point, Miss.
R. W. Davis.....Brookfield, Mo.
J. E. Meek.....Chillicothe, Mo.
C. E. Miller.....Festus, Mo.
Walter S. Dickey.....Kansas City, Mo.
Robert Nesch.....Kansas City, Mo.
Geo. H. Smith.....Kansas City, Mo.
Frank Hudson.....Moberly, Mo.
O. W. Renkert.....Moberly, Mo.
Carroll Connnett.....St. Joseph, Mo.
Marion W. Blair.....St. Louis, Mo.
A. C. Broughton.....St. Louis, Mo.
Jno. Dell.....St. Louis, Mo.
Evens & Howard.....St. Louis, Mo.
Fernholtz Brick Machine Co.....St. Louis, Mo.
J. J. Gledhill.....St. Louis, Mo.
R. F. Grady.....St. Louis, Mo.
W. P. Grath.....St. Louis, Mo.
E. L. Hess.....St. Louis, Mo.
Hydraulic Press Brick Co.....St. Louis, Mo.
Anthony Ittner.....St. Louis, Mo.
H. A. Johann.....St. Louis, Mo.
E. E. Johnson.....St. Louis, Mo.
A. O. Jones.....St. Louis, Mo.
Julius J. Koch.....St. Louis, Mo.
Laclede-Christy Clay Products Co.....St. Louis, Mo.
U. S. Engineering Co.....St. Louis, Mo.
S. Mitchell.....St. Louis, Mo.
Otto C. Oehler.....St. Louis, Mo.
Lemon Parker.....St. Louis, Mo.
W. F. Scott.....St. Louis, Mo.
J. Stocke.....St. Louis, Mo.
Mississippi Glass Co.....St. Louis, Mo.
H. A. Wheeler.....St. Louis, Mo.
J. M. Williams.....St. Louis, Mo.
M. F. Williams.....St. Louis, Mo.
J. E. Mecusker.....Sedalia, Mo.
Versailles Fire Brick & Clay Mfg. Co.....Versailles, Mo.
J. H. Hammer.....Butte, Mont.
Charles H. Bray.....Helena, Mont.
J. W. Turner.....Burnham, Neb.
A. Koehler Company.....Geneva, Neb.
C. B. Hutton.....Hastings, Neb.
S. A. Corneer.....Omaha, Neb.
John L. Neble.....Omaha, Neb.
G. E. Goldner.....Omaha, Neb.
J. Fred Smith.....Omaha, Neb.
George Frank Ball.....Keene, N. H.
M. S. Storer.....Nelson, Neb.
Hubert Somers.....Atlantic City, N. J.
Elton Braddock.....Bakersville, N. J.
C. A. Bloomfield.....Metuchen, N. J.
Cullen W. Parmelee.....New Brunswick, N. J.
W. W. Blanchard.....Newark, N. J.
A. S. Reed.....Newark, N. J.
Otto W. Will.....Perth Amboy, N. J.
D. H. Applegate.....Red Bank, N. J.
Charles F. Binns.....Alfred, N. Y.
Edwin Brockway.....Brockway, N. Y.
F. J. Nash.....Brooklyn, N. Y.
Henry Bender.....Buffalo, N. Y.
J. H. Black.....Buffalo, N. Y.
S. C. Brush.....Buffalo, N. Y.
J. L. Cooper.....Buffalo, N. Y.
N. A. Finch.....Buffalo, N. Y.
George L. Schmidt.....Buffalo, N. Y.
George W. Schmidt.....Buffalo, N. Y.
John E. Schuesler.....Buffalo, N. Y.
V. H. Whitney.....Buffalo, N. Y.
Hervey Haigh.....Catskill, N. Y.
Lambert Haigh.....Catskill, N. Y.
Caleb C. Marshall.....Catskill, N. Y.
Martin Relyea.....Cohoes, N. Y.
M. E. Gregory.....Corning, N. Y.
Tobias Figie.....DeWitt, N. Y.
Walter E. Hilton.....Dunkirk, N. Y.
Clarence P. Hendricks.....East Kingston, N. Y.
Joseph L. Cite.....Fishkill-on-Hudson, N. Y.
W. G. Dove.....Geneva, N. Y.
D. P. De Long.....Glens Falls, N. Y.
D. H. Foster.....Gowanda, N. Y.
Frank E. Wiles.....Grassy Point, N. Y.
Preston Brick Co.....Hornell, N. Y.
John E. Lynch.....Haverstraw, N. Y.
John Peck.....Haverstraw, N. Y.
Matthew Gormley.....Haverstraw, N. Y.
R. G. Eisenhart.....Horseheads, N. Y.
Levi Marshall, Jr.....Horseheads, N. Y.
John Mahoney.....Jamestown, N. Y.
Henry B. Loveland.....Jewettville, N. Y.
George H. Morton.....Jewettville, N. Y.
Albert Terry.....Kingston, N. Y.
Jay Terry.....Kingston, N. Y.
M. M. Hayden.....Newburgh, N. Y.
Wm. Lahey.....Newburgh, N. Y.
Hiram H. Walsh.....Newburgh, N. Y.
American Process Co.....New York, N. Y.
Andrew A. Ayers.....New York, N. Y.
Jas. G. Beemer.....New York, N. Y.
William C. Black.....New York, N. Y.

- J. Frances Booream.....New York, N. Y.
 Ed. H. Callaway.....New York, N. Y.
 Frederick W. Donahoe.....New York, N. Y.
 J. Parker B. Fiske.....New York, N. Y.
 Fredensburg & Lounsbury.....New York, N. Y.
 M. Gabriel.....New York, N. Y.
 E. M. Houghtaling.....New York, N. Y.
 Robert Main.....New York, N. Y.
 Werner Malsel.....New York, N. Y.
 Robt. C. Martin.....New York, N. Y.
 Ohio Mining & Mfg. Co.....New York, N. Y.
 R. C. Penfield.....New York, N. Y.
 Orin D. Person.....New York, N. Y.
 Pfothenauer & Nesbit.....New York, N. Y.
 D. S. Plummer.....New York, N. Y.
 J. A. Ridgway.....New York, N. Y.
 H. J. Roth.....New York, N. Y.
 G. E. Sly.....New York, N. Y.
 W. A. Underhill Brick Co.....New York, N. Y.
 Ernst Wiener.....New York, N. Y.
 Geo. F. Tafel.....North Tarrytown, N. Y.
 Henry Hasbrouck.....Olean, N. Y.
 New York Press Brick Co.....Rochester, N. Y.
 R. W. Holden.....Rochester, N. Y.
 W. H. H. Rogers.....Rochester, N. Y.
 W. W. Parry.....Rome, N. Y.
 John B. Rose.....Roseton, N. Y.
 C. S. Estes.....Saugerties, N. Y.
 Philip Goldrick.....Saugerties, N. Y.
 John T. Washburn, Jr.....Saugerties, N. Y.
 Thomas Kieran.....Stapleton, N. Y.
 James L. Breed.....Syracuse, N. Y.
 William Cannon, Jr.....Syracuse, N. Y.
 C. H. Merrick.....Syracuse, N. Y.
 J. Frank Plumb.....Syracuse, N. Y.
 National Roofing Co.....Tonawanda, N. Y.
 A. R. Campbell.....Tottenville, S. I., N. Y.
 Dr. A. W. Bender.....Utica, N. Y.
 J. H. Mead.....Warners, N. Y.
 Fred S. Naugle.....Warners, N. Y.
 James B. Crowell.....Walkill, N. Y.
 G. B. Mentz.....Walkill, N. Y.
 D. S. Hildebrand.....Asheville, N. C.
 J. E. Carson.....Charlotte, N. C.
 R. A. Brown's, Sons.....Concord, N. C.
 F. G. Thompson.....Elizabeth City, N. C.
 E. A. Poe.....Fayetteville, N. C.
 F. B. Marshall.....Greensboro, N. C.
 Harold Copping.....Hillsboro, N. C.
 W. E. Jeffrey.....Rocky Mt., N. C.
 J. C. Steele & Son.....Statesville, N. C.
 Red River Valley Brick Co.....
Grand Forks, N. D.
 McCausland Bros.....Akron, O.
 Robinson Clay Products Co.....Akron, O.
 Alliance Clay Product Co.....Alliance, O.
 F. L. Hopley.....Bucyrus, O.
 W. R. Cunningham.....Bucyrus, O.
 R. O. Perrott.....Bucyrus, O.
 C. B. Sharer.....Bucyrus, O.
 The Bonnot Co.....Canton, O.
 Metropolitan Paving Brick Co.....Canton, O.
 A. A. Oldham.....Canton, O.
 J. M. Blair.....Cincinnati, O.
 W. A. Eudaly.....Cincinnati, O.
 L. P. Hazen & Co.....Cincinnati, O.
 J. B. Stanwood.....Cincinnati, O.
 Suer & Bros.....Cincinnati, O.
 Atlas Car Mfg. Co.....Cleveland, O.
 J. W. Candler.....Cleveland, O.
 Cleveland Brick & Clay Mfg. Co.....
Cleveland, O.
 Robert J. Dawson.....Cleveland, O.
 Dover Fire Brick Co.....Cleveland, O.
 Deckman-Duty Brick Co.....Cleveland, O.
 Wm. H. Hunt.....Cleveland, O.
 Ohio Ceramic Engineering Co.....Cleveland, O.
 Ohio Clay Co.....Cleveland, O.
 R. L. Queisser.....Cleveland, O.
 E. C. Pierce.....Cleveland, O.
 F. H. Robinson.....Cleveland, O.
 Charles Slattery.....Cleveland, O.
 C. B. Stowe.....Cleveland, O.
 John Wilson.....Cleveland, O.
 J. M. Adams.....Columbus, O.
 F. Henry Angell.....Columbus, O.
 S. M. Chase.....Columbus, O.
 John A. Conard.....Columbus, O.
 C. H. Doan.....Columbus, O.
 T. W. Elser.....Columbus, O.
 Warren B. Ferris.....Columbus, O.
 Milton N. Grant.....Columbus, O.
 S. J. Heafield.....Columbus, O.
 A. W. Holl.....Columbus, O.
 The Ironsides Co.....Columbus, O.
 The Jeffrey Mfg. Co.....Columbus, O.
 L. G. Kilbourne.....Columbus, O.
 The Kilbourne & Jacobs Mfg. Co.....
Columbus, O.
 Ellis Lovejoy.....Columbus, O.
 New Process Metal Co.....Columbus, O.
 Prof. Edward Orton.....Columbus, O.
 Ross C. Purdy.....Columbus, O.
 W. D. Richardson.....Columbus, O.
 T. B. Dunn.....Conneaut, O.
 The Conneaut Shovel Co.....Conneaut, O.
 The Keller Brick Co.....Cuyahoga Falls, O.
 D. H. Downey.....Dayton, O.
 I. M. Justice.....Dayton, O.
 The C. W. Raymond Co.....Dayton, O.
 Chas. W. Raymond, Jr.....Dayton, O.
 Geo. M. Raymond.....Dayton, O.
 J. L. Schroll.....Dayton, O.
 Teigler Bros.....Dayton, O.
 Delaware Clay Co.....Delaware, O.
 Mitchell Brick Co.....Delhi, O.
 Samuel F. Spencer.....Dresden, O.
 J. E. Gamble.....East Liverpool, O.
 Geo. Gleckler.....Elmore, O.
 Minor Beardsley.....Findlay, O.
 D. Earl Child.....Findlay, O.
 J. W. Forsythe.....Fremont, O.
 D. M. Potter.....Fremont, O.
 E. M. Freese & Co.....Galion, O.
 B. E. Place.....Galion, O.
 The Wassall Brick Co.....Glouster, O.
 The Hamilton Brick Co.....Hamilton, O.
 C. H. Forry.....Hanover, O.
 J. W. Jones.....Haydenville, O.
 Wm. Drayton.....Kachelmacher, O.
 P. J. Fish.....Kenmore, O.
 Thos. A. Burrows.....Leavittsburg, O.
 A. Magoon.....Logan, O.
 R. D. McManigal.....Logan, O.
 Jacob Pfeiffer.....Logan, O.
 W. I. Foster.....London, O.
 Thew Steam Shovel Co.....Lorain, O.
 N. A. Lewton.....Malvern, O.
 Marion Steam Shovel Co.....Marion, O.
 C. H. Carpenter.....Martin's Ferry, O.
 D. A. Martindill.....McArthur, O.
 L. E. Fox.....Mendon, O.
 Geo. J. Markley.....Mineral City, O.
 A. J. Frey.....New Bremen, O.
 B. F. Rodgers.....New Lexington, O.
 D. J. C. Arnold.....New London, O.
 John D. Martin.....New Straitsville, O.
 The Horton Mfg. Co.....Painesville, O.
 J. D. Fate & Co.....Plymouth, O.
 Adam Buch.....Portsmouth, O.
 Portsmouth Paving Brick Co.....Portsmouth, O.
 The Peebles Paving Brick Co.....Portsmouth, O.
 Portsmouth Brick & Tile Co.....Portsmouth, O.
 A. J. Darbyshire.....Sabina, O.
 C. W. Turner.....Sciotoville, O.
 S. M. Gould.....Shawnee, O.
 J. D. Rumsey.....Stryker, O.
 W. A. Howell.....Toledo, O.
 A. R. Kuhlman.....Toledo, O.
 A. A. Reilly.....Toledo, O.
 W. S. Russell.....Toledo, O.
 The Trimble Brick Mfg. Co.....Trimble, O.
 Ben S. Fisher.....Union Furnace, O.
 C. F. Walker.....Warren, O.
 R. C. Bennett.....Wellington, O.
 F. W. Bennett.....Wellington, O.
 H. B. Crum.....Willoughby, O.
 C. G. Stevenson.....Wellsville, O.
 The Cleveland Car Co.....West Park P. O., O.
 L. W. Penfield.....Willoughby, O.
 W. R. Barnhart, Jr.....Wooster, O.
 C. C. Blair.....Youngstown, O.
 Charles M. Crook.....Youngstown, O.
 R. H. Rutherford.....Zanesville, O.
 O. N. Townsend.....Zanesville, O.
 F. R. Kanengeiser.....Bessemer, Pa.
 J. B. Hammond.....Bolivar, Pa.
 Geo. W. Fleming.....Bradford, Pa.
 G. W. Foster.....Bradford, Pa.
 Wm. Hanley.....Bradford, Pa.
 W. M. Hodges.....Bradford, Pa.
 John P. Melvin.....Bradford, Pa.
 T. J. Melvin.....Bradford, Pa.
 Chas. C. Stratton.....Bradford, Pa.
 C. P. Mayer Brick Co.....Bridgeville, Pa.
 Shull & Badger Brick Co.....Butler, Pa.
 George Fickes.....Carnegie, Pa.
 Clearfield Clayworking Co.....Clearfield, Pa.
 W. F. Soisson.....Connellsville, Pa.
 D. Warren DeRosay.....Corry, Pa.
 DuBois & Butler Brick Co.....DuBois, Pa.
 C. K. Williams & Co.....Easton, Pa.
 U. J. Matson.....Falls Creek, Pa.
 J. B. Beshore.....Gettysburg, Pa.
 Chas. H. Kinter.....Harrisburg, Pa.
 G. W. Lenkerd.....Indiana, Pa.
 Thos. E. Lewis.....Kane, Pa.
 American Road Machine Co.....
Kennett Square, Pa.
 G. W. McNees.....Kittanning, Pa.
 Kushequa Brick Co.....Kushequa, Pa.
 H. P. Martin.....Lancaster, Pa.
 Wm. R. Martin.....Lancaster, Pa.
 M. C. Leinbach.....Lock Haven, Pa.
 Geo. S. Good Fire Brick Co.....Lumber City, Pa.
 John P. McIntyre.....McKeesport, Pa.
 P. A. Smith.....New Brighton, Pa.
 Beaver Clay Mfg. Co.....New Galilee, Pa.
 H. S. White.....New Kensington, Pa.
 W. C. Alwine.....New Oxford, Pa.
 I. L. Harvey.....Orvis, Pa.
 Cyrus Chambers, Jr.....Overbrook, Pa.
 George B. Waite.....Parsons, Pa.
 Patton Clay Mfg. Co.....Patton, Pa.
 Thomas B. McAvoy, Jr.....Pawling P. O., O.
 E. H. Carroll.....Philadelphia, Pa.
 P. F. Carroll.....Philadelphia, Pa.
 J. H. Chambers.....Philadelphia, Pa.
 I. N. Conkling.....Philadelphia, Pa.
 Wm. Conway.....Philadelphia, Pa.
 S. B. Dobbs.....Philadelphia, Pa.
 Murrell Dobbins.....Philadelphia, Pa.
 John H. Earley.....Philadelphia, Pa.
 Equitable Brick Co.....Philadelphia, Pa.
 W. H. Gibb.....Philadelphia, Pa.
 E. F. Houghton & Co.....Philadelphia, Pa.
 O. W. Ketcham.....Philadelphia, Pa.
 Mack Manufacturing Co.....Philadelphia, Pa.
 T. B. McAvoy.....Philadelphia, Pa.
 A. R. Root.....Philadelphia, Pa.
 James R. Schurz.....Philadelphia, Pa.
 Webster & Keyser.....Philadelphia, Pa.
 A. V. Bleininger.....Pittsburg, Pa.
 Central Brick Co.....Pittsburg, Pa.
 Darlington Brick & Mining Co.....Pittsburg, Pa.
 Grant Dibert.....Pittsburg, Pa.
 Frank G. Evatt.....Pittsburg, Pa.
 Wm. Flinn.....Pittsburg, Pa.
 A. A. Hersperger.....Pittsburg, Pa.
 Evan Jones.....Pittsburg, Pa.
 Kittanning Brick & Fire Clay Co.....
Pittsburg, Pa.
 H. E. McLain.....Pittsburg, Pa.
 Phillips & McLaren.....Pittsburg, Pa.
 D. T. Riffle.....Pittsburg, Pa.
 Sankey Bros.....Pittsburg, Pa.
 Thomas M. Wilson.....Pittsburg, Pa.
 E. S. Fox & Co.....Reading, Pa.
 Clyde C. Murray.....Reynoldsville, Pa.
 W. S. Ravenscroft.....Ridgway, Pa.
 Elk Fire Brick Co.....St. Marys, Pa.
 R. C. Reynolds.....Saylorsburg, Pa.
 Union Brick Co.....Shamokin, Pa.
 Alfred Yates.....Shawmut, Pa.
 J. C. Wilson.....Youngsville, Pa.
 George T. Dickover.....Wilkesbarre, Pa.
 Wm. S. Dickover.....Wilkesbarre, Pa.
 David Stuenkel's Sons.....Williamsport, Pa.
 J. W. Minnich.....Wrightsville, Pa.
 York Shale Press Brick Co.....York, Pa.
 Wm. L. Studley.....Providence, R. I.
 W. G. Titcomb.....Providence, R. I.
 C. G. Guignard.....Columbia, S. C.
 F. H. Hyatt.....Columbia, S. C.
 W. J. Loyd.....Columbia, S. C.
 O. S. Adams.....Chattanooga, Tenn.
 X. B. Wickersham.....Jackson, Tenn.
 Knoxville Brick Co.....Knoxville, Tenn.
 T. C. Lundy.....Knoxville, Tenn.
 Alex. A. Scott.....Knoxville, Tenn.
 Tennessee Brick Co.....Memphis, Tenn.
 Robert A. Speed.....Memphis, Tenn.
 Frank H. Reid.....Memphis, Tenn.
 W. G. Bush & Co.....Nashville, Tenn.
 Joe P. Fulcher.....Nashville, Tenn.
 T. L. Herbert.....Nashville, Tenn.
 E. T. Lewis.....Nashville, Tenn.
 W. D. Le Sueur.....Nashville, Tenn.
 J. V. Montrieff.....Bridgeport, Tex.
 Kal Schwarts.....Corsicana, Tex.
 J. E. Whiteselle.....Corsicana, Tex.
 J. M. Harry.....Dallas, Tex.
 Fraser-Johnston Brick Co.....Dallas, Tex.
 Elgin-Butler Brick & Tile Co.....Elgin, Tex.
 Arthur S. Goetz.....Ft. Worth, Tex.
 C. W. Williams.....Laredo, Tex.
 A. L. Branson.....Marlin, Tex.
 A. R. Harwood.....San Antonio, Tex.
 Edw. Whitmer.....Thurber, Tex.
 J. P. Cahoon.....Salt Lake City, Utah.
 Justis Jungh.....Salt Lake City, Utah.
 Wm. S. Simpkins.....Salt Lake City, Utah.
 Joseph Walker.....Alexandria, Va.
 National Paint & Manganese Co.....
Lynchburg, Va.
 J. W. Davis.....Newport News, Va.
 F. W. Dennis.....Norfolk, Va.
 J. H. Doyle.....Norfolk, Va.
 Edwin A. King.....Richmond, Va.
 W. Benj. Davis.....Richmond, Va.
 A. V. Sturgeon.....Reid's Ferry, Va.
 H. L. Jacobs.....Suffolk, Va.
 Denny-Renton Clay & Coal Co.....
Seattle, Wash.
 W. C. Mitchell.....Seattle, Wash.
 Ellis Gates.....Van Asselts, Wash.
 A. B. Foxley.....Tacoma, Wash.
 S. P. Baird.....Charleston, W. Va.
 J. E. Seller.....Middlebourne, W. Va.
 Geo. E. Snowden.....New Cumberland, W. Va.
 Oscar Wilson.....Menomonee, Wis.
 Fred C. Bogk.....Milwaukee, Wis.
 George J. Schwarz.....Milwaukee, Wis.
 Ferdinand Vogt.....Milwaukee, Wis.
 Gunther Bros.....Port Washington, Wis.
 Henry W. Carter.....Oshkosh, Wis.
 Oscar Zimbal.....Sheboygan, Wis.

In Memoriam.

- G. Godchaux.....Abbeville, La.
 A. Wagner.....Dearborn, Mich.
 W. H. Brush.....Buffalo, N. Y.
 Arthur Koppel.....New York, N. Y.
 H. C. Dunn.....Erie, Pa.
 Rush A. Jones.....Gilmore, Tenn.
 P. L. Youngren.....Milwaukee, Wis.

THE N. B. M. A. CONVENTION ANNEX AND ANNEXERS.

NEVER BEFORE in the history of the National Association were the machinery and supply firms afforded such an excellent opportunity for displaying their various wares, and they proved equal to the opportunity and made displays of great interest. There was space a-plenty and every foot of it was available and those who desired to run models were furnished electric power for that purpose. The convention hall and exhibition space was all one immense room. The seating arrangements for the delegates occupied the center of the room immediately in front of the stage, and the space on either side and back of the chairs was given up to the annexers. The use of the hall, the electric light and janitor service was provided by the city, free of cost to the Association, the only expense incurred by the Association being minor decorations, the darkening of the windows to permit lantern shows, etc. Other cities may well follow Rochester's example in furnishing admirable quarters for convention purposes.

Mr. W. N. Durbin, secretary of the National Clay Machinery Association, was among the first arrivals, and early Monday morning he took possession of the exhibition space and with his blue prints and a box of chalk he proceeded to mark off the space allotted to the various exhibitors. For once there were no complaints; on the contrary, every exhibitor seemed



W. N. Durbin, Secretary, National Clay Machinery Association, Anderson, Ind.

wholly satisfied, and the displays were very attractive, so much so that the delegates at times seemed prone to linger with the annexers in preference to answering the chairman's lusty call to "Come and be seated, gentlemen!"

There were several large displays of unusual merit. One of these was that of the American Clay Machinery Company, Bucyrus, Ohio, which was devoted chiefly to the automatic brick carrier and setting device invented by Mr. Francis of Kansas. Being something new and out of the ordinary, it attracted the attention of every visitor. The accompanying illustration tells better than words the general arrangement of the exhibit. It enabled those in charge to demonstrate the practical character of the brick setter and its ease of operation. This display added interest to the very able paper on "Setting Brick By Machinery," which was to have been presented by Mr. W. G. Buckles, but which in his absence was delivered by Mr. R. C. Penfield and illustrated by a series of excellent lantern views of the carrier in actual operation.

In addition to this display, the American Company showed models of their other machinery in a parlor at the Seneca Hotel. Here Mr. Frank L. Hopley, advertising manager of the company, acted as chief factotum, presenting visitors with a pretty paper weight and other souvenirs. He was assisted in giving the "glad hand" to visitors by R. C. and L. W. Penfield, Ed. H. Callaway, R. O. Perrott, G. C. Stoll, J. A. Ridgway, C. B. Sharer, W. R. Cunningham, H. B. Crum, Fred S. Naugle and S. J. Heatfield.

Another display that attracted every visitor was that of the Taylor Instrument Company of Rochester. They displayed in a very attractive way many high-grade temperature instruments, such as the Hohmann and Maurer separate socket inclined and reclined, angle and various types of high-grade thermometers for industrial purposes, including the water smoking, and ranges from below zero to 1,000 degrees in Fahrenheit and Centigrade scales, adapted and specially constructed for the brickmaking industry; hydrometers for humidity determination, various types of barometers with recording charts, instruments of various sizes for measuring air velocities, gas and other draft conditions, pyrometers and thermo-couples and Taylor-Cambridge scientific instruments, such as automatic recording instruments, with chart indicating directly in time and degrees elements for use with pyrometer, and also wall and portable instruments. The company was represented by Mr. F. F. Craig and James De Von.

Mr. O. W. Dunlap represented the Dunlap Mfg. Co., as usual, mingled with the throng and added to his popularity by presenting the delegates with neat catalogs and blotters, and giving as a souvenir pencils stamped with "Check your losses by using the Perfect clay screen." "Satisfaction or no pay." "Our piano wire plates are cheapest and best. Dunlap Mfg. Co., Bloomington, Ill."

The Anderson Foundry and Machine Works of Anderson, Ind., had an exhibit of their latest catalogs and a small model of the Berg press. Mr. W. N. Durbin, the representative, who is secretary of the National Clay Machinery Association, arrived early Sunday, and was kept busy convention week advertising his well-known clay-working machinery, entertaining old acquaintances and seeing that all exhibitors were well accommodated. He presented a beautiful watch fob to the delegates.

Mr. John C. Boss of Elkhart, Ind., a very enthusiastic member of the N. B. M. A., distributed advertising literature on his Boss system of burning and entertained his friends and business acquaintances in his room, where he could explain more in detail the great advantages of burning clay wares by means of air under pressure.

The Ohio Filler and Shield Company of Columbus, Ohio, were represented by Mr. F. J. Davis. This company had an exhibition of samples of lubricants, which were given to the visitors together with catalogs telling of the many merits of their products.

The exhibitors were favored with the presence of several royal personages, two Kings included. The King of Ireland, our old friend John J. Moroney, and Mr. E. A. King of the King Engineering Company. The former represented the Chicago Brick Machinery Company, and had for their display a model hand brick press and scores of miniature bricks in buff, red and mottled colors made on this machine. He distributed the Chicago Brick Machinery Company's catalogs freely, and made himself generally agreeable with his stories and good-natured buttonholing.

Mr. E. A. King of Richmond, Va., exhibited blue prints and drawings of the King Improved Calorific Kiln, showing the different elevation of same. Samples of fine red burned brick burned in the King kiln on the yard of W. Benj. Davis at Manchester, Va., were also placed on exhibition. Mr. King, the inventor of this kiln, has made quite a reputation for himself through this invention and his King radiated heat drier.

Mr. W. L. McKissick of Carlisle, Iowa, offered his button-hole to all delegates and explained the merits of the McKissick patented brick and tile steam boiler. Blue prints and photographs of his invention were placed in a conspicuous place in the exhibition room and attracted much attention.

G. B. Mentz Company of Walkill, N. Y., manufacturers of brick moulds and brickmakers' supplies, exhibited catalogs and a line of the wooden brick moulds. This firm was represented by Mr. Geo. B. Mentz himself, who gave to the delegates a neat souvenir, a combination metal ruler and letter opener.

Bechtel, Limited, of Waterloo, Ont., Can., exhibited their latest attractive catalog, and had as their representative Harry De Joannis, who put in a busy week mixing with the delegates and expounding the good qualities of the Bechtel line of machinery and brick manufacturers' supplies.

Alfred Yates of Shawmut, Pa., had on exhibition, as usual, fine samples of the Shawmut paving brick and blocks, proudly challenging comparison with any and all comers.

The Chambers Bros. of Philadelphia, Pa., generally one of the largest exhibitors of the National Conventions, and a firm that always presents to the delegates an interesting display, had for inspection, as usual, one of their machines, this year a small-sized disintegrator. They also exhibited a high-speed friction clutch driving pulley, driving shaft, hammer steel counter shaft, and steel gears. A wooden model showed a section of the tempering shaft of the Chambers brick machine, showing the position of the knife. On the walls back of the exhibits were placed a handsome selection of wash drawings and photographs showing a complete line of Chambers high-speed clayworking machinery. Samples of clay ground by the Keystone disintegrator and catalogs of same were also on display. Those old-time congenial representa-

and a portable truck. He also displayed photographs and blue prints of a dumping and spreading wagon, for which many advantages are claimed.

The Vulcan Steam Shovel Company of Toledo, Ohio, was represented by Mr. Wm. S. Russell, who distributed freely their attractive catalog, "The Modern Steam Shovel for Brick Manufacturers' Use," and gave to the delegates a neat combination pen and pencil holder. This company manufactures steam and electric shovels for digging clay and shale.

The E. M. Freese Company of Galion, Ohio, was much in evidence convention week. Messrs. H. H. Freese, B. E. Place and R. A. Whitson, the representatives, entertained their friends and old and prospective customers in their rooms at the hotel. In the exhibition hall they had an elaborate display, consisting of catalogs, photographs, group pictures, drawings and samples of fine brick. The brick were sent from some of the many plants installed by the E. M. Freese Company, and



Method of Setting Brick by Machinery as Shown in Exhibition Room, Rochester, N. Y.

tives, J. H. Chambers, A. R. Root and E. R. Frazier, came early and stayed late, and enjoyed every minute of the busy week's work.

The Ironsides Company of Columbus, Ohio, was represented by D. J. Holliger. This company makes a specialty of wire rope filler, gear and wire rope shield and belt dressing. Their exhibit consisted of a display of catalogs and leaflets and samples of belt dressing, metal points and gears, showing the life of the gears when run with their lubricating material.

James B. Crowell & Son of Wallkill, N. Y., manufacturers of brickmakers' supplies, had samples of their brick moulds and brick barrows on display. This firm, which was established in 1872, was represented by James B. and J. R. Crowell. James B. Crowell, the father, takes great delight in attending the National Conventions, not only from a business viewpoint but a social one as well.

H. H. Walsh, of Newburg, N. Y., exhibited small models of racks, pallets (bench pallets of galvanized iron and wood),

showed the high grade of their machinery and general equipment. Such brick as the famous Hoover red pressed brick and bricks from the plants of the Union Stone & Brick Company, C. P. Mayer, W. C. Spade and several from the large Hydraulic plants were on display. The E. M. Freese Company representatives presented the delegates with a neat pocket-book as a souvenir.

The well-known firm of the Thew Automatic Steam Shovel Company, Lorain, Ohio, exhibited photographs of their shovels and distributed their latest catalogs. Mr. F. A. Smythe, the general manager of this company, and A. C. Vicary, ably represented this firm, and spent a busy week in and about the convention hall. Mr. Smythe reported an unusually fine year's business.

The Conneaut Shovel Company of Conneaut, Ohio, exhibited a line of their high-grade shovels and had on hand for distribution their well-printed catalog setting forth to good

advantage their seventy styles of shovels made just for brick yard use. This company was represented by G. W. Benton.

Mr. F. B. Dunn of Conneaut, Ohio, the inventor of the Dunn wire-cut lug brick, was much in evidence convention week advertising his invention by means of several photographers and a reprint of the article "An Improved Paving Brick," which was illustrated in the January issue of *The Clay-Worker*. Mr. Dunn with his better half enjoyed the convention immensely, and declares he will never miss a yearly meeting of the N. B. M. A. as long as it is in his power to be present.

Edward Brown & Son of Philadelphia, Pa., manufacturers of pyrometers for measuring the temperatures of brick, tile and pottery kilns, dryers, etc., had an exhibit of several of their large recording pyrometers, which were carefully inspected by the delegates. Their exhibit comprised stationary and portable indicating and recording electric pyrometers, indicating and recording expansion, and quick-acting pyrometers, switchboards, portable nickel alloy and platinum rho-

inquiring delegates, so widespread has been the comment on the success of the Haigh continuous kiln.

The Arthur Koppel Company of Pittsburg, Pa., manufacturers of industrial and portable railway materials, had a large exhibit of steel dump cars, drier cars and tracks covering one corner of the exhibition room. The representative of this firm, Mr. H. Clifford Kraft, buttonholed the delegates and presented them with the latest Koppel catalog.

The Chisholm, Boyd & White Company of Chicago, Ill., was represented as usual by their jovial president, Mr. Harry J. Flood, an old-time enthusiastic member of the N. B. M. A., who seldom misses a National Convention. He reports a very good year's business, and is very sanguine in the belief that 1909 will be a banner year.

The American Blower Company of Detroit, Mich., represented by Alex Scott, E. H. Vitalius, E. C. Evans, W. W. Wallace and R. B. Bedford, enjoyed a profitable week distributing their advertising literature and informing the unacquainted with the facts that have made the American Blower



Display in the N. B. M. A. Exhibition Room, Rochester, N. Y.

dium couples and a fire clay protecting tube. This firm was ably represented by Mr. W. H. Gibb.

J. B. and I. L. Hammond of Bolivar, Pa., specialists in the brick-making industry and sole agents of the Lynn brick facing machine, had a table in the exhibition room on which they placed their advertising literature of the brick facing machine, a small model of same and the products made at several of the plants where their machines had been installed. If you have any troubles, write the Hammonds at Bolivar, Pa., and they will do the rest.

Mr. Hervey Haigh of Catskill, N. Y., the well-known continuous kiln man, had on exhibition numerous photographs of his patented kiln, chief of which were those taken at the Bessemer Lime Stone Company's plant at Youngstown, Ohio, one of the largest continuous kilns in the world. He distributed his advertising literature, which included interesting reprints from *The Clay-Worker*, namely "A Sure Cure for the Smoke Nuisance" and "Mexico, the Land of Sunshine." Mr. Haigh was kept busy the entire week answering questions of

Company famous through the A. B. C. drying systems and Scott system of conveying, drying and burning brick in producer gas-fired continuous kilns.

C. & A. Potts & Co. of Indianapolis, Ind., was well represented by Albert Potts, who spent a busy week in and about the convention hall and in excursion parties to the brick plants in Rochester, where he has installed three complete lines of the Potts machinery.

Well, of course the "Dryer Man" was there. You could not attend a National Convention of clayworkers without finding our old friend Mr. L. E. Rodgers of Chicago, who has an enviable reputation when it comes to waste heat dryers. He made himself agreeable to everyone as usual.

The Morehead Manufacturing Company of Detroit, Mich., exhibited the Morehead tilting return steam boiler. This firm was represented by Mr. M. L. Abrahams.

The Wellington Machinery Company of Wellington, Ohio, was represented by R. C. and H. S. Bennett, old-time N. B. M. A. members, who spent a busy week advertising their lines

and entertaining their old friends. They had an exhibition of trucks, brick moulds and pallets, and circulated their attractive catalogs and advertising literature.

John Berg, son of Anton Berg, the inventor of the Berg brick press, represented the Canadian interests of the A. Berg & Son's Company, and thoroughly enjoyed the week of convention work. The Bergs have recently built a large foundry and machine works at Toronto, Ont., Can., where they are doing an immense business.

The J. D. Fate & Co. of Plymouth, Ohio, was well represented by Mr. Harley Fate, who made no large exhibit, spending all his efforts in distributing his neat pocket catalog and extending the "glad hand." The J. D. Fate & Co. have had an unusually prosperous year, running full force throughout the past year, notwithstanding the panic, being unaffected by the dull times, and declaring that they had one of the best year's business in the history of the J. D. Fate & Co.

The Ohio Ceramic Engineering Company of Cleveland, Ohio, was represented by Mr. Frank H. Robinson, who spent a busy week buttonholing and expounding the good qualities of the Ohio Ceramic Engineering Company's dryer cars, clay cars, represses, screens, kiln bands, etc.

The Bonnot Company of Canton, Ohio, exhibited their No. 16 circular catalogs at the convention hall and in their reception room at the hotel. Mr. A. A. Oldham and Mr. A. W. Aylesworth represented the Bonnot Company, receiving the delegates in their rooms and giving them the "glad hand," offering cigars, neat memorandum books and a high-grade pocketbook as souvenirs. It is needless to say that they returned home minus the souvenirs, but with several goodly orders to their credit.

The Main Belting Company, famous for their Leviathan belting and conveyers, had a large exhibit of belting, improved belt fasteners and catalogs. Messrs. F. S. Thompson, H. J. Roth, J. L. Cooper and S. C. Haines, the representatives, presented neat memorandum books as souvenirs.

The Wallace Manufacturing Company of Frankfort, Ind., well known for its brick and tile machinery, was well represented by Mr. A. McClamrock. He distributed freely their pocket catalogs and delighted in telling of the many merits of the "Wonder" machines.

The Henry Martin Brick Machinery Manufacturing Company of Lancaster, Pa., was represented by Jacob Shaar, who distributed the Henry Martin latest catalog, which was one of the finest circulated at the Rochester convention. Mr. Shaar reports a very encouraging year's business, and referred the inquiring delegates to brick plants in Rochester where there are a number of Martin machines.

The Stevenson Company of Wellsville, Ohio, manufacturers of dry pans, sewer pipe presses, etc., had an exhibit of catalogs and was represented by Charles Stevenson. This is an old, well-established clay machinery firm, so that it is needless to say that Mr. Stevenson, an old member of the N. B. M. A., had a very busy week entertaining friends and taking orders.

The Standard Dry Kiln Company of Indianapolis, Ind., manufacturers of the Standard brick drier, possessing one of the best improved heating systems, was represented by their energetic salesman, Mr. V. F. Autland, who arrived early and had spent a busy three days when he was called home because of the death of his father.

The Atlas Car & Manufacturing Company of Cleveland, Ohio, exhibited their latest catalogs and photographs of their steel dump cars and electric transfers. This well-known firm was represented by R. S. Richards, who distributed impartially a neat leather pocket book advertising the Atlas Car & Manufacturing Company, makers of high-grade cars of all descriptions and industrial railway equipment.

The C. W. Raymond Company of Dayton, Ohio, had an elaborate display, the representatives, C. W. Raymond, W. H. Sachs, J. H. Harwood, S. Wiebe and I. M. Justice being comfortably located in their well-furnished "buttonhole" office, which was situated in a prominent place on the exhibition floor. This "buttonhole" office was fitted with a folding-top desk, chairs, screens, rugs and tables. On the tables were spread the many bulletins issued by the C. W. Raymond Company during the past year with several new additions, one being the announcement that they had taken over the interests of the Youngren continuous kiln. At the "button-

hole" office entrance was a stand draped with an American flag and supporting a clay brick made on a Raymond hand press out of Chicago clay in 1887 during the first meeting of the N. B. M. A. following its organization at Cincinnati in 1886. On the flat surface of this brick in bas relief, gold tinted, was the bust of Abraham Lincoln. Charlie Raymond was much in evidence convention week, this probably being due to the fact that he gave as souvenirs, mostly for the ladies' benefit, handsome plates decorated in the Austrian style in the center of which is stamped the picture of Queen Louise.

The Cleveland Car Company was represented by Mr. W. H. Caskey, who distributed their advertising literature and made himself agreeable with the delegates.

The United States Engineering Company, formerly the Luce Engineering Company, was there in full force. Their delegates, Peter B. Gibson and Marion Blair, son of W. P. Blair, secretary of the National Paving Brick Manufacturers' Association, found it hard to be in two places at the same time, as they were much in demand not only at the convention hall but also at the headquarters at the Hotel Seneca, where they entertained the delegates in their rooms and exhibited their many blue prints, drawings and photographs of plants, machinery, etc. This company has erected several fine plants during the last year, the latest being one at St. Paul, Minn., where they built a new plant for the Twin City Brick Company.

The Richardson-Lovejoy Engineering Company of Columbus, Ohio, had a display of catalogs, and were represented by the two partners, Mr. W. D. Richardson and Mr. Ellis Lovejoy. Between the Ceramic Society and the N. B. M. A. meetings, these two prominent engineers spent a busy week, as they were in great demand.

Mr. James W. Hensley of Indianapolis, Ind., who has been in the brick machinery business over twenty years, and has attended most of the N. B. M. A. conventions, was on deck as usual, advertising his various lines. Mr. Hensley is the successor to S. K. Fletcher, and has for his specialty the outfitting of complete plants, including power. Everyone has heard of the "Monarch," the "Duke of Wellington" and the "Quaker" brick machines. Mr. Hensley not only has a fine line of these brick and tile machines but can supply all the necessary equipment needed in a clay manufacturing plant.

The Ceramic Supply & Construction Company of Columbus, Ohio, manufacturers of special clayworking machinery and controlling apparatus for power plants, factories, driers and kilns, and dealers in brickyard and pottery supplies, exhibited their fine catalog "Why?—What?" which was a special announcement to the clay craft, and cataloged the company's various lines of machinery and supplies.

The National Brick Machinery Company of Chicago, manufacturers of the famous Simpson press and Simpson screen, was represented by P. L. and H. S. Simpson. They had a display of their latest catalogs and leaflets.

There were many other well-known firms represented, such as the Pulsometer Steam Pump Company, the Ernst Wiener Company, and the American Process Company of New York City, National Roofing Company of Tonawanda, N. Y.; the Illinois Supply & Construction Company and Fernholtz Brick Machinery Company of St. Louis, Mo.; the Ricketson Mineral Paint Works, Milwaukee, Wis., and the Cohoes Iron Foundry & Machine Company of Cohoes, N. Y.

Many samples of brick were displayed, coming from many different sections of the country. Some of the firms sending samples were: The Oakland Press Brick Company of Zanesville, Ohio; McArthur Brick Company, McArthur, Ohio; the Kittanning Clay Manufacturing Company, Kittanning, Pa.; the Ohio Mining & Manufacturing Company of Shawnee, Ohio; Brick, Tile & Terra Cotta Company of Corning, N. Y.; the Shawmut Paving Brick Company, Shawmut, Pa.; the Bessemer Limestone Company of Youngstown, Ohio; C. J. Holman Company of Sargents Bluff, Iowa; the Union Stone & Brick Company; Geo. S. Good Fire Brick Company, Curwinstown, Pa.; C. P. Mayer, W. C. Spade, several of the large hydraulic companies, and many others.

OUR ART COLLECTION.

As our readers will observe, we have added an unusually large number of new faces to our collection of N. B. M. A. portraits. We have always been proud of the personnel of the National Association, and never more so than now.

ELEVENTH ANNUAL CONVENTION OF THE AMERICAN CERAMIC SOCIETY.

Held at Rochester, N. Y., in the Parlors of the Powers Hotel,
February 1, 2 and 3.

PERHAPS THE MOST SUCCESSFUL convention ever held by the American Ceramic Society convened at Rochester on February 1. The convention was called to order promptly at 9:30 a. m., Monday, with President A. V. Bleining in the chair.

President Bleining made a short and appropriate speech, thanking the society for the honor conferred on him as president. The election for the coming year was then announced.

The society is pleased to present the following officers:

President, R. C. Purdy.

Vice President, Mr. Arthur S. Watts.

Secretary, Prof. E. Orton, Jr.

Treasurer, Mr. Ellis Lovejoy.

Manager, 1909-12, Mr. H. E. Ashley.

These men are so well known that it is unnecessary to state their fitness for their respective offices.

The number of papers presented to the society was so great that it was necessary to hold two simultaneous meetings on Tuesday. The meetings were carried on in adjoining rooms, and each section was kept informed of the proceedings



Prof. R. C. Purdy, Columbus, Ohio.

of the other, that that it was possible to pass from one room to the other in case one was more interested in articles going on in the other room.

Secretary Orton arranged the program so that articles of similar character were discussed in the same section, and so avoided a great deal of confusion.

All papers presented showed a marked improvement over those of previous years. It was very evident that the practical and theoretical are coming closer and closer together each year, and each is respecting the other more and more.

One of the most interesting papers was a lecture on Colloids of Clay and Their Measurement, by Harrison E. Ashley, of Pittsburg. Mr. Ashley assumed that different clays contained colloids, and showed how these clays were capable of absorbing various amounts of dye solution. He has not proven as yet whether the colloids absorb the dye or else hold salts which absorb the dye. However, his results point very favorably toward the possibility of measuring the plasticities of clays by their ability to absorb dye solutions, and hence the amount of colloids they contain.

The article was especially interesting from the fact that Mr. Ashley has attacked a very practical problem by theoretical means.

Mr. Arthur S. Watts presented a paper on "A Study of Some of the Physical Properties of Commercial Electrical Insulating Porcelain." The paper included the showing of cross sections of various porcelains under a high power micro-

scope and throwing the images on a screen. The immense amount of work required to prepare such a study was so great that Mr. Watts has not had time to make any positive statements, but his work certainly shows a step in the proper direction.

Mr. Herford Hope presented a paper on "The Comparative Effects of the Oxides of Calcium Magnesium, Strontium, Barium and Zinc on Some China Bodies." A discussion of this sort is always of interest to the general potters, and Mr. Hope's care and precision in experiments is of such a high character that his results can be depended upon.

"Some Fallacies and Facts in the Making of Glass," by Mr. R. L. Frink, was of unusual interest, not only on account of its being a high grade paper, but also because it is one of the few papers on glass which the society has ever had to present.

All of the papers were meritorious, but too long to give here. The society has secured Mr. W. D. Richardson as editor, so that it is expected that Volume XI will be published very shortly.

The following associate members were raised to full membership:

Ellis D. Gates, Van Asselts, Wash.

George Simcoe, Victor, N. Y.

Thos. Gray, Boston, Mass.

A. Henbach, Chicago, Ill.

R. L. Frank, Columbus, Ohio.

The new associate members elected totaled fifty-two, making the total membership of the A. C. S., both full and associate, 330, the largest in the history of the society.

The members are now anxiously looking forward to this year's mid-summer meeting, the exact time and place of which has not been definitely settled as yet, this question being left in the hands of the executive council.

Convention Echoes.

DEAR MR. SECRETARY:

Before settling down once more to hard work, I want to write you a few words regarding my impression of the convention, which, I believe, was the most successful in every respect we have ever had. I trust you will not think that because I was president last year and worked with you in preparing the program, etc., that I make this assertion, but I would make it, even if I had nothing to do with the program, as every paper that was read at the convention was full of good and practical thoughts for the progressive brickmaker. It is a wonder to me why more brickmakers throughout this country do not avail themselves of the advantage of attending the National Convention, every one of which grows better. The practical thoughts we get along the line of progress, and the inspiration coming in contact with the successful brickmaker, help one throughout the year. The Entertaining Committee of Rochester certainly set a pace which it will be hard to beat. Hoping that each convention may prove a better one, and with kindest regards, I remain,

Yours truly,

Corning, N. Y., February 12, 1909.

M. E. GREGORY.

The Best Convention Ever.

MY DEAR RANDALL:

I take the first possible occasion to congratulate you most heartily upon the convention just held at Rochester. In many respects, I think this was the best convention which I have ever attended. The banquet was particularly enjoyable, and I have heard many expressions to the effect that it was the best which the association has ever held. We are all very grateful to you for your continued and successful handling of our association. With kind regards, I beg to remain,

Very truly yours,

J. PARKER B. FISKE.

New York, N. Y.

A Convention Without an Unpleasant Occurrence.

MY DEAR RANDALL:

Home again from attending one of the most pleasant conventions we have held. What royal hosts our Rochester friends are; they certainly can not be outdone, and not an unpleasant occurrence during the entire week. Candidly

speaking, I look upon this convention as one of the most important that has been held for the good of the brick-maker. Everyone interested in brick, whether it be in manufacturing or selling, should join our association and pay their 1 cent per thousand to advertise burnt clay products in house building. With best wishes,

Your friend,

CHAS. A. BLOOMFIELD.

A Pleased Annexer.

DEAR MR. SECRETARY:

The convention at Rochester has been a great benefit to us, and as an exhibitor we want to at this time express our appreciation of the courtesies extended to us. We believe the way you handled this could not be bettered for giving actual benefit to the brickmakers, and to their friends. With best wishes, we are

Your friends,

THE CONNEAUT SHOVEL CO.,

G. W. Benton,

Sec.-Treas.

Conneaut, Ohio, Feb. 10, 1909.

A Correction and Explanation.

DEAR MR. RANDALL:

In the Numerical Rosters of the N. B. M. A., you have me down against No. 394 as L. Plummer. If you will kindly correct it I will be very much obliged to you for this, as well as the very enjoyable time which you helped to give us at Rochester.

I tried to get up to see you to say good bye the morning before I came away, but you know I came away with Bloomfield, and had to wait so long for him to get his grip packed that there wasn't time to bid you good bye. He said he had done so for himself before packing his grip, and he seemed quite anxious that there should be no delay in getting out of the hotel with that grip. You are aware, of course, that more or less silverware disappeared from the hotel, and that there was some commotion about it; and I understood that that grip was amply large to hold all that he took to the hotel, and closed easily. Whether or not anything dropped into it during one of those sleepy spells I can't say, but, of course, out of feeling for him, I would not attempt to ask questions there, so could only hasten away with him and forego the pleasure of bidding you good bye.

Yours very truly,

New York, February 15, 1909.

D. S. PLUMMER.

Suggestions for Future Work.

DEAR BROTHER RANDALL:

"Home, Sweet Home—there is no place like home, if ever so humble." We arrived home safely, well pleased and edified, as we always are at every convention of the brick manufacturers' association of the United States. Sorry to leave without having time to say good bye and shake the hands of many dear brothers, but you know trains don't wait for anyone. There were some able papers read, and some able speeches made, if they were a little long. Mr. Williams made a most able address, as you know truth is sometimes a stubborn thing. His warnings were both truthful and forcible.

Others were good and cogent, but I would recommend a time limit to both papers and speeches, so time, the most valuable of all earthly possessions, will be well utilized, and the patience of auditors would not be too sorely tried. In this age of ours, "Multum in parvo" is the most modern motto, and a good one. Whilst I am pleased and interested in Brother Fiske's paper of the Publicity Committee, and would urge its widespread dissemination as a great factor and defense of the great brickmaking industry, I would suggest as an additional factor of no slight importance—the making of better brick. You know the dear Lord said, "The poor you always have with you."

So that we will perhaps have poor brick with us. A brickmaker who makes poor brick, rough and unsightly, usually demoralizes the market by marketing the brick at a very low price, thereby causing the best brick to at least, in some degree, be sold at lower prices. If each brick-

maker makes good brick, well-burned, all can get better prices, as a good discerning builder will always pay a better price for a good article than a bad one. Yet he will use a low price for inferior brick to reduce the cost of the best.

Another important item: Can we, as an association, establish a uniform price as we have size for our brick, according to kind and quality. Would it not work well and stimulate the trade to improve their products and get better prices? This would, in my opinion, enable the maker to get prices that would have some profit to the maker.

Now I can't refrain from extending my very sincere thanks to our brothers of the association for the universal kindness and courtesy to each and all, and to the good people of Rochester for their open hands, hearts and purses—for their unbounded hospitality and kindness. Why should I omit this tribute to them so justly merited? Col. Nathaniel Rochester, the founder of the beautiful city, was a Marylander. He established one of our oldest and most substantial banks here, the Hagerstown Bank, which stands and has stood like the Rock of Gibraltar, and whose shares today are over ten times their face value, with a depositors' account of nearly \$2,000,000, and dividends as high as 20 per cent., with a large sinking fund and surplus.

With my continued best wishes, hoping we may all live to meet at many, many more annual conventions, I remain,

Sincerely yours,

Williamsport, Md., Feb. 6, 1909.

VICTOR CUSHWA.

Back to Horseheads.

MY DEAR SECRETARY:

The Eisenharts returned from the convention city Saturday evening in good shape, and all are agreed that the writer made no mistake when he proposed to hold the 1909 Convention in the beautiful city of Rochester.

Our Rochester friends are not only good brickmakers, but they also proved themselves to be royal entertainers. Never before did I find our membership so well satisfied as all appeared to be with the treatment they received at Rochester.

As for hotels, it goes without saying that Rochester stands at the head of the list. Not only did the brickmakers and others who are directly or indirectly interested with them leave nothing undone to add to the pleasure and comfort of all, but even many of the merchants made a special effort to give all a hearty welcome.

The enterprising firm of Sibley, Lindsay & Kerr outdid themselves, and at a great expense gave the ladies a spread that, all considered, was a top-notch.

Yes, Sibley, Lindsay & Kerr know how to entertain; they also know how to sell goods. I am pleased to say that without solicitation on their part, the Horseheads brickmaker has to drop five or six hundred dollars in their till for purchases made by my folks during convention week. To me this is conclusive evidence that they are like the Rochester brickmakers—on to their job.

I hope the Randall tribe returned to their homes in safety, and that they, like the Eisenharts, feel that Rochester is all right.

Yours very truly,

Horseheads, N. Y., Feb. 9, 1909.

R. G. EISENHART.

MINIATURE REPRESS.

The Ohio Ceramic Engineering Company has recently designed and placed on the market a very neat miniature repress for making model brick or block.

The manufacturers are sending out from time to time model brick for advertising purposes, and the press fills a long-felt want in repressing these models. It is the custom to make the models exact duplicates of the large brick or block, showing any grooves or lugs which may appear on the large sizes. Opportunity is also given to display on the models the name or trade mark of the manufacturers.

The cost of the press complete with die of such style and design as is desired is very trivial, and this press should find a place in the equipment of every brick plant.

THE CLAY PRODUCTS ASSOCIATION OF AMERICA.

A NEW ORGANIZATION, called the Clay Products Association of America, was formed on February 4, 1909, among the brick manufacturers attending the Rochester Convention, the object of which is to promote the use of burned clay building materials.

The question of publicity is one which must appeal to every observing clayworker of the country. We all believe most thoroughly in the virtues of burned clay as a building material, and have the greatest confidence in its ultimate success against all competition, but it must be confessed that we have done little in the past to impress the general public with its superiority.

While nearly every other material entering into the construction of a building has been made the subject of extensive and vigorous advertising, the burned clay manufacturer has been content to accept such business as came to him by reason of the inherent superiority of his material, and has done little or no publicity work. This inactivity on his part has resulted in an abnormal growth, at his expense, of his chief competitor, Portland cement concrete, for, while the cement industry in the last nine years has grown nearly ten-fold, the burned clay industries have scarcely doubled. This wonderful growth of our competitor has been due to a very large extent to his superior advertising activity, and the time has now arrived when the clayworker should profit by this example and should bring before the public of this country the merits of his wares, which are more fireproof, more permanent, less expensive as to repairs, and more artistic than any other material in existence.

This work the new association now proposes to undertake, and it asks every clayworker of this country to give it his moral and financial support.

It proposes to proceed as follows:

First—To conduct among the architects of the country a competition for the best design in brick, as applied to the moderate-priced, isolated house, offering therefor a series of substantial cash prizes. Advice from the best authorities on this subject leads us to believe that this will result in a large number of designs, representing the best talent in the country. Such a competition will stimulate the interest of thousands of architects in brick construction, which of itself can not fail to bring substantial returns.

Second—To publish a book containing fifty or more of the best designs thus obtained, each representing a house in elevation and plan, accompanied, if possible, by a reliable estimate of the cost of construction; the whole prefaced by a few interesting articles as to the value and advantages of brick for such construction.

Third—To advertise this book freely in the popular monthly magazines and some of the leading country life papers, for free distribution to interested parties.

Fourth—To advise the members of this association from time to time as to the name and address of parties who have requested this book, thereby furnishing advance information as to prospective building operations.

It is thoroughly appreciated that such a campaign of education is somewhat limited in its scope, but it is our belief that we should concentrate our efforts for the first year on a single proposition, with the intention to extend our activity into wider fields in succeeding years. Acting on this belief, we have selected the isolated, moderate-priced house as the most promising object of attack.

Any individual, firm or corporation which is interested in the promotion of the use of burned clay building materials is eligible for membership to this association, and details as to membership, fees, etc., will be gladly furnished by the undersigned secretary.

We urge every clayworker in the country to lend a hand in this good movement. It is not our intention to decry the use of cement, wood or any other building material, but simply to bring the merits of our own material before the building public. The amount of ignorance on the part of the general public as to the character and the cost of a moderate-sized house in brick is truly lamentable. Not

only is the opinion prevalent in many sections of the country that a brick house is necessarily ugly, damp and otherwise objectionable, but that it is usually prohibitive in price. Such ideas can be wholly dispelled if we can place the truth of this matter before the public, and it should be an easy task to convince any inquirer that the brick house is not only the most permanent and the most artistic, but, in the end, the cheapest.

We have a real educational work to do; our plans are all laid, and we are ready for operation if the clayworkers of the country will give us their support.

Inquiries and subscriptions are earnestly solicited.

J. PARKER B. FISKE, Secretary-Treasurer,
Flat Iron bldg., New York City.

Officers and Executive Committee.

R. G. Eisenhart, president, Horseheads, N. Y.; J. Howard Chambers, vice-president, Philadelphia, Pa.; J. Parker B. Fiske, secretary-treasurer, Flat Iron bldg., New York City; W. M. Hodges, Bradford, Pa.; John W. Sibley, Birmingham, Ala., and Will P. Blair, Terre Haute, Ind.

THE NATIONAL CLAY MACHINERY ASSOCIATION ELECTS OFFICERS.

The members of the National Clay Machinery Association was in full force at Rochester. Indeed, a meeting of clayworkers would be incomplete without these "missionaries." The sessions of the association were held in one of the parlors of the Seneca, presided over by the president, L. W. Penfield. Matters of general interest to manufacturers of clayworking machinery and appliances generally were considered, and a number of excellently written papers were read. One of chief interest was that by Mr. C. B. Sharer, of the American Clay Machinery Company, Bucyrus, Ohio, entitled, "The Salesman vs. the Catalog," being in the nature of a reply to the one read last year by Mr. Harry J. Flood, of the Chisholm, Boyd & White Co., Chicago, Ill., entitled, "The Catalog vs. the Salesman." Frank Hopley, advertising manager of the American Clay Machinery Company, presented a paper entitled, "Advertising for the Clay Trade," which, it goes without saying, was both interesting and instructive.

The annual election resulted as follows: President, L. W. Penfield, Willoughby, Ohio; vice-president, H. J. Flood, Chicago, Ill., and secretary-treasurer, W. N. Durbin, Anderson, Ind.

LOUISIANA BRICKMAKERS HOLD CONVENTION.

The meeting of the Louisiana Brick Manufacturers' Association, which was held at New Orleans, La., January 21, was the largest held for a number of years. The sessions were held in the meeting rooms of the St. Charles Hotel, and were presided over by R. A. Kent, of Fluker, La., who has been president of the association for two years. Interesting papers were read by R. A. Kent, C. N. Adams, J. May, of McComb; Mr. Wright, of Alexandria; J. R. Abels, of Ponchatoula; Mr. Murdock, of Fluker, and Thomas Downey, of Hammond.

The deplorable condition of the trade during the last months of the past year was one of the matters which received considerable attention. It was the opinion of the majority that the conditions were the result of the financial troubles which affected every branch of trade in all parts of the United States, and all are optimistic over the prospects for the coming year.

A resolution was read on the death of Gus Godchaux, who was one of the most energetic members of the association. It was ordered that the resolution be spread on the minutes, and a copy be sent to the family.

The report of Frank Bethune, of New Orleans, the secretary-treasurer, showed affairs in splendid condition, especially the treasury, which showed a healthy balance in the bank.

After the reports, the annual election was held. R. A. Kent, of Fluker, was re-elected president. Other officers are: Thomas Downey, of Baton Rouge, first vice-president; J. R. Abels, of Ponchatoula, second vice-president, and Frank Bethune, of New Orleans, secretary-treasurer.

A GREAT FUEL SAVER.

The McKissick Brick and Tile Kiln steam boiler is a wonderful fuel saver as stated in their ad on page 378. It is a new system by the use of which the waste heat from kiln is used to generate steam for both power and drying purposes. The idea is novel, but after six months use the Carlisle Brick and Tile Co., of Carlisle, Iowa, declare that it is thoroughly practical and that the saving of fuel is even greater than was at first claimed. Brick and tile manufacturers who are either rebuilding old plants or contemplating the erection of new factories will do well to write W. L. McKissick & Co., Carlisle, Iowa, for full particulars.

SHOVELS MADE FOR CLAYWORKERS.

A shovel is a little thing compared with even ordinary brick yard supplies, but the difference between a good shovel and a poor shovel, tells in the laborers' capacity, so a good shovel is cheaper than a poor shovel, at any price. The Mikola shovels, which we illustrate and which are also shown in the ad of the Conneaut Shovel Co., on page 362, are so constructed that more material can be handled with them with less effort than with an ordinary shovel and their wearing



qualities are unexcelled. These statements are born out by the testimony of those who have used the Mikola shovels. Among those bearing testimony is M. E. Gregory, Corning, N. Y., an ex-president of the N. B. M. A., who says they are without question the best shovels he has ever had at his plant, and he now uses them exclusively. For further testimony write the above company, whose factory and general office is at Conneaut, Ohio.

NEW CATALOG OF THE STANDARD BRICK DRYER.

One of the handsomest and most interesting publications on the drying of brick that we have seen for some time is the new catalog just issued by the Standard Dry Kiln Company, of Indianapolis. It is evident that no expense was spared to make the book thoroughly representative of the high character of the drying system which it describes. Sixty-four pages are required to explain the merits of the Standard drying process and equipment, and to give a list of users of the Standard dryer, together with letters of indorsement from many leading brickmakers throughout the country. The following subject-headings from the catalog show the trend of the arguments used, and indicate the broad scope of the drying system: "Efficiency in Utilizing Exhaust Steam," "No Leaky Pipes with This Heating System," "Simplest, Safest and Surest," "Nothing to Break Down Means Money Saving," "Steam Drying Versus Waste Heat," "Often Installed to Replace Other Drying Systems," "Capable of Arrangement to Suit Any Clay," "Improvements Protected by U. S. Patents." Several pages

are devoted to a description of the new heating system of the Standard dryer, for which a number of unique features of superiority are claimed. The book is profusely illustrated with fine halftone pictures of the drying equipment. Brick-makers can obtain copies for the asking by addressing the Standard Dry Kiln Company, Indianapolis, Ind.

NEARLY \$500 PER ALARM!

A writer in Munsey's Scrap Book states, upon authority, that there have been 14,597 fire alarms in the city of New York during the last twelvemonth. Ten per cent. of those were false alarms. Each alarm sent in costs \$481.17, and the total cost of maintenance of the Fire Department was \$7,000,000. The alarms will average fifty a day, and the average loss per fire is \$540, while the total loss to the city was \$7,250,000, and at each fire an average of 10,000 gallons of water is used. Further, it is stated that fully one-third of these fires are the result of gross carelessness.

All this gives added force to the suggestion made by the International Society of Building Inspectors, that the European law of "neighborhood liability" be enacted in this country, too. That means that the person upon whose premises fire originates, a fire caused by neglect or carelessness on the owner's or the agent's part, is held liable at law for the damages done to other people's property by the spread of that fire beyond his own premises. In Europe this works to a charm in making people exceedingly careful in handling ashes, waste paper, etc., etc. Our insurance companies could also aid materially in reducing our fire waste by making their policies read that they would be liable for only 50 per cent. of the damage done by fire caused directly by carelessness and neglect. It is always easy to trace up the causes of fires, and these regulations would do wonders to lessen the number. In Europe they have not one-sixth of the fire losses that we suffer, and largely because of these wise regulations that induce care and watchfulness. It would not be anything of a hardship, either, if our cities would be sensible enough to legislate that nothing but thoroughly fireproof buildings should be erected hereafter.

INDIA'S POTTERY ACTIVITY.

New Bengal Company Establishing a Modern Factory.

The following report from Consul-General William H. Michael, at Calcutta, indicates that India is about to enter the pottery manufacturing industry:

"Recently a company was formed in Entally, Bengal, for the manufacture of a line of porcelain goods, which embraces cups, saucers, plates, inkstands, gallipots, toys, and other articles for which there is a demand. The company obtains the material from extensive deposits of kaolin located at Mangalhat, not far from Calcutta, in the Santhal Perganahs. These deposits have been known a long time, but have remained untouched until now. The company recently purchased machinery in Germany, which increases the capacity of the factory tenfold. Formerly, all the work was done by hand, employing fifty workmen. In order to assure a high order of finish when required, the company has imported two Japanese skilled in such work. It is the purpose of the company to build up an extensive pottery and try to meet the demand of the home market, and to export. The home market alone demanded imports of pottery valued at \$1,407,381 in 1907-8, compared with \$1,299,941 the previous year."

THE DAUGHTER OF THE N. B. M. A. TO BE MARRIED.

Cards are out for the marriage of Miss Edna Randall and Aaron J. Gould, of Chicago, March 6th. Many years ago, Miss Randall, when a mere tot, was, by formal vote of the convention, declared the "Daughter of the Association." She has attended every convention, beginning with that held in Chicago in 1894.

THE WISCONSIN CONVENTION.

THE NINTH ANNUAL MEETING of the Wisconsin Clay Manufacturers' Association, held at the St. Charles Hotel, in Milwaukee, February 10, 11 and 12, was the most successful meeting ever held by that organization. The attendance was up to expectation, the last delegate to register receiving badge No. 66. This speaks well, indeed, for a state organization that can boast of no larger membership than about seventy-five. Such old standbys as Sanborn, Kennedy, Craney, Hinkley, Ringle, Crabtree, Vogt and Hilkes were on hand early, as usual, to extend the glad hand of welcome to all comers, new and old.

After the usual preliminary opening address of welcome by a representative of the Mayor of Milwaukee, and the address by the president, G. W. Kennedy, the regular program of papers arranged by Secretary Wilson was presented. The program was interesting, especially the papers by Prof. Bleining and Mr. Richardson on the preparation and burning of clays, and clay machinery, and the discussions were entered into by the members with interest and close attention. The association is under obligation to both these gentlemen, who came from outside of the state on invitation of the State Geological Survey, and it fully appreciates their interesting and valuable papers.

The bricklaying department of the Stout Manual Training School, at Menomonee, Wis., was discussed by its director, W. H. Heffelfinger, and very decided approval of the work being performed was shown by the association. The need of more good bricklayers was fully conceded by all, and resolutions were adopted fully endorsing the school, and kind words of appreciation were sent to Hon. J. H. Stout, under whose provision the department was organized. Menomonee is well located for a school of this sort, and the members agreed to use their influence in making the department a success. The school turns out competent bricklayers in a course of nine months.

The foundation was laid for organizing a mutual fire insurance company among the clay manufacturers of the state. A committee was appointed, empowered to act in the matter in accordance with the insurance laws of the state, and subscriptions for insurance will be solicited at once. The plan of insurance will be modeled after that of the Wisconsin Retail Lumber Dealers, so far as practicable.

The subject of more publicity work by the fraternity of clay manufacturers was fully approved by the association, and plans were laid to co-operate with the national organization, so far as practicable, and as soon as the general plan of the national organization is fully understood by the committee in charge.

The social functions of the association were mainly a theater party, provided for by the Milwaukee members. The hotel accommodations were the best Milwaukee could provide, and all members were well satisfied with the social, educational and commercial features of the convention. All gave the assurance that the next meeting, which is to be held in Milwaukee, will be made as attractive and valuable in every way as was the one of 1909.

The following officers were elected for the ensuing year: President, L. T. Crabtree, Crandon; vice-president, John Ringle, Wausau; secretary, Oscar Wilson, Menomonee, and treasurer, L. H. Cordes, Watertown.

A BRICK PLANT WANTED AT VANDALIA, MO.

The Commercial Club of Vandalia, Mo., has under control about 1,000 acres of high-grade fire clay. It is claimed to be the largest field in the United States. Brick made from the clay have given the best of satisfaction and shipments have been made as far South as Old Mexico and as far East as

New Jersey. The Commercial Club is very anxious to have an experienced company with capital take hold of the property and operate on a large scale. Anyone desiring information is requested to correspond with F. P. Dye, secretary of the Commercial Club.

BRICK MACHINERY FOR NEW ZEALAND.

Chambers Brothers Company, Philadelphia, Pa., report some improvement in business, and among other new contracts, have just received an order for a stiff mud outfit for New Zealand. They will ship one of their side-cut auger machines with automatic side cutter and steam power repress. This goes to a former customer, who has been using the Chambers machinery for several years. These repeat orders, indicating as they do a satisfactory experience with earlier shipments, are particularly gratifying to the Chambers Company.

MILLION DOLLARS FOR GOOD STREETS IN NORFOLK, VA.

Contemplating a time when the streets of Norfolk will look far different from their present appearance, the Public Improvement Committee of the Council recently recommended an ordinance appropriating \$200,000 to be used in the improvement of the thoroughfares under the direction of the Board of Control and City Engineer, the measure carrying with it meanwhile the understanding that similar appropriations will be made each year until the city has expended a total sum of \$1,000,000 in this way. Other matters approved by the committee were appropriations of \$11,490 for the pavement of the unimproved portion of Graydon avenue; \$3,450 for paving Blow street, from Westover avenue to Armistead bridge road, and \$3,489 for paving Lincoln street east from Queen street.

ROAD SUPERVISORS IN VICINITY OF BUFFALO FAVOR BRICK FOR COUNTRY ROADS.

IMPRESSED WITH THE paramount value of brick, the press and public of Buffalo were never so enthusiastic as they are at present in regard to exploiting the superiority of that product over concrete and other material. Just at present thousands of dollars are being spent for the improvement of roads in the vicinity of Buffalo and other parts of New York State. Roads which were macadamized a few years ago are now in a hopeless condition, and are full of deep holes, which often mean damage and disaster for the farmer, automobilist and others.

The Buffalo Evening News is the latest paper to strike right from the shoulder in favor of brick for road-building purposes. Under this large headline, "Brick Road Is What Is Required Now," that paper, in its February 11 issue, said:

"Supervisors from the south towns of Erie County, N. Y., are a unit in demanding the improvement of the White's Corners road, and that it be paved with brick, so that it can last under the heavy traffic to which it is subjected, and not disintegrate every year, as it has since it was made an alleged road some ten years ago. In 1898 it was macadamized, and since that date repair bills have amounted to double the initial cost, yet today the road is a confused jumble of ruts, mud holes and misplaced patches, wrecking wagons and endangering the lives of the farmers, delivery wagon drivers, and others using it."

When asked for their opinion as to the material that should be used in paving the country roads, the Supervisors with one accord voted for brick. KNICKERBOCKER.

Whether an innovation pays or not depends both on the innovation and the innovator.

SEEN IN NEW JERSEY.

Editor THE CLAY-WORKER:

Newark will spend about half a million dollars on street opening and paving this season. Newark has always put down a liberal proportion of brick paving, and will continue to do that this year. One-third or more will be brick.

Plans are now being drawn for a new high school building in Hackensack to accommodate 1,000 pupils and cost approximately \$200,000. It will be built of brick, with probably terra cotta trimmings, and will also be as near fire-proof as possible.

Paterson is planning to do a good deal of paving this year. About \$200,000 will be expended upon paving and repairs, and probably one-third of this amount will be brick.

JERSEY.

A CASE OF BUSINESS BEFORE PLEASURE.

DEAR MR. SECRETARY:

I should like very much to be at the convention with you and the rest of the members this week, but I am building a kiln for the Donley Brick Co., and they are in a big hurry for it, and if I leave them this week they will have to stop their masons on my account, and the weather is so uncertain at this time of the year that we have to watch our chances to work every day that we can. It will take me ten days to get this kiln finished. It will hold 300,000 brick. I have another one to start on for the same company, just as soon as this one is finished. In fact, I have so much work on hand that I can not leave it, as in the kiln business you must go when they want you, but I hope that you will have a good meeting and that you will all have lots of pleasure and enjoy yourselves, for it is a pleasure for any man interested in the brick manufacturing line to be able to attend the National Convention of Brick Manufacturers.

Please find check for \$3.00, covering my renewal fee for membership. Also send me one of the badges of the Rochester Convention to the above address. With best wishes to you all, I am

Washington, Pa., Feb. 1, 1909.

Yours very truly,

F. W. DENNIS.

THE ADVANTAGES OF OIL AS A FUEL FOR BURNING CLAY WARE.

Some six months since the Mound City Roofing Tile Co., St. Louis, concluded to try oil as a fuel, and accordingly they purchased an equipment, including a set of Schurs oil burners, from the Illinois Supply and Construction Company, St. Louis, and after burning off several kilns, they write that they are very highly pleased, as they are getting better results than formerly, when they used coal. They find that the Schurs burner atomizes the oil perfectly and gives a steady, uniform continuous heat from start to finish. This enables them to get a much larger per cent. of the fine glazed tile. Mr. August Gallandt, superintendent of the M. C. R. T. Co., is more than pleased with the change, and says: "Previous to using the Schurs oil burners we burned off our roofing tile and terra cotta trimmings with coal, which cost us \$1.75 per ton at kiln. We required on an average 50 hours to burn the kilns with coal and had considerable loss in the top row of tile, which were badly cracked and more or less discolored. The cracking was caused by cold air getting into the kiln in clinkering the furnace. Since adopting oil the kilns are burned in from 34 to 36 hours. We are also able to add another row of tile in the kiln, which increased the output of the kiln one-eighth, for now we have nine rows of tile where before we had eight rows. Now we are not troubled at all with any crazed tile. We find that with the increased amount of tile in the kilns and the cost of burning with oil the cost is no greater per thousand for tile than it would be with coal, and at the same time we get much better burns. There is no flashing whatever." Any of the Clay-Worker's readers desiring information relative to the use of oil are requested to write to the Illinois Supply & Construction Co., whose ads appear on pages 216 and 217 of this issue.

CONCRETE BRIDGE HAS COLLAPSED.

A new concrete bridge over Rock Run Creek in Elkhart township, Indiana, two and one-half miles east of Goshen, and which was only finished late last fall at a cost of \$2,750, collapsed Sunday and is a total wreck. No one was on the structure when it went down. The National Concrete Company of Indianapolis, builders of the bridge, must replace it without cost to the county, as it had not been accepted and only part payment had been made on it. The bridge was a 70-foot span. —Elkhart Truth, January 26.

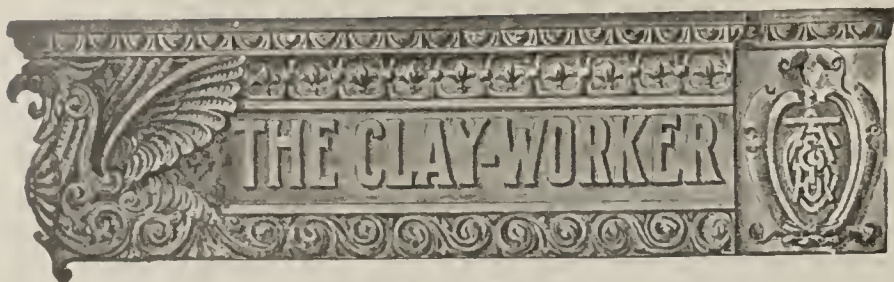
THE SOUVENIR BADGE.

The badge of membership with which those who attended the recent N. B. M. A. Convention at Rochester were bedecked, was exceptionally pretty, as the reader may see from the accompanying replica. The shield bears the Rochester



trade mark, a view of Seneca Falls, at the base of which is drawn a neat monogram. For several years past a number button has been given to each delegate, but this year the number was included as a part of the badge itself, and it proved a very effective combination. The numbers were printed in silver on dark blue ribbon, from which the shield was suspended over a gray ribbon, blue and gray being the official colors of the association. Those of the members who have kept the badges will find this one one of the prettiest of the collection. As heretofore, absentees will be furnished a badge on request to the Secretary, and the payment of the current year's fee.

The subject of improving our inland waterways should be kept as a pure and separate business before Congress, and not be allowed to get mixed up with any of the log-rolling or made into a Congressional pork barrel of any kind. It is a business proposition in which every citizen is or should be interested.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LI.

FEBRUARY, 1909.

No. 2.

CURRENT COMMENT.

The school of bricklaying is a good thing that is being pushed along nicely.

* * *

It is fitting that the Publicity Club should hold the center of the stage. Throw the spot light on President Eisenhower, please.

* * *

The magnitude of a man's business is some gauge to his business capacity, but it must be measured by the amount of profit obtained to get its true size.

* * *

That decision of Justice Wright was about right, and if those labor union fellows would try to do right they would have avoided some of the trouble they have gotten into.

* * *

If the political mud-slingers would just go down to Panama and dig dirt as hard as they sling mud at each other about this affair, the canal would be finished a little earlier, and the people would breathe easier.

* * *

More attention to the architecture of modest homes built of brick should help stimulate the use of the best building material in the world for even the modest of homes. Read what the Publicity Committee had to say on this subject.

* * *

From the historical evidence brought out in one of the talks at the meeting, it seems that the clayworking machinery industry is only about sixty years old. It was very crude and wobbly machinery at first, too, but it has been growing some in this short period, and one might judge from the progress that has been made that we have been several hundred years in developing and perfecting the machinery of clayworking, instead of just about half a century. In

view of this, there naturally follows the question, what will happen in the next fifty years?

* * *

Don't forget that a customer you have to buy is always ready to sell himself to somebody else, too, and has a habit of not staying bought.

* * *

There are enough "push building brick ideas" in the reports of the annual meeting to set every brick manufacturer to thinking. Let us not stop at thinking, but act on those ideas which seem to fit best into our condition.

* * *

If we could only reduce the cost of bricklaying like the cost of various parts of brick manufacturing have been reduced with labor-saving devices, such as the brick setting appliance illustrated on pages 286 to 288, it would do much to encourage the use of brick in home building.

* * *

So well up to all the different wrinkles of clayworking have the members of the N. B. M. A. become through continued discussion of these topics in the annual meetings, that when a new idea passes muster and the cross-fire of discussion and comes through safe, it must be a good one.

* * *

The technical papers making up a part of the report of the annual meeting are today, as they have been in the past, an important factor in developing new methods and appliances, and they should all be carefully read and the ideas contained therein put to use, for it is through this means that brickmaking has risen from a crude handcraft to a scientific industry.

MAKING BUSINESS.

Sometimes we accept unconsciously the doctrine that a man can not make or create a demand for his product. He can make the product and then hunt for the business. This doctrine has some pretty strong support, too, in the argument that reducing the prices will not enlarge the business, but simply diminish the profit. This, however, is not because business can not be enlarged, but is rather due to the fact that the price of material is only one item in business, and there are several others that enter. The price of brick may go exceptionally high and have a retarding influence on building operations. On the other hand, if there was a season of unusually low prices they might encourage a little further building, but not enough to make it worth while to sacrifice the profits in the business necessary to get the increase by this means.

NO DANGER OF OVER-BUILDING HOMES.

There are, however, other ways, rational and logical ways, for upbuilding business that may be pursued and bring good results. We have had some demonstration in this line by campaigns of work among lumbermen and dealers in builders' supplies, who have, during the past summer and fall, stirred up sentiment in favor of building operations, until they have undoubtedly created much more building business than there would have been otherwise. That is making business in the right way. It is not always to the permanent benefit of a people to encourage them to buy more and expand more in certain things than they are naturally inclined to, but in home building there is very little danger of over-doing it, because the people of this country have been too busy making their fortunes and doing other things to attend properly to their home building, and they have long needed stirring up in this respect. It came to be some years ago quite a joke among the farm papers of farmers being so interested in their stock and farm machinery that they built better barns than homes. And now the home has

a right to its inning, and benefit rather than harm comes to the country by encouraging more extensive work along these lines.

THE OPPORTUNITY OF THE N. B. M. A. PUBLICITY CLUB.

With the sentiment already aroused and more extensive home building operations as compared to other industrial undertakings than ever before, it behooves the brick manufacturers to look to their business and see whether they have done their part and have gotten in line to supply brick for as many of these new homes as they should. The lumber people have done a lot of the pushing, and, naturally, have reaped a good part of the harvest, and will continue to reap. If the brick men want more brick to enter the average home, it is up to them to do more of the same kind of business-making, to encourage home building and to advertise and push their own product in such a manner as to create a desire in the home builders to have a home built of brick. There are several lines along which the work can be carried out to advantage. One is through advertising. There is need for more advertising of brick and clay products, both in local papers and in the trade papers of national character. This not only brings direct results, but puts the brick products more conspicuously before the world in a broad way, and, eventually, has an influence that will lead to a larger volume of business in brick. The same logic applies to paving as to building brick, and there will likely be more streets paved of brick, as well as more houses built, if there is more printer's ink used in advertising. And there was never a time when it was more appropriate to open up a steady and extensive campaign of this kind than right now, while the country is recovering from an unusual depression, and is in shape to make substantial extensions in home and municipal improvements.

THE IMPORTANCE OF CONCERTED ACTION.

There might be a certain amount of what is termed community advertising done; that is, through associated effort. Brick can be advertised by the National Association, or by the brick manufacturers in a given state or community. This would help out wonderfully and might take on several forms. There is the sending of men around among the dealers for one, and the making of displays at fairs, and at other places where crowds are collected and other building material is shown, for another, and there are various ways in which associated work could be carried on. And prospects for returns look good enough to make efforts of this kind worth while. Still, with these or without them, the fact should not be lost sight of that a whole lot of business building is a direct result of each institution itself sending out personal representatives to cultivate the territory within reach. At first the work may seem burdensome and without sufficient direct results to justify it. But if good men are put on the road, even though they may not always send in orders along with their expense accounts, they will eventually develop enough increase in trade to make it all worth while. There is no better time to enlarge on this idea and get busy than right now, when the home building spirit has been thoroughly aroused, and there is frequently to be decided in the mind of the builder the question whether or not he will build with lumber, concrete, or some better and more permanent building material. In short, the opportunities right now are too good for brick manufacturers to let them pass. It is time to get busy. The N. B. M. A. Publicity Club can help a whole lot, so get in communication with Secretary J. Parker B. Fiske, Flat Iron building, New York City, who presents a statement on another page of this issue.

THE MODERNIZED PIECE-WORK SYSTEM.

There are some new theories being tested and put into working form in connection with the piece-work system in factories and elsewhere that piece-work has taken the place of day work. It is now being accepted as a fact that frequently piece-work instead of increasing the capacity of a worker really interferes with it. This is one of those instances where theory and practice have failed to work out properly. One of the theories responsible for inaugurating the piece-work system was that it would stimulate effort. That is, it would not only reimburse the people according to the amount of work they did, but it would encourage effort at larger production. It was found, however, that as people produced more the wage scale on the piece-work system was revised and lowered in proportion, and then the piece-workers in turn inaugurated a system of limiting production to prevent the cutting of prices on piece-work. It has even been found that people working under the piece-work system have failed to show a capacity equal to those working by day. It was simply a case of the desire to safeguard present rates against cutting out weighing the stimulating influence of the piece-work system of pay in proportion to the work done.

This difficulty has become so pronounced that it has called for either revision or an abandonment of the piece-work system. In some instances it has been revised or rather replaced with a new system which calls for a day rate of pay as the first working basis, and a bonus added for the extra production. The idea is made to work both ways. For example, what might be termed a day's task is fixed from estimates of the amount constituting a fair day's work; then if the operator succeeds in doing the work in less time, the time saved is divided between himself and the employer. That is, if a man gets through with what is regarded a ten hours' task in eight hours, he gains and has added to his pay the amount of one hour's wages, and the establishment gets one hour. In other words, there is an effort to stimulate production, based on the theory of dividing all over the normal production equally between the proprietor and the man doing the work. There are probably several special changes which may be wrung in on this idea, but the theory involved therein has become a part of the modern method of figuring on piece-work, and probably it will help remove some of the stigma that has attached to it, especially in the way of curtailing the output to prevent reducing prices, but it does not offer, so far as has been seen, anything to insure more quality in work. That has been one of the serious drawbacks to the piece-work idea, and we would like to see something offered which would not only reward each workman according to the amount done, but would, while stimulating production, also inspire a proper respect for quality.

"BURNT MONEY."

This is the title of an article in the January Everybody's that everybody ought to read. Some years ago it was realized that the generally shoddy construction of our buildings made great conflagrations in our cities not only possible, but certain, and a fire-prevention movement was set afoot. Mr. F. W. Fitzpatrick, of Washington, D. C., started it. He had studied the situation, and, being one of the foremost architects and authorities upon construction in the country, was eminently qualified to advise how to go about the work. He organized the Building Inspectors' and other societies, whose main purpose is to secure better buildings in our cities; he induced municipalities to revise their building codes; the insurance companies helped, and the architects have helped. Mr. Fitzpatrick has put the matter plainly before the people, and has written much upon the subject.

Articles by him have appeared in McClure's and other

periodicals and newspapers, and now Mr. Samuel Hopkins Adams, one of the original muckrakers, and who has been instrumental in securing many needed reforms in many directions, has assisted Mr. Fitzpatrick by writing this splendid article for Everybody's.

The editor prefaces that article by saying. "This is a record of shame. A sensational indictment of American extravagance. We knew that our national fire bill was starting, but the facts and figures that Mr. Adams presents here shocked us. They'll shock you. Not satisfied with slaughtering our forests, we are burning up our homes at a killing pace every year. We are pervaded with pride over our superiority to the rest of the world, while actually our fires cost us more than the combined loss of any other six civilized nations. Here are the figures straight in your faces. You can change the record. Mr. Adams shows how. Remember, we can not as a nation waste our substance and prosper."

TRADE LITERATURE.

The Illinois Supply and Construction Company, of St. Louis, Mo., is mailing a neat catalog to the trade, setting forth the merits of their brick and roofing tile machinery and kilns for burning all kinds of clay ware. This is of the ordinary pocket catalog size, bound in a heavy white cover, and contains fifty-four pages of illustrated matter, pertaining to the special lines of the Illinois Supply and Construction Company. The body of the catalog is of a good grade enamel paper and contains an announcement, a treatise on dry press brick-making, descriptions and illustrations of the many Grath dry and semi-dry clay and sand-lime brick presses, a treatise on the manufacture of roofing tile, and likewise descriptive matter and illustrations of the Grath tile and trimming presses, cutting and off-bearing tables, auger machines, clay pulverizers, improved clay mixers, dry pans, all metal clay plows, clay gatherers, screens, trucks, etc. The latter part of the catalog is devoted to the Grath semi-muffle down-draft kiln, the Grath up-draft kiln and the Schurs perfect oil burner. A copy of this catalog can be had free for the asking. See their ads. on pages 216 and 217 of this issue.

Bonnot Clay Machinery.—One of the neatest and most attractive catalogs we have recently received is that of the Bonnot Company, of Canton, Ohio. The artistic taste of the reader is attracted at first sight of the cover alone, the light green and elephant gray colors showing prominently on the dark green pasted Princess paper in antique finish. The cover design consists of tastily drawn sketch of a steel dump car full of clay on its way to the plant, which is seen in the background. Above this narrow oblong sketch is printed in bold letters, Bonnot Clay Machinery, while below is the name and address of the company. It has a double cover, the inside pages of which are covered with an all-over trademark design. The body of the catalog is of superfine white enameled paper, containing eighty pages in all, sixty-one of which are devoted to illustrations and descriptions of various Bonnot machinery, there being fifty-two illustrations, each occupying a page with sufficient white space to show off the cuts to good advantage. The remaining pages contain plans for brick plants, views of groups of fireproofing and paving brick and block made on the Bonnot machinery, group pictures and general views of plants and letters of high recommendation from such well-known firms as the Metropolitan, Bessemer, Barber, etc. This catalog is a compendium of high-grade clayworking machinery and ought to find a place in the office of every clayworker in the land. Write for a copy, mentioning The Clay-Worker.

A Good Start.—Among our exchanges this month appeared the first issue of The Mill Work Magazine, devoted to sash, door, mill work and kindred lines. We were agreeably surprised to find the editor of this new trade paper to be none other than our old-time correspondent, J. Crow Taylor, of Louisville, Ky., who has contributed many able articles to The Clay-Worker and is one of the most capable writers on our correspondence staff. The first issue of The Mill Work Magazine augurs well for the success of this new monthly trade paper; it is well printed, has an attractive cover and contains many interesting articles and editorials. We extend our hearty congratulations to its editor-in-chief and wish him and his co-workers the best of success, which is rightly theirs.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 372.]

WANTED, FOR SALE, ETC.

FOR SALE.

One Hercules stock brick machine, two Horton mold sanders, two dozen new brick molds, one elevator, one dump table, revolving, a lot of trucks a lot of wheelbarrows, several carloads of brick pallets, one 100 h. p. engine. This machinery will be sold at a bargain, as we are manufacturing drain tile only, and have no use for it. Machinery has been used one summer, is clean, painted, rebabbitted and guaranteed as good as new. Address

AMERICAN BRICK & TILE CO.,
24 c Morenci, Mich.

For Sale, Wanted, Etc., Ads Continued on
Pages 359-364.

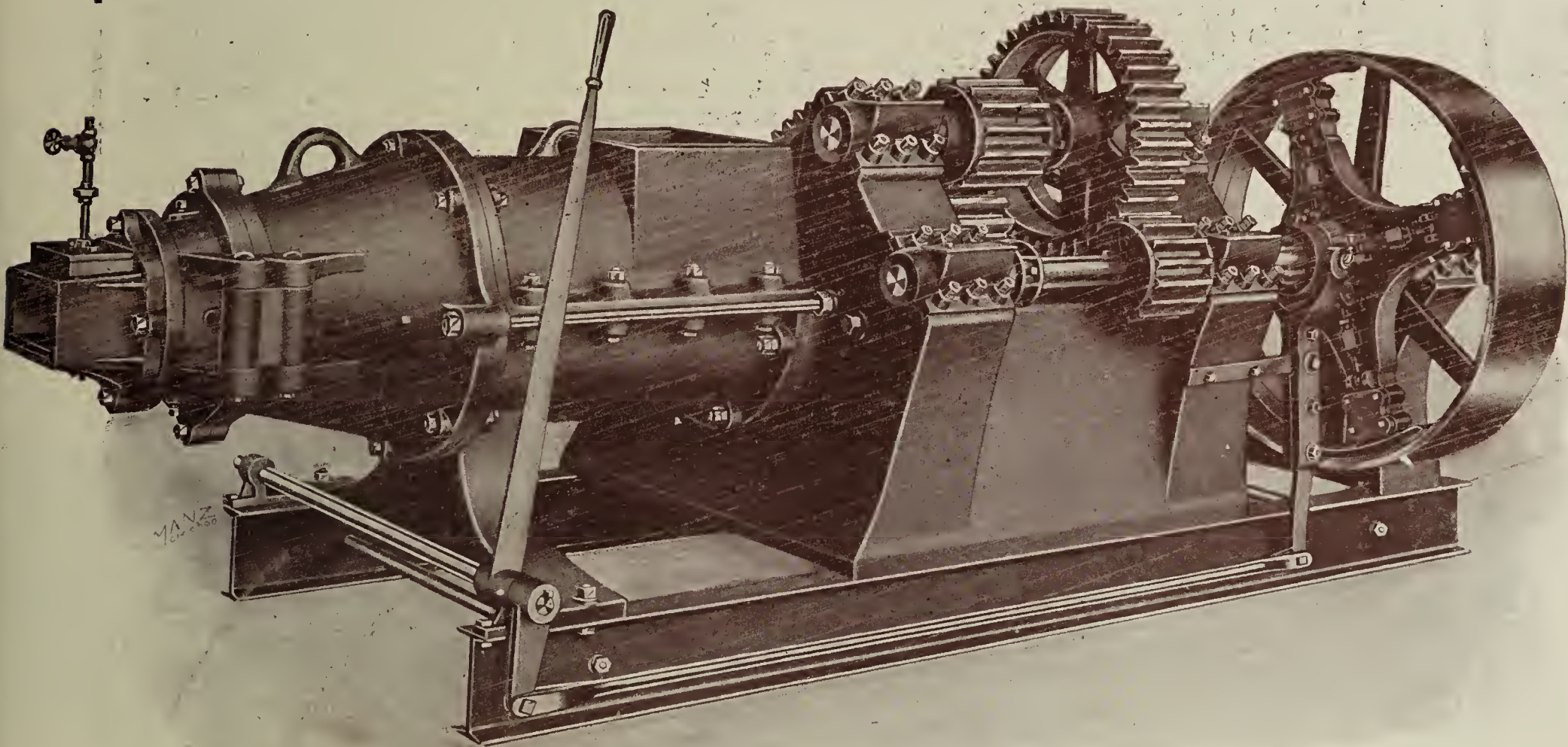
THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

BUILT RIGHT RUN RIGHT

No. 41 Heavy Duty Auger Brick Machine

This machine is designed for the manufacture of brick, tile, hollow blocks and similar products. The construction is high-class throughout. The material is of the best quality and the workmanship is highest standard. The machine is built with a high factor of safety. The gear frame is self-contained which insures perfect alignment. This frame is mounted on steel I-beam skids. The gears are wide with strong teeth.



The shafts are large and run in long bearings, the caps of which are held in position with bolts and jam nuts. The clay cylinder and nozzle are extra strong. The bolt holes are re-enforced. The end thrust of the auger shaft is received by two large ground chilled discs and one bronze equalizing disc; all run in an oil chamber which forms a part of the end thrust blocks which are made adjustable. All end thrust strain is received by steel rods, which parallel the clay cylinder and pass through the main frame. This system of steel rods removes the end strain from the cast iron parts.

The die is bolted to the front which is hinged to the nozzle on one side and held in position on the other by a safety break pin device. The parts are all made interchangeable and accessible.

Each shaft can be removed without molesting the others. The intermediate shaft is mounted in bearings on top of the gearing frame, which places it in a most convenient position.

The auger, tempering knives and the removable corrugated lining of the nozzle are made of a mixture of white and grey iron, so proportioned as to give great strength and wearing qualities. The end of the driving shaft is supported in a well designed pedestal bearing, which is bolted to the steel I-beams which insures perfect alignment of this shaft.

THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

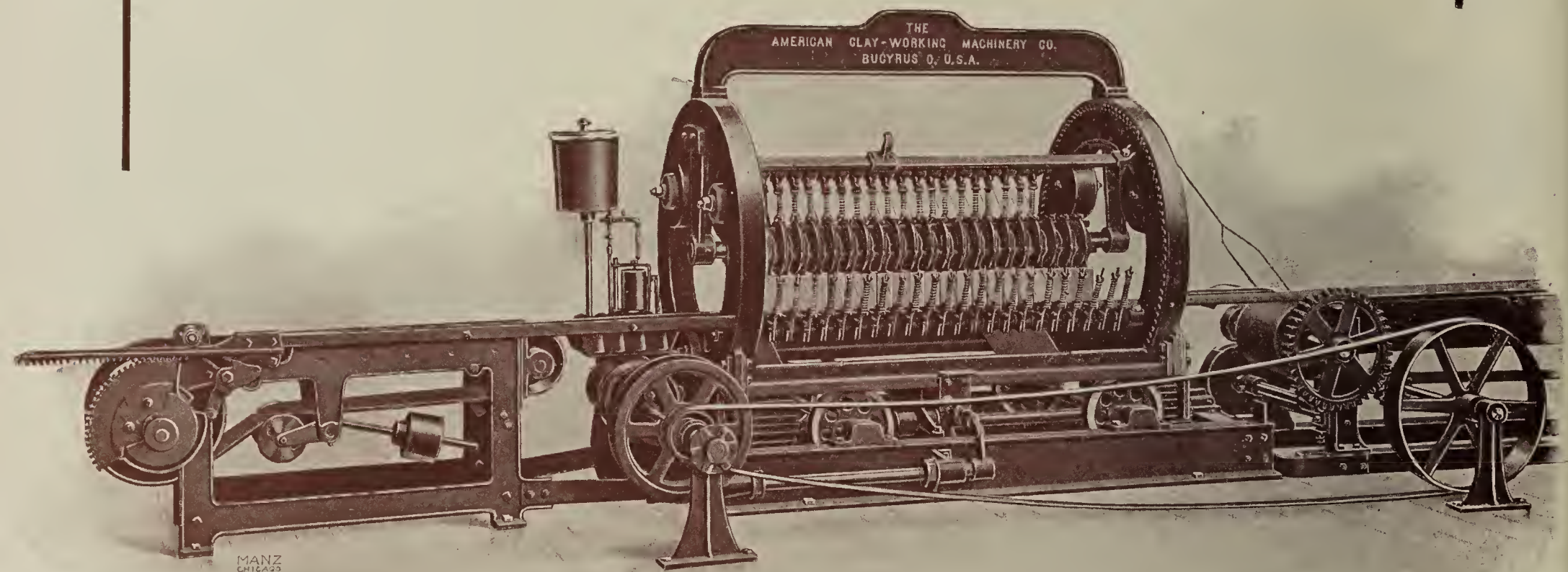
Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

THE AMERICAN CLAY *MACHINERY COMPANY* BUCYRUS OHIO, U.S.A.

No. 20 Automatic Cutting Table

One of the principal points of superiority is the measuring device which is so simple that only 4 feet of measuring belt is required to cause the carriage to travel with the bar of clay. This permits the cutter to be placed in the shortest possible space. The carriage is returned by a simple friction pulley and segmental crank track wheel. This device overcomes the swelling or buckling of the bar of clay and dispenses with auxiliary helpers of all kinds.

The rotary wire frame is driven by the two long pinions in the center of the machine. These pinions are driven by a worm gear and worm which gives a steady motion to the wire reel. The worm or driving shaft is set at right angles with the cutter and is driven with a friction clutch pulley. This friction clutch pulley is operated by the movement of the carriage which starts the wire reel in motion and it is thrown out of gear by the rotating wire reel. The friction clutch pulley dispenses with the objectionable jaw clutch and by it we are permitted to run the cutter at a greater capacity.



There are two sets of improved toggle wire fasteners upon this cutter. This gives more time for the wire to pass through the column of clay and leaves the wires at rest in a horizontal position so that broken wires may be replaced readily. The wires have a shearing action when passing through the bar of clay making as perfect a cut as can be made with a wire cut machine. The carriage is kept in register by a simple registering device.

The wires are prevented from cutting the bar of clay before the proper time by a simple band brake and brake wheel. All wearing parts are accessible and the platens can be easily changed where it is necessary to cut different thicknesses of brick. The wire reel is carried on six track wheels, which are provided with eccentric pins for taking up the wear.

The cutter is built high grade throughout. The very best material is used. Each and every machine is thoroughly tested before leaving the factory and is built under the supervision of the skilled mechanic who has charge of this department and has become very proficient in the erection of these automatic cutting tables.

THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

Dry Presses All Sizes One Quality

We build the most complete line of Dry Presses on the market.

So complete is this line that we can exactly meet the needs of any plant without the necessity of overloading a press or without unnecessary investment in a capacity not needed. Presses range from one mold to six.

The illustration shown is our No. 515 Six Mold Dry Press.

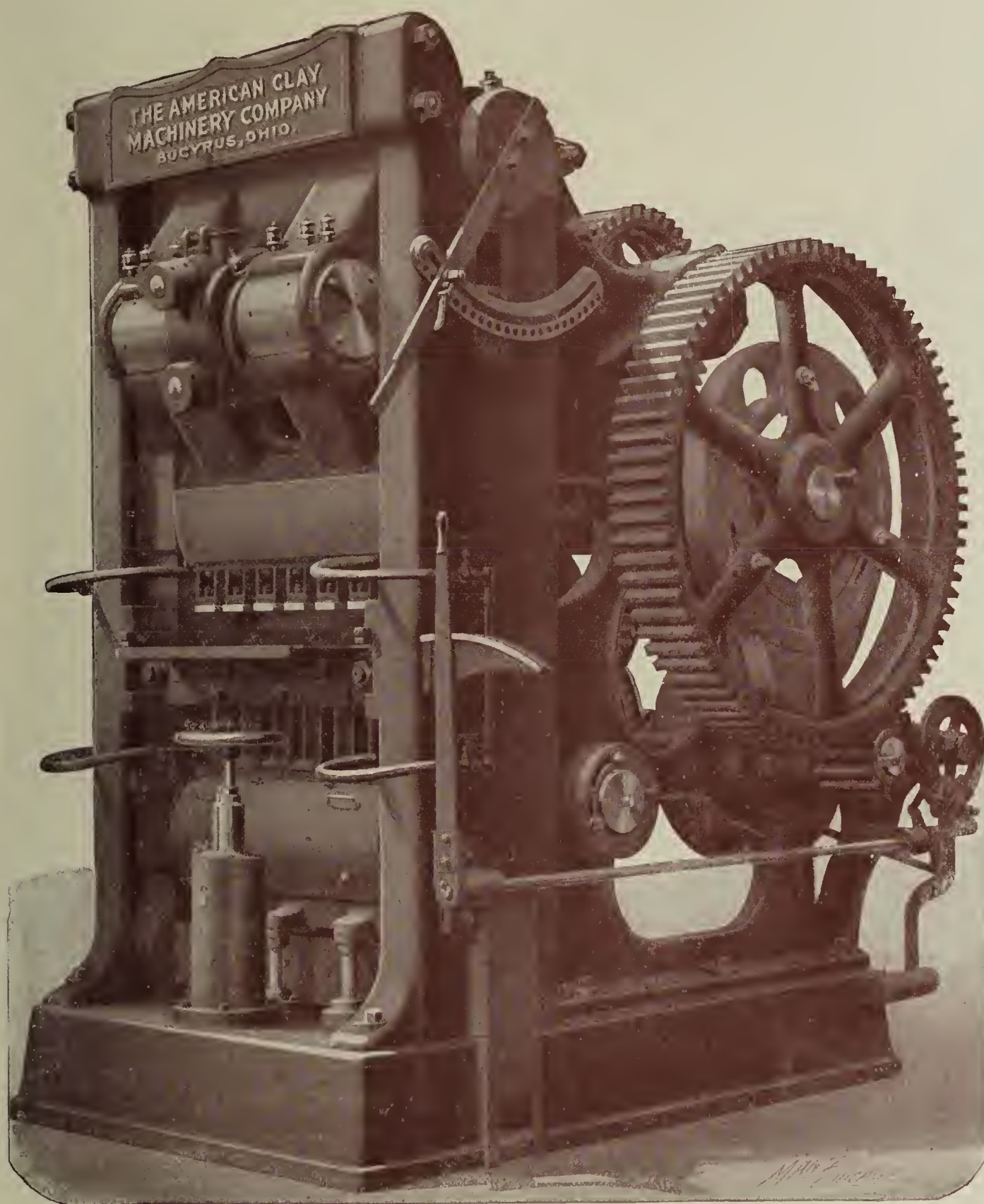
In this Press we have the highest type of Strength, Durability and Capacity.

Although very heavy and massive in all its parts, nevertheless the 51,500 pounds of iron and other metals entering into its construction, have been so proportionately distributed that none of the details are unnecessarily heavy, all have an ample factor of safety, and all movements are smooth and in good balance.

All shafting and tension bars are made of high grade steel forgings of our own make, and all other parts which sustain the great strains of pressing the brick are of open hearth steel castings.

Full description for the asking.

We build every machine and every appliance used in every branch of the Clay Trade. Write for new catalogue.



THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

THE AMERICAN CLAY MACHINERY COMPANY

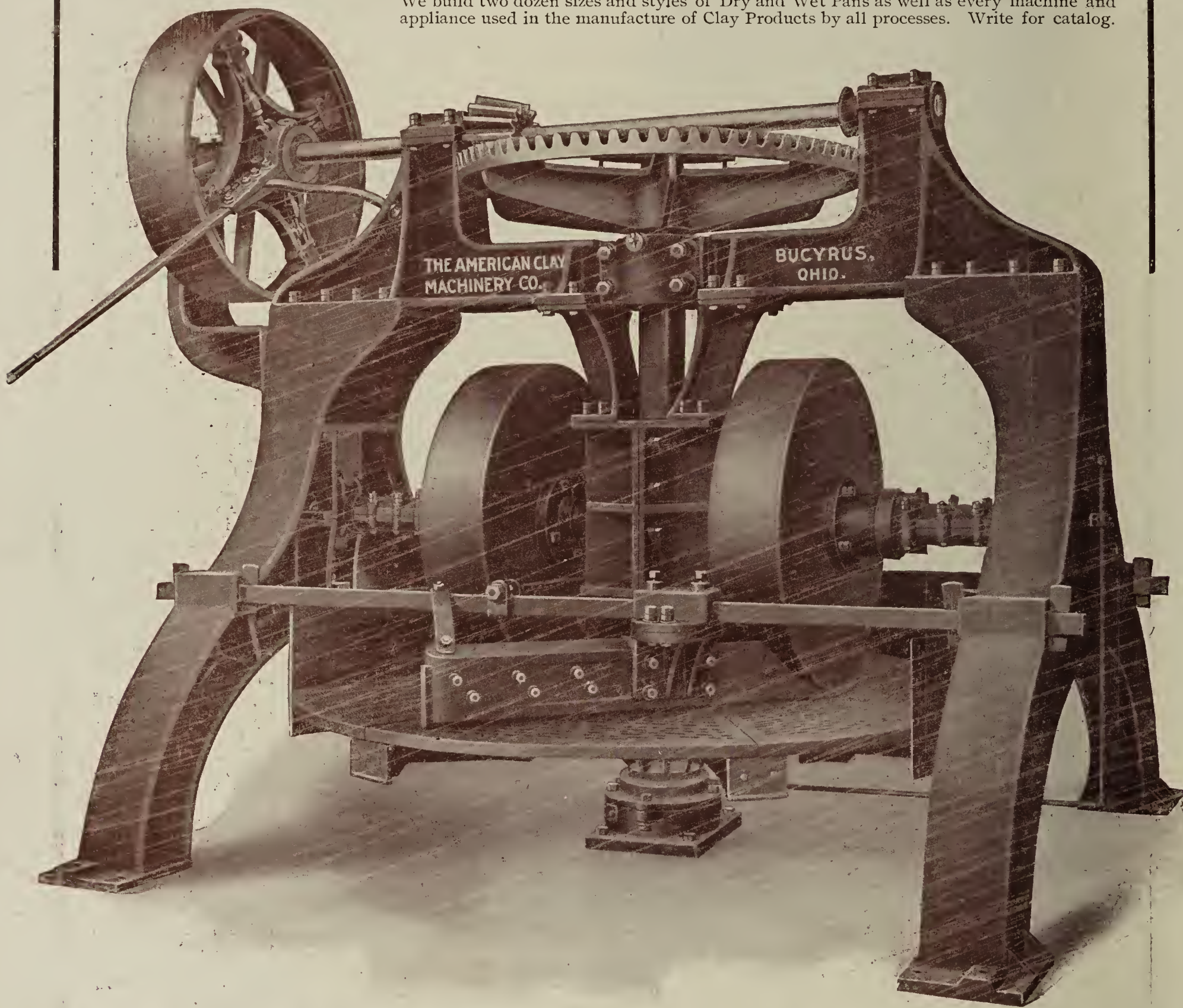
BUCYRUS OHIO, U.S.A.

BUILT RIGHT RUN RIGHT

Dependable Dry Pans

We build a line of Dry Pans which can be depended upon, not only on Promise, but Performance. Note the lines of strength embodied in this pan. There is Flawless material and Faultless workmanship. The men who build these pans in our shops are pan builders the year around. They thus become pan specialists. Every pan is erected and thoroughly tested in our factory. We know every pan to be perfect because of the care with which we watch its building. We can guarantee it.

We build two dozen sizes and styles of Dry and Wet Pans as well as every machine and appliance used in the manufacture of Clay Products by all processes. Write for catalog.



THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

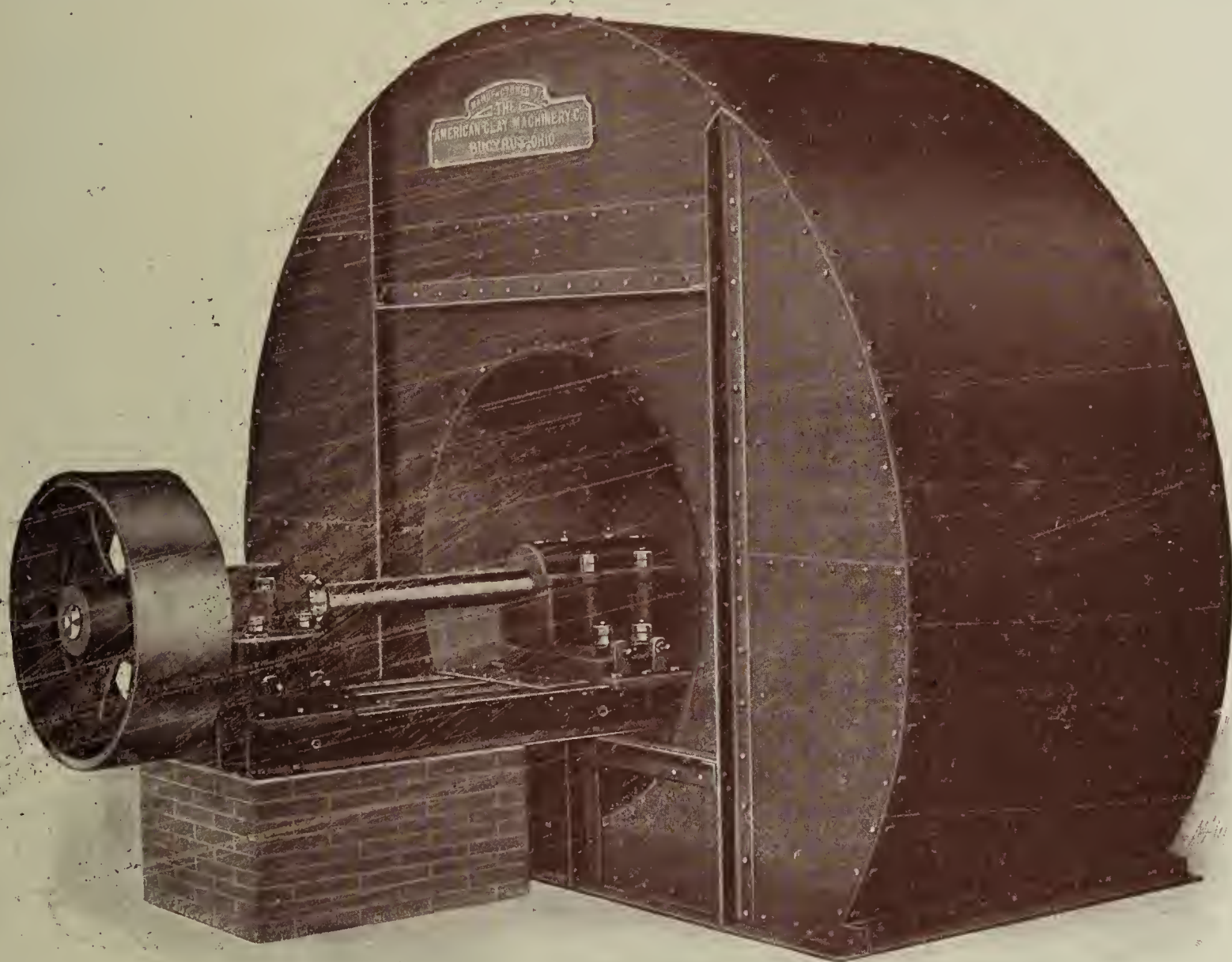
BUILT RIGHT RUN RIGHT

Two Vital Dryer Points

After all there are only two real points to consider about a Dryer. One is Quality and the other Efficiency. In many cases the Efficiency depends upon the Quality.

Even cost is a minor consideration because a cheap and unsuccessful dryer is dear at any cost.

We handle the Dryer question in a way that is most likely to result to your full satisfaction. We make all styles of Dryers and recommend that one best adapted to your clay.



This successfully solves the question of "what style of Dryer" you buy. We have all kinds and have only to consider your own best interests.

In the Quality of our Dryers we are positive, because we build every part of the equipment in our own shops. We depend upon no one else for our quality. It is there because we put it there and are able to guarantee it.

We build every machine and appliance needed to make Clay Products by all processes. Write concerning anything you need.

THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

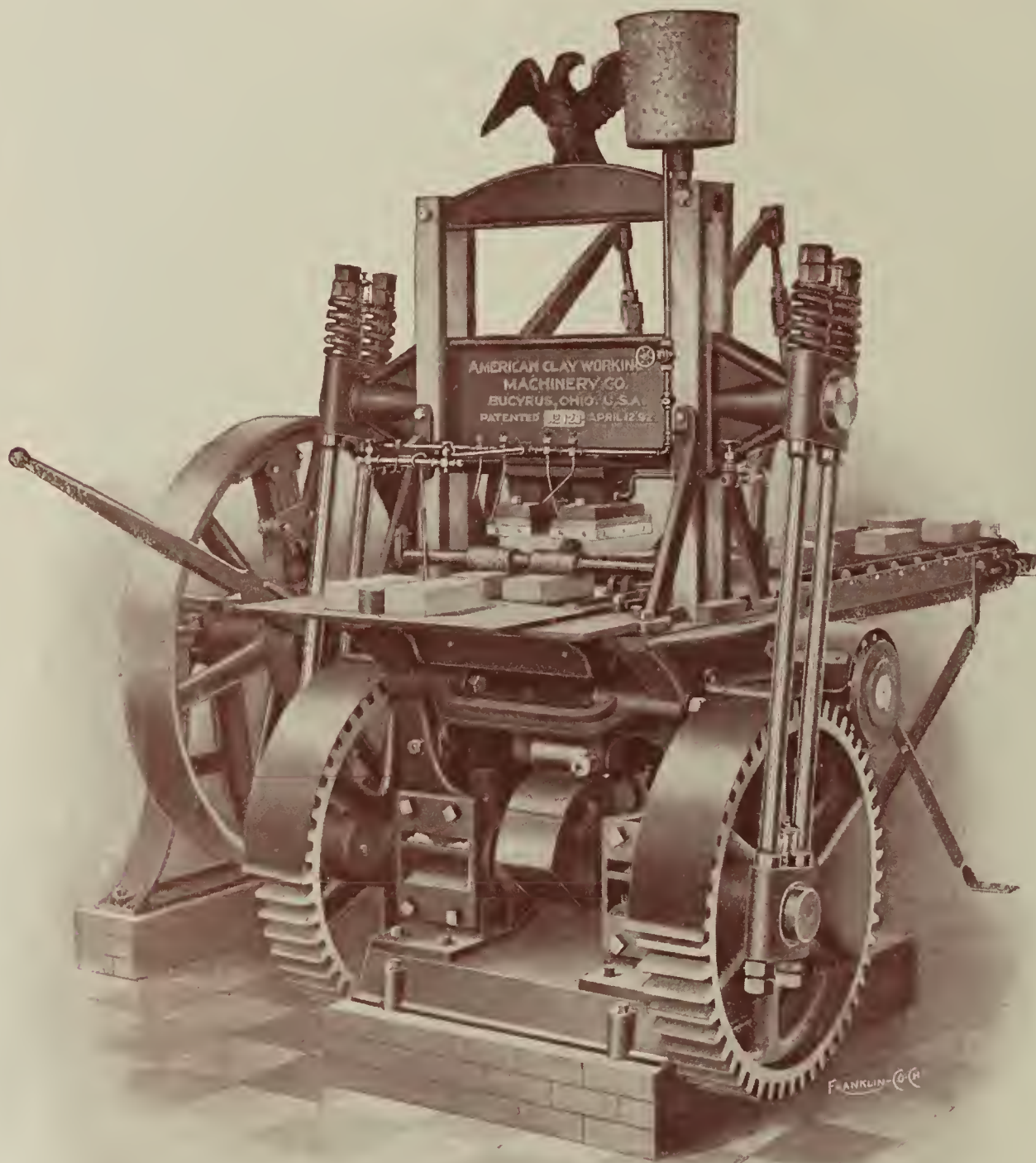
The Best to Buy--The Best to Keep--The Best to Run

The Eagle Repress is always a good purchase. It sells at the right price and stays right after it is sold. It earns more for its keep than any other press and needs less attention than any other. It insures the most you can get in quantity and quality of brick and will last longer, do more and cost less than any press you can

buy. You can examine them all but if you want the very best, there is only one to see and that is The Eagle.

If you desire further assurance we shall be pleased to furnish detailed information on the excellence of the Eagle Repress or will let its users speak for it. A list of users on request.

We build every machine and equipment needed to manufacture Clay Products by all processes including Sand-Lime Brick. Each machine has that superior quality which insures long life and satisfactory service.



THE AMERICAN CLAY MACHINERY COMPANY ::: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

THE AMERICAN CLAY MACHINERY COMPANY

BUCYRUS OHIO, U.S.A.

BUILT RIGHT RUN RIGHT

Soft Mud Brick Machinery

There is many a clay which can best be worked on Soft Mud Machinery. To handle such clay on Stiff Mud or Dry Press machinery would prove a failure in the long run.

We build a complete line of Soft Mud Brick Machinery and appliances to meet the needs of such clays. We are not interested in selling you machinery which may

prove a failure. We have the very machinery you require to make a success of your business, and that is the only machine we will sell you.

Our Upright Stock Brick Machine is built for long and continuous use. It has many satisfied users who will cheerfully recommend it.

Our line of Plunger machines is complete, with a size range to meet your requirements.

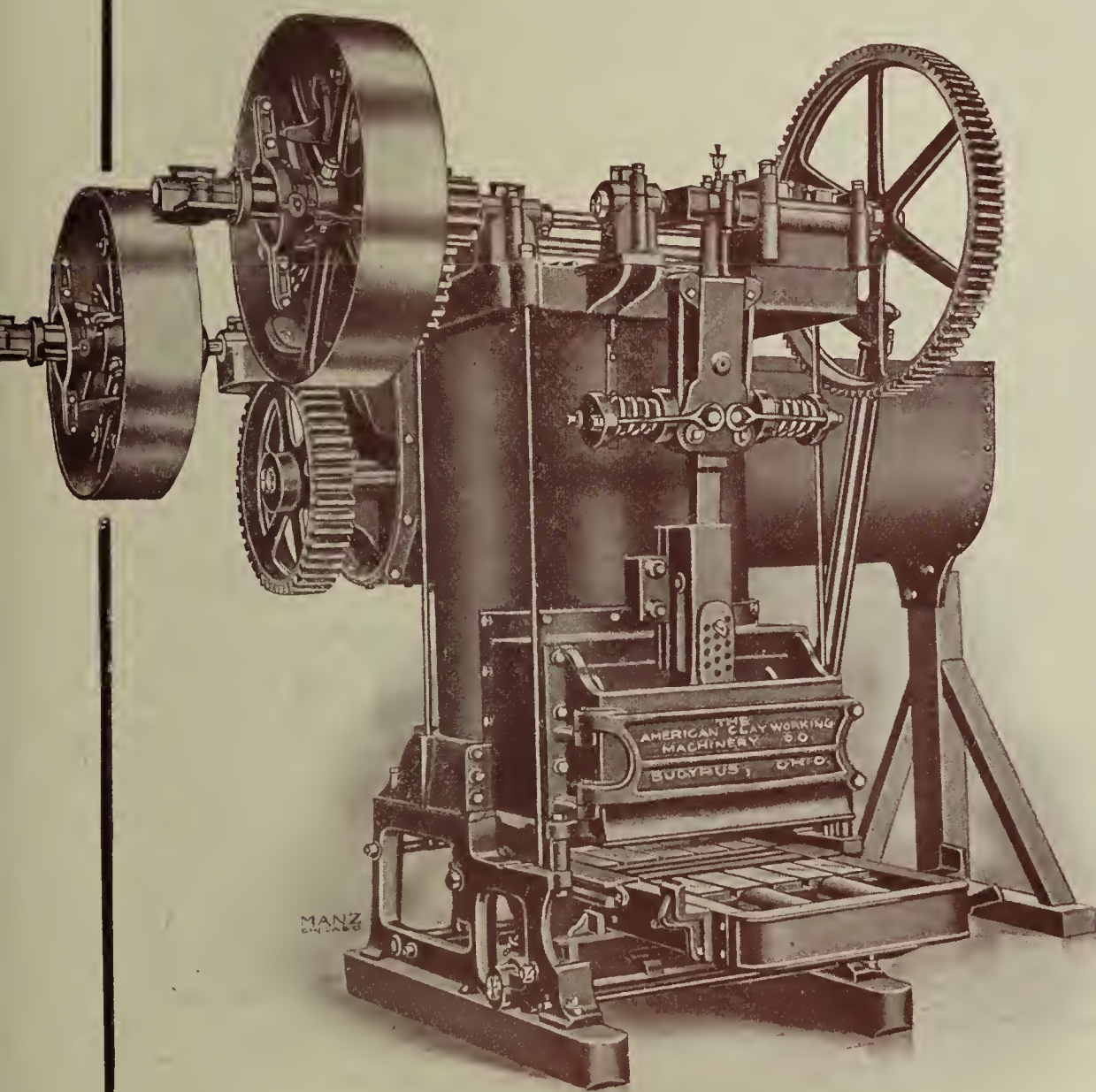
Our Eagle Horse Power and Eagle Steam Power Machines are popular favorites in their class.

Every machine we build has a quality behind it attained only by faultless designing, excellent material and superior workmanship.

In buying the "Built Right Run Right" line you buy quality, and that means successful operation.

We build every machine and appliance needed to

manufacture Clay Products by any know process. Every machine built in our own factories, so that we are able to guarantee the quality because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.



THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.



Dump Cars

We build the most extensive line of wood and steel Dump Cars on the market, with a wide range as to size, style, capacity and price. We can exactly meet any needs or conditions. The accompanying cut shows our rocker dump steel car, with brake attachment.

These cars are constructed of steel and iron. They are strong and substantial and at the same time neat in appearance. They are provided with anti-friction pin bearings, which require very little oiling, and make the cars very easy to operate.

The body of the car is made of steel, reinforced with heavy angles securely riveted. The frame of the car is constructed of flat bars securely riveted at the corners and thoroughly braced with



heavy substantial braces. When loaded the car is held in position by a lock bar, which is hinged to the rocker track. This bar is held to the top of the rocker by a removable pin when the body is in an upright position.

Strong chains are provided to prevent the body of the car from rocking too far when dumping.

The heavy chilled wheels are bored true and pressed onto the axle under heavy pressure. The axles are turned true in the bearings, and the bearings of the boxes are bored absolutely true, making a very substantial construction. The draw-heads are securely bolted to the end frame. The bolts securing the draw-heads pass through the angle braces, so that the strain of pulling the loaded car is not applied to the end piece alone. These cars are erected complete in our factory, and thoroughly inspected before shipment.

THE AMERICAN CLAY MACHINERY COMPANY :: BUCYRUS, OHIO

Largest Manufacturers of Clayworking Machinery in the World. Builders of Everything for the Clayworker.

Mention The Clay-Worker.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

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THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

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Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



RAIN, WHICH HAS fallen almost continuously since the first of the year, has also interfered with manufacturing operations to a considerable extent. The soft mud plants have all been shut down for the winter for some time, but the rains for the last month have so saturated the ground that few plants of any description have been able to keep up their usual output without interruption. None of the stiff mud or pressed brick operators have shut down their works, and most of them are putting out all the material they can, as they wish to get the contracts now on hand cleaned up as soon as possible, to get in on the new work which will be offered in the next two months.

While the amount of new building actually begun in the city has been small, general contracts have been let for an unusually large number of structures, and many of them are of considerable importance. Inquiries are being received for larger quantities of common brick than have been wanted for many months past, and figures are being taken on face brick and ornamental terra cotta jobs of all grades of importance. Quite a number of good-sized contracts are in prospect in the interior. These statements refer to work actually in sight, and which will be let within a week or two. As for the year as a whole, it is anticipated that the plans which have been held in the architects' offices for the last few months will nearly all be carried out within the next few months.

The brick market has been comparatively inactive during the storm. While many figures have been taken, transactions as a rule will not be closed until the weather will permit actual work. The market, nevertheless, presents a very firm appearance, especially on common brick, as the output has been considerably curtailed, and, with the numerous inquiries that are being received, it is expected that there may be some scarcity during the interval while the soft mud plants are shut down. The local manufacturing interests are working in comparative harmony, and are doing excellent work for publicity favoring their industry. The price of common brick f. o. b. San Francisco remains at \$8.50, as a rule, though some cases are reported in which \$9.00 has been paid, and some manufacturers state that they now have more business on hand than they can conveniently handle. Stocks of pressed brick, terra cotta and sewer pipe are by no means excessive, but prices on these lines remain unchanged, as there was little decline last year. Facing material has been very quiet for the last month, but a steady movement is taking place in fire brick, and several large sewer pipe contracts are pending. A large lot of fire brick will be required by the new Irondale steel plant, near Puget Sound, the general contract for which has just been let.

The Carquinez Brick Company will double the capacity of its plant, which is one of the largest common brick producers on the bay. Figures are now being taken on the necessary equipment, and work will probably be under way before the end of the month. If the present plants are carried out, this company will be remarkable from the point of view of shipping facilities. This company now has enough business to take up its entire output for some time to come, and is making large deliveries in this city.

The Carnegie Brick and Pottery Company reports a very good demand for its fire brick, and finds the general pressed brick trade fairly satisfactory, though not abnormally large as yet. This company has furnished all the vitrified brick used so far in the new sewers being built by the city, and a steady demand for this material is to be expected for many months, as about \$800,000 more is to be spent on new sewers this year.

The Richmond Brick Company's plant has not closed down for several months, and is disposing of its entire output without difficulty. Mr. Stern, of this company, states that it was impossible to keep the plant going at its full

capacity last month, but that it was kept in steady operation, notwithstanding the rain.

The San Francisco Brick Company reports that it has been able to keep its plant in full operation all month.

N. Clark & Sons have completed the improvements at their plant in Alameda, Cal., including the new smokestack, and the full output is being produced. While this company is not making many large deliveries at present, it is renewing its stock of terra cotta, sewer pipe, etc., which was allowed to run very low while improvements were being made.

Work has been begun on a new Carnegie Library at Lincoln, Cal., where the large works of Gladding, McBean & Co. are located. That company has donated all the pressed brick and ornamental terra cotta for the work.

The Bay Shore Brick Company has been incorporated in San Francisco, with a capital stock of \$500,000, by A. B. Johnson, C. G. Clarke, R. P. Henshall, E. Lewis and J. K. Burch.

A set of resolutions was recently adopted by the Oakland Board of Works, embodying plans to make that one of the best-paved cities in the country. It is proposed to pave a considerable district with brick. The use of paving brick in that city would be, in all probability, an entering wedge for a large trade in this vicinity, as the people here are not well acquainted with the advantages of such pavement. The asphalt pavements in San Francisco have been by no means satisfactory where the traffic is heavy, and it is not desirable to use basalt blocks in the better business or residence districts on account of the rough appearance and noise.

The Raton Cement Construction Company, of Raton, N. M., has secured a large shale deposit near that city, and machinery has been ordered for a small plant for the manufacture of pressed and vitrified brick. SUNSET.

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.



BUILDING BRICK dealers and manufacturers are feeling more encouraged than they have been for a long time, as the result of quickening prospects, and some actual improvement of present conditions. The general feeling is that it will take some time yet to straighten out the building brick situation in this section, but the gradual betterment recently lends strength to the hope that before the season has progressed far there will be things doing in the building brick line. Prices have shown some advance recently, which is one thing that makes a better feeling. For a long time it has been largely a question of "What will you give?" But the market seems to have settled down to at least a semblance of regularity, and there is some actual movement at prices ranging around \$6.00 and \$6.50 per thousand. All of the local plants are at present shut down, and while some are figuring on beginning operations about the first of April, others have no intention of opening before May. Most of the brick men, for some reason, seem to think that the heavy demand will in no case come until late, although all agree that present indications promise good business as the summer progresses.

Paving brick concerns, as well as sewer pipe dealers, are very hopeful of the future. While there has been nothing rushing, a fair business has been done all winter, and prices have held up well considering all the circumstances. The supply of the manufactured product on hand is not abnormally large, while there are good reasons for thinking that the coming season will bring an extremely heavy call from municipalities all over this section for both paving block and sewer pipe.

Robert T. Hall and R. J. McMakin, two Ohio men formerly of East Liverpool, have completed plans for the building of a ten-kiln pottery at Bartlesville, Okla., this being the first white ware pottery to be built west of the Mississippi by Ohio investors.

The Logan Brick Supply Company, of Toledo, which was threatened with a series of litigation, has succeeded in getting the tangle straightened out, and the suit recently brought in the common pleas court has been dismissed. Saylor, who filed the petition, made George W. Close, president of the company, and Edward J. Marshall and Spencer D. Carr, co-defendants. Mismanagement was alleged and a receiver asked for, but it is understood that matters were satisfactorily adjusted, and there is now smooth sailing ahead.

During the season of 1908, there was laid in Toledo 9.2 miles of street pavement, of which 8.23 miles were of brick. There was also about 3.9 miles of repaving done during the year. The sewer construction for the year amounted to 12.37 miles, making a total in the city of 224.23 miles. This year promises to be more active in these respects.

Manufacturers of and dealers in building materials to the number of 150 were in Toledo this week, where was held the annual meeting of the Ohio Builders' Supply Association. A committee was appointed to co-operate with the Ohio Lumbermen's Association in an effort to secure a repeal or amendment of the Valentine Law, which some time ago set its teeth in the brick dealers of Toledo. Changes in the lien laws were also recommended, and a resolution adopted looking to the affiliation with the national organization. The association has been in existence about three years. The following officers were elected for the ensuing years: President, Frank Hunter, Columbus; secretary, Bert J. Graham, Cleveland; treasurer, R. E. Doville, Toledo; vice-presidents, George H. Junod, Athens; J. B. VanWagener, London; F. M. Townsend, Zanesville; M. L. Branyan, Mansfield, and Valentine Rice, Chillicothe.

T. O. D.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

THE MONTH OF JANUARY, which is supposed to be about the dullest month of the year, so far as building permits are concerned, and which was this year a good deal colder than usual, shows up with permits for buildings to the estimated value of \$432,730. Of this amount, \$159,700 was for twenty-four brick buildings. Over in Kansas City, Kans., the permits for January show a total value of \$37,055.

According to the builders and the building supply people, there is every indication that this year will be a record-breaker in the way of building, and it is believed that some money will be made out of the building operations by the brick men, as there has been advance made enough already to cut a considerable figure in the matter of profits.

It is evident that the brick buildings of the coming year in Kansas City will contain more expensive common brick than has been used here for years. The Kansas gas-burned brick is not as plentiful as it has been in the past for many reasons. In the first place, the low price common brick were sold for here discouraged some of the brick plant owners, and they quit producing. Then others became discouraged with the common brick proposition, and changed their plants to the manufacture of paving brick, for which the demand is very strong. Then there is a very much larger field for the distribution of the common brick made in Kansas than was formerly the case, and the rapid development of Oklahoma has changed conditions. A good many points in the gas belt are already suffering from a lack of gas for the brick plants, and some of them are going to lay pipe lines, so they can tap a larger field, as there is plenty of gas in the surrounding country. This all takes time, and during the change there will be a big decrease in the production. Cherryvale is an instance of what the falling off in the gas production will do. There is but one of the seven brick plants in operation there now, and it is stated that at least two of the plants will never be operated again. The others are making arrangements to either burn oil or get their gas from a distance.

The Eadie Building Supply Company is reporting a fine prospect for business the coming year; in fact, it is already enjoying a good business, and will continue to spread out and sell brick in all parts of the Southwest, where the field is large enough to suit the most active.

The Lyle Brick Company has shut down both plants for a short time to make the necessary repairs, but as plenty of orders are on their books, the plant will be running again as soon as possible.

The Flanagan Brick Company is now taking both its plants through a course of repairs, and will be running again just as soon as possible, as there is an urgent demand for its product.

Robert Nesch, president of the Pittsburg Vitri-fied Paving Brick Company, went to the big convention, and has been spending some time in the East.

Common brick are now selling at \$6.50 on board cars, and face brick have advanced from \$1.00 to \$2.00 per thousand during the past month.

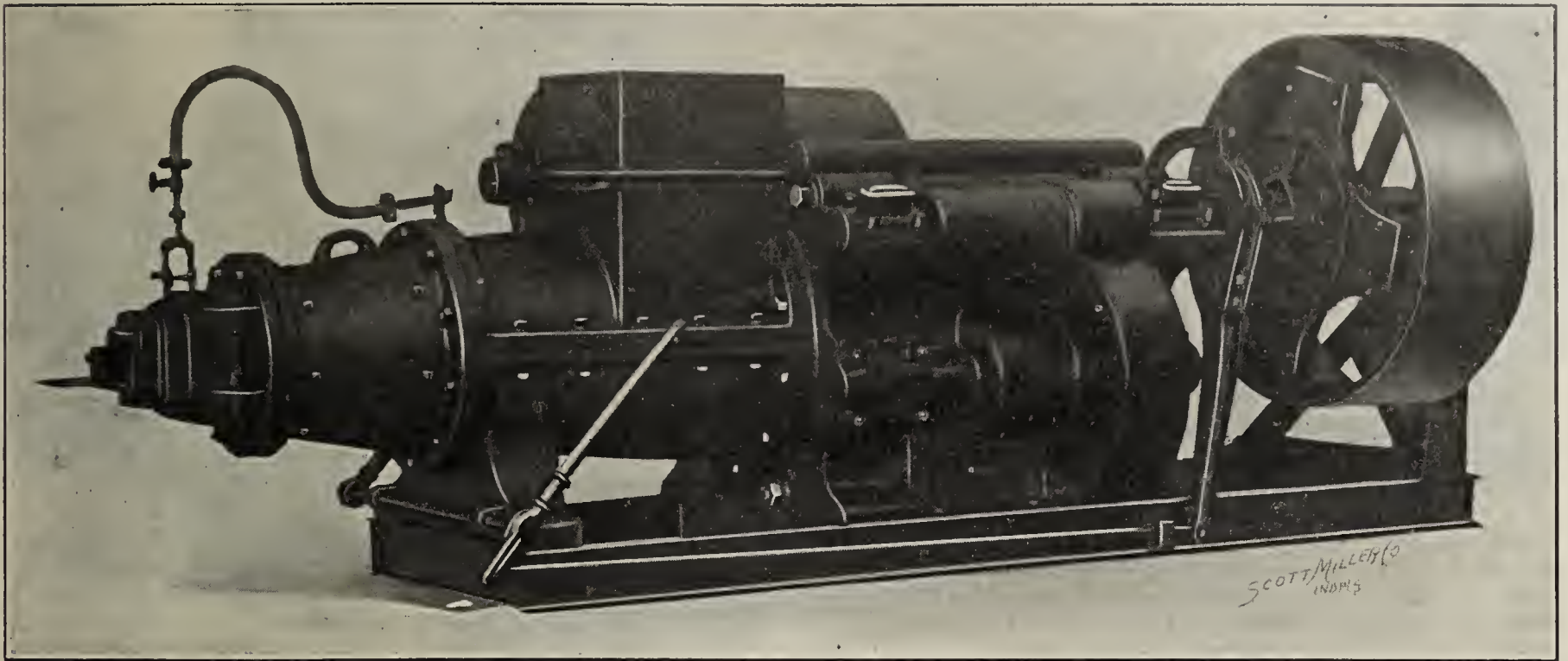
The Cherokee Vitri-fied Brick and Tile Company has been incorporated in Wann, Okla., with a capital stock of \$100,000, by B. F. Rogers, of Nowata, Okla.; Alvin McNeil and David Pearson, of Coffeyville, Kans.; W. S. Sherwood, of Bartlesville, Okla., and others.

The Morris Brick and Coal Company has just been incorporated in Morris, Okla., with a capital of \$30,000, by S. J. Allen, J. C. Smith and A. C. Free, of Okmulgee, Okla., and W. E. Kittle and Bruce White, of Morris.

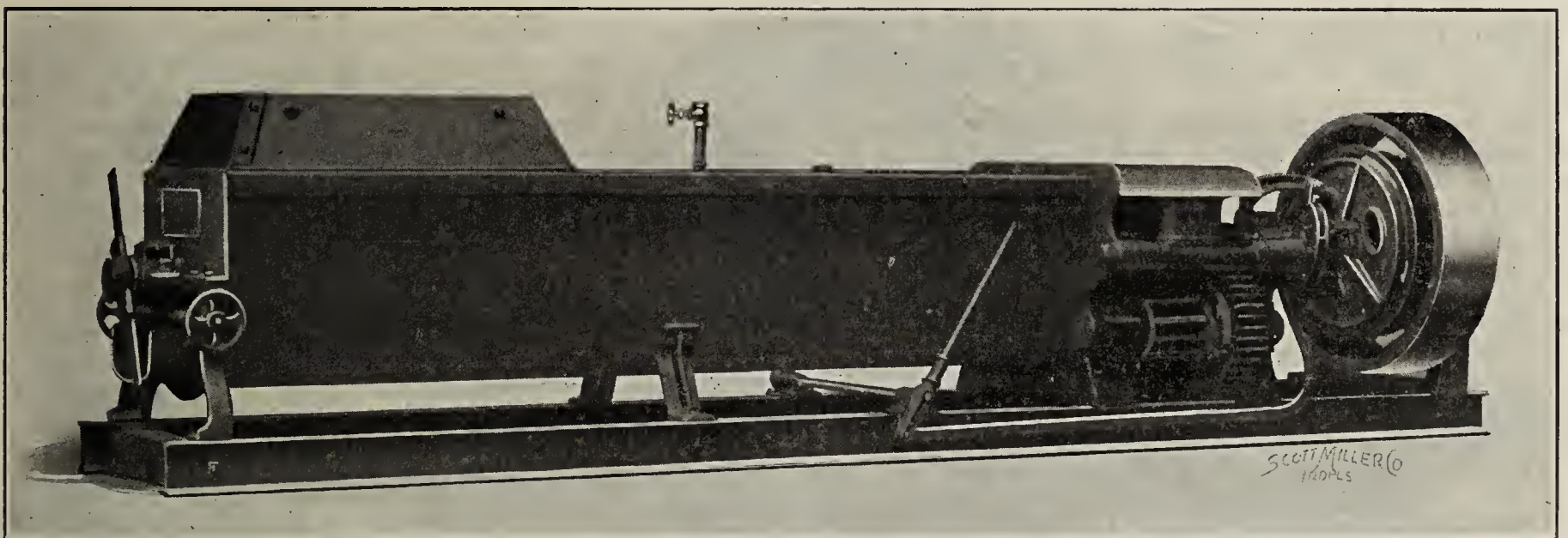
The city of Wellington, Kans., has decided to do some four or five miles of street paving, and the material used is to be brick, made from the shale deposits which surround the town.

K. A. W.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

(Mention The Clay-Worker.)

Galion, Ohio.

See Ads on Pages 398 and 399.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE KENTUCKY METROPOLIS.



THE PROSPECTS for the clay brick industry in this locality for the coming year are very favorable, from the fact that the prospects for building are more encouraging in this city than in many others in the Union.

The annual report of the Builders' Exchange shows a decrease in the amount of building in the past year, though the indications at this time are so very much more encouraging that within a few weeks many of the operators expect to be actively engaged. At a recent meeting of the Builders' Exchange, the following officers were elected for the coming year: E. G. Heartick, president; W. C. Magruder, first vice-president; W. B. Pell, second vice-president; Alfred Struck, treasurer, and E. A. Quarles, secretary.

The large plant of the Louisville Fire Brick Works, located at Highland Park, several miles from this city, was badly damaged by fire on February 1, causing a loss estimated somewhere between \$75,000 and \$100,000. The cause of the blaze, which originated in dry house No. 1, is unknown. That portion of the plant which was destroyed includes the five large dry houses, engine house and carpenter shop. The pattern room and office and some other portions of the structure were saved. Mr. Hopkins, night engineer of the plant, discovered the blaze and endeavored to turn on the pumps that the company had reserved for such emergencies, but the blaze spread so rapidly that this proved of little actual good. After several hours of hard work the fire was gotten under control. The loss was partially covered by insurance. It was one of the largest fire brick plants in the South, covering about eight acres of ground.

Owing to the fact that they had a large number of orders on hand, they were compelled to cancel some business, but the contract was immediately let for reconstruction of the plant, and on the following Friday they were operating a portion of their plant. Within a month's time they expect to have the plant entirely rebuilt and will be operating as usual.

The Louisville Brick Company say that the outlook for building brick at this time is very favorable, though, of course, it is a little early to figure on very much business in their line. They are inclined to see a very hopeful outlook, and are satisfied that there will be a decided increase in the business of over a year ago.

The Burrell & Walker Clay Manufacturing Co. say that the demand for clay products is very fair, and they look for a decided increase in the business during the next few months. Mr. Burrell says that prospects were favorable and he believed that there would be a good demand for all kinds of clay products this year.

The Falls City Brick Manufacturing Company say that they are not operating their plant at the present time, but will resume operation with the advent of the spring weather.

The Hydraulic Brick Company are operating some of their plants, and find the demand for this season of the year to be about as active as they could hope for.

The P. Bannon Sewer Pipe Company find the demand for sewer pipe to be reasonably good, though they say the winter weather has had its drawback, and there is not as much business as they would like to see.

The Southern Brick and Tile Company have closed their plant until about the first of April. They are enjoying a fairly nice business for both brick and tile, and look forward to a very favorable increase.

The Kentucky Vitified Brick Company have just been awarded a contract for 350,000 brick by the Cave Hill Cemetery Company, to be used in the construction of an additional wall about a portion of the cemetery.

The Kentucky Fire Brick Co., of Portsmouth, Ohio, was represented at the annual meeting of the National Builders' Supply Association, which held its convention in this city on February 9 and 10. J. B. Hammond and C. W. Hammond, of Bolivar, Pa., were also here.

W. M. Hodges, general manager of the Tuna Valley Pressed

Brick Co., Bradford, Pa., was at the Supply Association convention and had an attractive exhibit.

The Louisville Pottery Company say that since the first of the year their business has not increased as rapidly as they could wish for, but they are satisfied with the situation and look for an increase in the demand a little later. They are operating their plant full time. COLONEL.

Written for THE CLAY-WORKER.

POTTERY NEWS.

JANUARY SAW MORE new business placed with the manufacturing potters of the Ohio Valley than during any one month during the past twelve. Buyers from all sections of the country have been touring the various pottery districts, and, inasmuch as their local stocks are low, they have asked that the bulk of their business be shipped as early as possible.

J. D. and Harry Buxton, of Sebring, Ohio, have started a plan to build a six-kiln general ware pottery at Columbiana, Ohio. In order to obtain \$400,000 for this purpose, the men have obtained a plat of ground, laid it out into 400 lots to be sold at \$100 each, and of these 300 have been sold. It is planned to have the new plant in operation not later than July 1, and it will be the first of the kind to be erected in the vicinity of Columbiana.

With a capital stock of \$100,000, the Warner-Keffer China Co. has been formed at East Liverpool, Ohio, and especial attention is to be given to the manufacture of a higher grade of dinner ware. The company has taken over the former plant of the Sevres China Company, and this plant was, when built, operated by Frank A. Sebring, now heavily interested in the Sebring Pottery Company's interests at Sebring, Ohio. Jefferson R. Warner, secretary of the American China Company, of Toronto, Ohio, will be president of the Warner-Keffer corporation.

Additional decorating kilns are to be built by the Taylor, Smith & Taylor Pottery Company, of Chester, W. Va., while the decorating department is to be doubled and the capacity of the warehouses increased. The company has been in operation two years, and has been very successful. The annual meeting of the corporation will be held early in January. A new dinner shape is to be put on the market, besides a new line of specialties. TOM POTTER.

Northwestern Notes.

The North Dakota Association of Builders and Traders was organized at Fargo last month, with Wm. Spriggs, of Grand Forks, as president, and B. B. Hicks, of Fargo, as secretary and treasurer. T. F. Powers was elected president of the Builders' and Traders' Exchange of Fargo.

The Northern Brick and Supply Company has been organized by J. H. Donahue and J. T. Harrington, and has opened offices at 662 Gilfillan block, St. Paul.

It is proposed to establish a pressed brick factory at Lewistown, Mont.

The Red River Valley Brick Company will install a plant for the manufacture of hollow brick at Grand Forks. A. I. Hunter is president. This company also contemplates putting in a brickyard at International Falls, Minn.

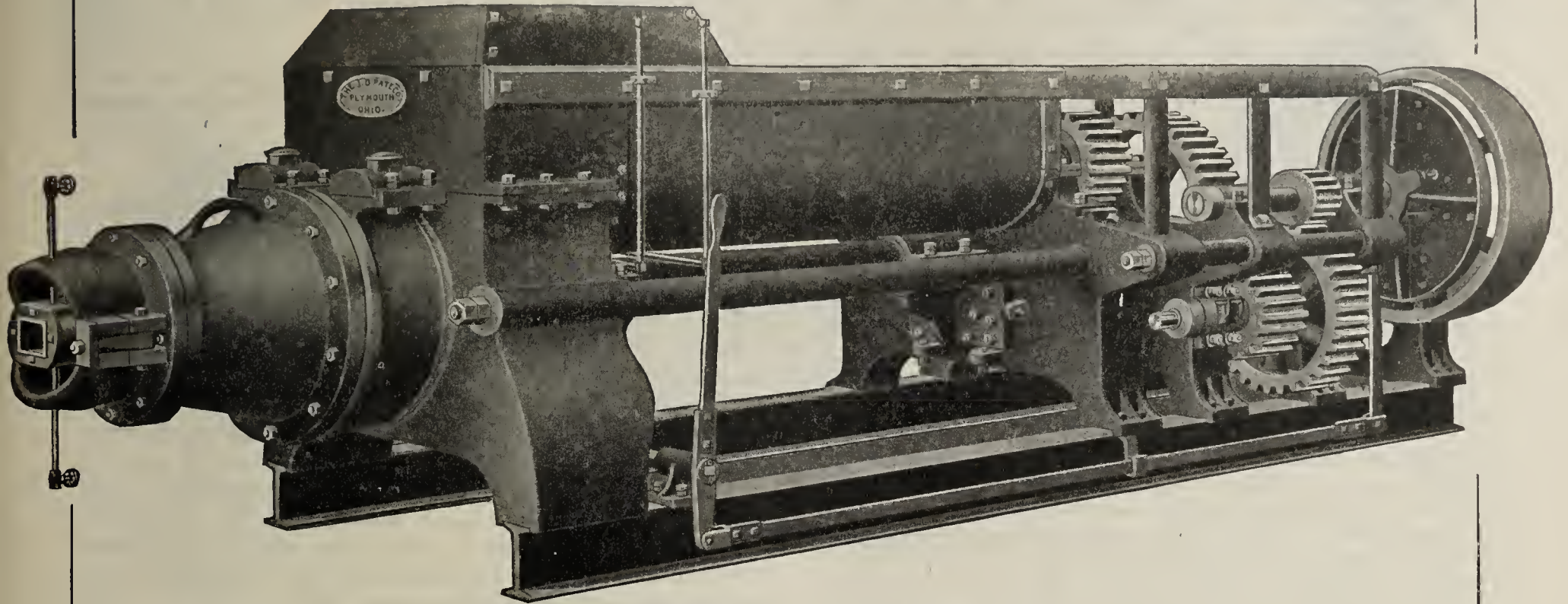
F. Dontremont will erect a new brick plant at Monticello, Iowa.

J. A. Larsen has taken charge of the brickyard at Colfax, N. Dak., and will reopen it at once.

The brick plant at Ada, Minn., will probably resume operations this season, after having been closed down for two years.

"A penny saved is a penny earned." One way for clay-workers to save is to sell discarded machinery and appliances, instead of allowing them to rust and decay in fence corners. Either house and preserve such machinery, or sell it to some one who can make good use of it. There are many such who can be reached through the "For Sale" columns of THE CLAY-WORKER.

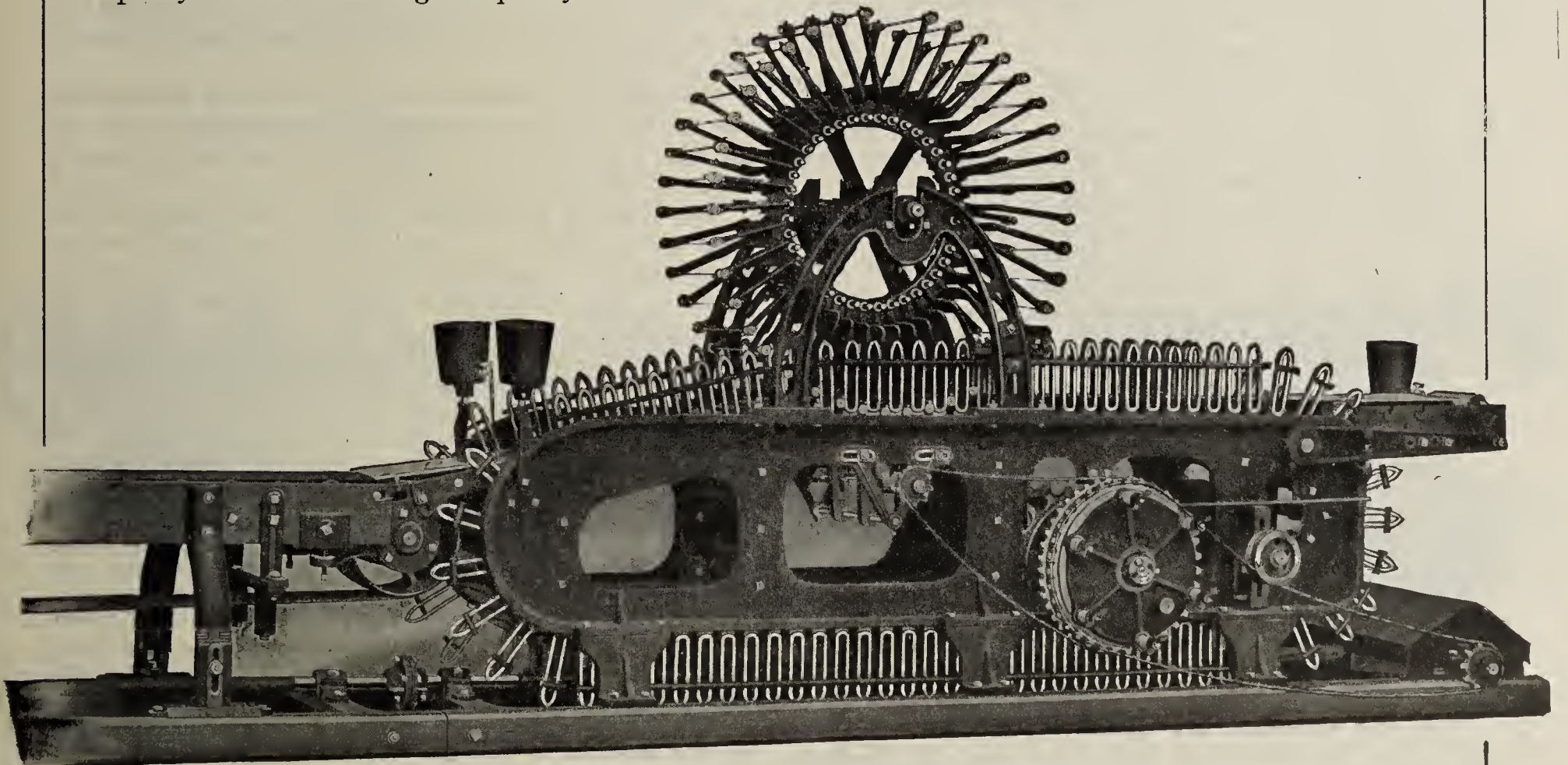
QUALITY AND CAPACITY.



THE FATE SPECIAL BRICK MACHINE.

High quality and large capacity combined in one outfit of machinery, is something the brickmaker has been looking for these many years, but he never succeeded in finding it until the "Fate Special Machine" and "Bensing Automatic Cutting Table" were put on the market by The J. D. Fate Co., Plymouth, Ohio.

The "Fate Special" is the largest and heaviest auger brick machine manufactured, and has the greatest capacity of brick of the highest quality.



THE BENSING AUTOMATIC CUTTING TABLE.

The "Bensing Automatic Cutting Table" for side-cut brick is now universally conceded to be the most perfect Brick Cutting Device in the world. The brick cut on these tables have a clean, smooth face, with square corners and perfect edges, and the capacity of the table is unlimited.

This combination of machinery will give any brickmaker that high quality and great capacity, which he so much desires.

If you want to know more about this, write for catalog and full description, to

The J. D. FATE CO., Plymouth, Ohio.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



THE STORY COMES to Cleveland that a new roofing tile plant is to be built at Mineral City, Ohio, near Canton. It is said that ground has been broken, and that building operations are waiting only on the weather. It is understood that some of the officers of the National Roofing Tile Company, of Lima, are interested in the new project.

Bids have been asked during the past month on the construction of the new \$1,000,000 building for the Brotherhood of Locomotive Engineers, at St. Clair avenue and Ontario street. Work on demolishing the buildings occupying the site begins March 1, and the contract for the new structure will be let about the same time. Knox & Elliott, of this city, are architects. The exterior is to be of white glazed terra cotta, similar to the Railway Exchange building in Chicago.

Shale brick is to be the principal thing used in the walls of the new power plant to be erected this spring on West Tenth street, to supply heat and light for the new Court House. The building will be massive in design and heavy in construction. The Cleveland Engineering Company has prepared plans, but contracts will not be let before next month. The power plant complete will cost about \$300,000. A long 9-foot brick tunnel will be used to carry pipes and wires to the courthouse, which is a third of a mile away.

Definite plans are being formulated for the spending of the \$700,000 for school buildings in Cleveland this year, and School Architect Barnum has about completed plans for several new buildings.

A new postoffice is to be erected at Warren, Ohio, and contractors have been busy during the past month in studying plans preparatory to figuring upon it. Considerable brick will be used in its construction.

A contract was let during the month to W. F. Tausch for the erection of a new four-story brick hospital building for St. Ann's Catholic Orphan Asylum, to cost about \$55,000. The building will be 44x136 feet in size, and pressed brick will be used for exterior walls.

Sufficient money has been left in the appropriation ordinance to do the street intersecting work on about \$1,000,000 worth of paving in Cleveland this year. As this is practically all of brick, it means considerable for the makers located here, who supply practically the entire city. During the month the County Commissioners let contracts for \$200,608 worth of brick paving of rural highways to the Cleveland Trinidad Paving Company. The roads to be paved with brick are the Independence town line road, the North Miles road, and the Center road.

Cleveland is to have a great industrial exposition this summer, from June 7 to 19, at which a number of the brickmakers propose to have exhibits. A great temporary exposition hall is to be erected next to the Central Armory, which will also be used for the occasion. The temporary building would take in the Chicago Coliseum and the Madison Square Garden, and still leave some room. It is said to be the largest exposition hall ever attempted in America. Dealers in clay products will all make displays of their wares.

The city authorities are considering the advisability of going into the brickmaking business at once. E. W. Dow, who is said to be an expert brick manufacturer, has been in consultation with them, and has examined the clay deposit on the big farm of 1900 acres, and says it can be used. Preparations are being made to start the plant by making drain tile. At present figures are being secured on the probable cost of the plant needed.

Building Inspector Lougee, in his annual report, recently issued, recommends the passage of an ordinance prohibiting the erection of any more buildings in the congested residential districts of the city which contain joist construction. The report, in dealing with statistics, shows that Cleveland, within the past three years, has doubled its building record

for any similar period in the quantity and average cost of structures erected.

Robert C. Mitchell, brick sales agent for the Cleveland Builders' Supply Company, has been named first Deputy County Treasurer by Treasurer Geo. E. Myers. The new administration will not assume office until September 1 next, and Mr. Mitchell will continue to sell brick until midsummer.

The Cleveland Builders' Supply Company has been awarded the contract for supplying 500,000 Bessemer paving brick for use in paving Harvard road. BUCKEYE.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTHWEST.

THE BUILDING SEASON of 1909 has opened in a very satisfactory manner in the Northwest, and everywhere are heard predictions that the year will prove one of the most prosperous in the history of this section. The year just closed was beneficial in many ways, but especially in subduing that spirit of intensiveness and rush which made it impossible for either builders or owners to properly consider or execute whatever project was undertaken. With less heavy work commenced, contractors were compelled to figure much more closely, they were held up to a higher standard of work, and, altogether, placed in a position which can not but prove beneficial in every way.

The plentifulness of labor has also contributed much to the success of the season, as danger of labor troubles was practically eliminated. It was unnecessary to employ the cheaper grades of laborers, and the men employed were sure to put more pains into their efforts than they have been in the past.

Minneapolis building permits for 1908 were \$10,093,915, as against \$10,006,485 in 1907. St. Paul's were \$7,625,538, against \$8,057,981.

The Board of Education will expend between \$600,000 and \$700,000 this year in new buildings and additions, and will ask the Legislature to authorize the issuing of \$600,000 worth of bonds for this purpose.

The National Amusement Company, of Milwaukee, will erect a new theater in this city this spring, at a cost of about \$250,000. Another theater to be erected is by the Columbia Theater Company, at First avenue, North and Washington.

The annual meeting of the Minneapolis Builders' Exchange was held on January 5th. The report of Secretary Young shows a membership of 256, a net gain of twenty-nine.

Robert N. Brittain, a retired Minneapolis contractor, and a resident of Minneapolis for over half a century, died on December 31st, at the age of seventy-three years.

The M., St. P. & S. S. M. Ry. Co. contemplate the erection of a new passenger depot at its new yards, now being laid out. A tunnel a quarter of a mile long to the site will be constructed by Foley Bros., at a cost of \$700,000.

Preliminary plans have been prepared for the new union passenger station in St. Paul by W. B. Darling, chief engineer for the Northern Pacific. The building will be five stories high.

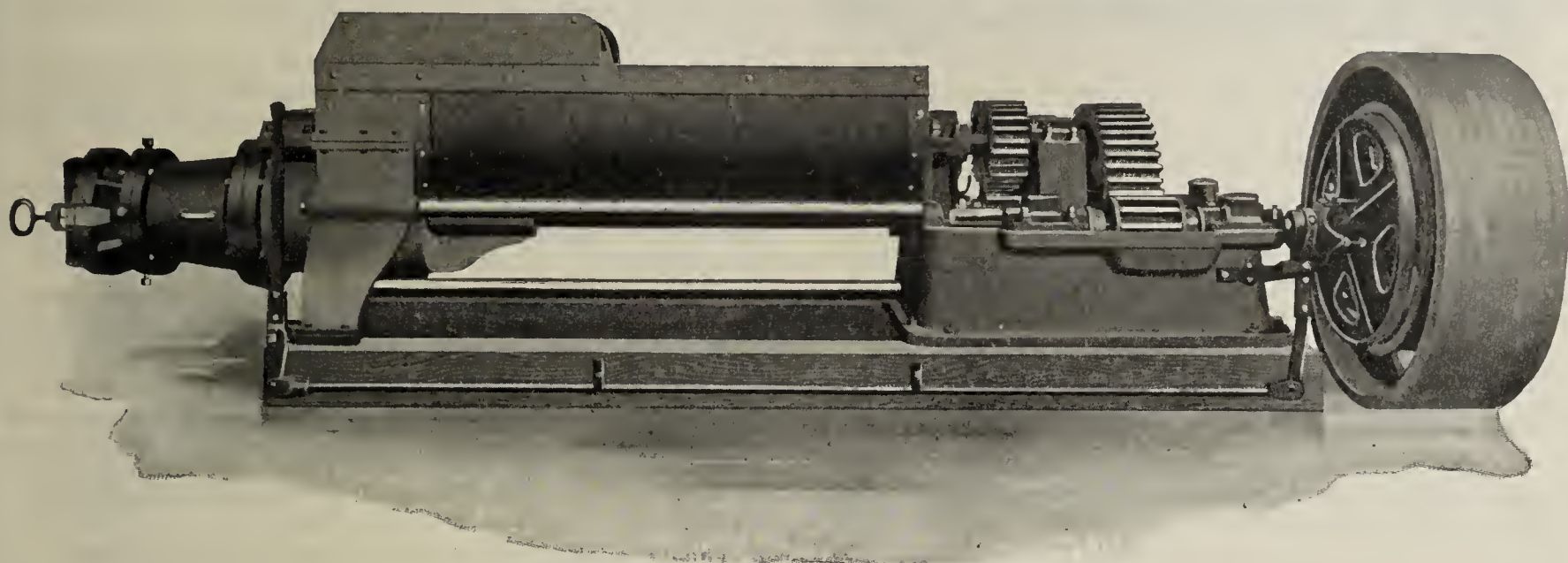
The City Council has appropriated an additional amount for the erection of the new Mechanics Arts High School building, which will cost \$250,000.

J. A. Butler is contemplating the erection of a ten-story office building at Third street and Grand avenue. It will be of brick construction.

Among the plans reported for new brick residences is one for C. H. Bigelow, by T. G. Holyoke, architect, which will cost \$20,000, and another on plans by C. H. Johnston, architect, for F. N. Saunders, to cost about the same amount.

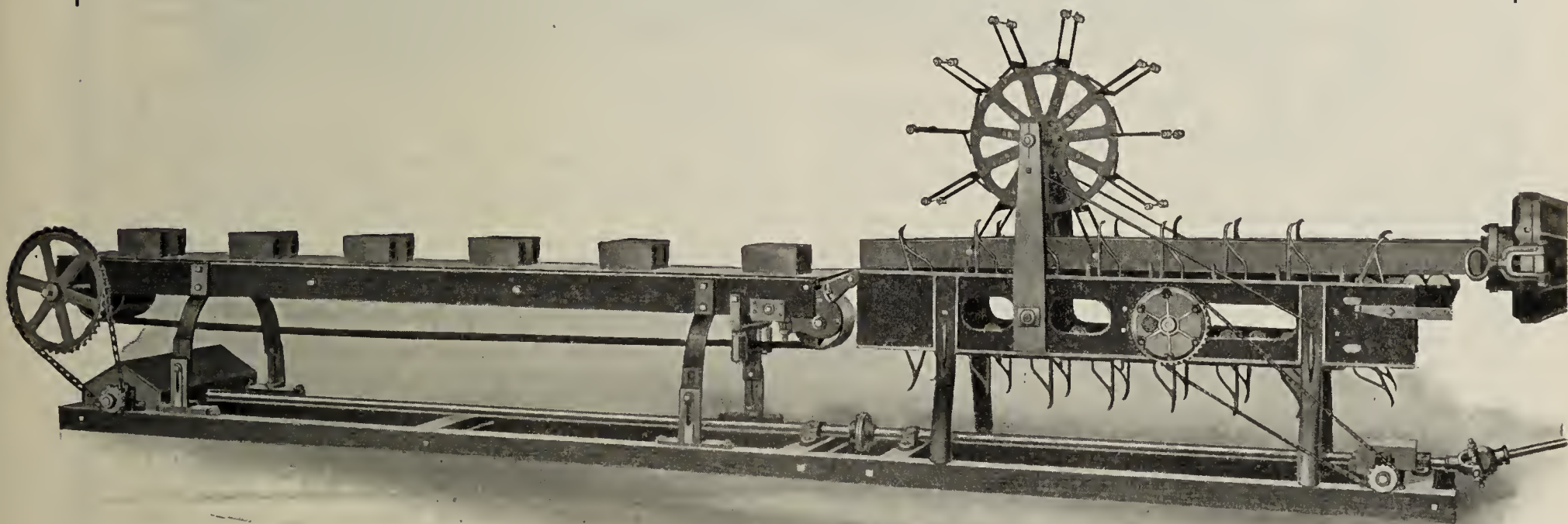
The St. Paul Builders' Exchange gave its seventh annual banquet at the Hotel Ryan on January 21st. J. F. McGuire, ex-president of the exchange made an acceptable toast-master. T. WIN.

QUALITY AND CAPACITY.



IMPERIAL COMBINED BRICK MACHINE

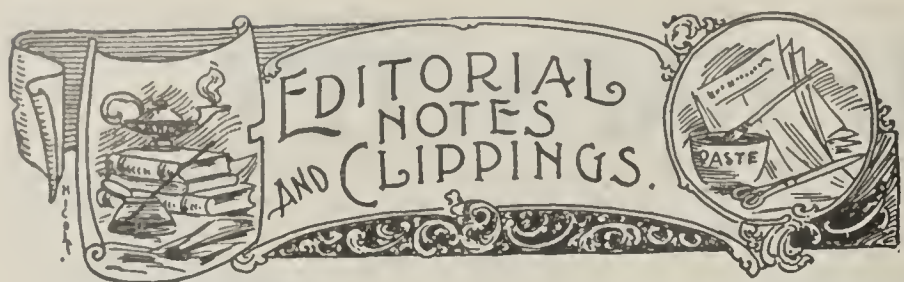
To get good capacity and quality of hollow end cut brick is usually a problem hard to solve unless you have one of **Fate's Imperial Brick Machines.** With this machine and a **Bensing Automatic End Cut Cutter,** you will have no difficulty in getting the very best results in making end cut hollow brick.



BENSING END CUT AUTOMATIC BRICK CUTTER

This is the only proper cutting table for end cut brick and especially hollow end cut, as the friction device can be so nicely regulated that the light hollow columns perfectly control the table.

The J. D. FATE CO., Plymouth, Ohio.



T. T. Hines, of Douglas, Ariz., will locate a brick plant at Bouse, Ariz.

L. D. Stroud has sold his brick plant at Atwater, Minn., to Frank Passe.

Henning Simonson contemplates establishing a small brick plant at Partridge, Minn.

F. E. Merchant, formerly of Galena, Ill., writes that he has moved to Denver, Colo., where he will erect a soft-mud brick plant.

The Barbourville Brick and Tile Company will make a number of improvements in their plant at Barbourville, Ky., with a view of increasing the capacity.

O. L. Bantz, manager of the Humboldt Brick Company, Humboldt, Neb., writes that his firm is in the market for about 200 nine-slat dry cars, large enough to hold five or six hundred brick.

The Winfield Pottery and Fire Brick Company has been incorporated at Winfield, Texas, with \$30,000 capital stock. The incorporators are S. F. Pounders, C. O. Lide, T. B. Caldwell, Mt. Pleasant.

The Eureka Fire Brick Co. is a new venture in the brick industry, with works at Mt. Braddock, Pa. It was the Stevenson Company's machinery against the field, but their heavy duty pan won out and has already been installed.

The name of the Alton Building, Paving and Fire Brick Company, Alton, Ill., has been changed to the Alton Brick Company, and the firm is making a number of improvements in the plant, with a view of increasing the output to 200,000 per day.

The Empire Brick Company has been incorporated at Alamogordo, N. Mex., with \$50,000 capital stock, by Merrill H. Fisher, C. S. Foust, and Albert Carter. A plant of 30,000 daily capacity will at once be erected for the manufacture of fire brick and pressed brick.

The Kaolin and Clay Products Company has been organized as a Maine corporation at Augusta with a capital of \$50,000. The promoters are Roy Matthews, Tisbury, Mass.; Sidney A. Wilbur, Boston; Albert W. Chapin, Monson; Charles J. House, Augusta. The company will operate valuable clay deposits at Makonikey, Martha's Vineyard.

The First Avenue Brick and Tile Company, Evansville, Ind., have increased their capital stock from \$20,000 to \$40,000, and have recently made improvements in the plant which will more than double the capacity of the plant. The improvements include dryer, boiler room, engine and machine room, and the necessary equipment for same.

The Wadesboro (N. C.) Brick and Lumber Company has been organized and a charter applied for. The paid-in capital is to be \$10,000. The new company will take over the business formerly owned by W. T. Brasington and will manufacture building supplies and do a contracting business. The incorporators are W. T. Brasington, C. S. Brasington and T. J. Covington.

F. W. Dennis, the well-known kiln builders of Norfolk, Va., writes that he is at present building a 300,000 kiln for the Donley Brick Company of Washington, Pa., and expects to build a duplicate as soon as this one is finished. He says the Donley Company have a fine plant well equipped with Freese machinery and are turning out pavers, a fine red front brick and chimney block.

A brisk, business-like letter in the October Clay-Worker from H. M. Clemens, secretary of the Cannelton (Ind.) Sewer Pipe Company, announced the incorporation of that company, the purchase of a 400x600 ft. site and a purpose to start the erection of a first-class sewer pipe plant on it within sixty days. From reliable sources it is learned that with the same keen business directness and celerity, within thirty days thereafter they had considered the merits of several of the leading makes of sewer pipe machinery and awarded to the Stevenson company, of Wellsville, Ohio, a contract for the outfit, consisting of a 40x52 inch sewer pipe press, a 9-foot dry pan and an 8-foot wet pan in 9-foot frame, two 35-foot elevators,

a conveyer, a piano wire screen, a clay bin, a large number of dies, shafting, pulleys, etc.

David Molohon has purchased the Farnam tile factory at Zenobia, Ill., and will put same in operation in the early spring.

The Crume Brick Company, of Dayton, Ohio, has been incorporated with \$50,000 by W. S. and R. W. Crume, J. V. Lytle, R. C. Kiser and O. M. Gotschalk.

The plant of the Scranton Vitrified Brick & Tile Company at Nay Aug, near Scranton, Pa., was damaged to the extent of \$5,000 by fire which started early in the morning. The burned portion will be rebuilt.

The Barron Red Press Brick Company has been incorporated by E. A. Bockman, W. J. Gillet, G. A. Koerner and F. A. Hurlburt, to manufacture brick at Barron, Wis. The company is capitalized at \$10,000.

The plant of the Mound Brick Company, at Beaver Falls, Pa., which has been idle for some time will be put in operation in the very near future. The plant is owned by E. W. Thoener, of Washington, D. C.

O. W. Weyer, the legal-light brickmaker of Buffalo, spent a few days among the Ohio Valley clay plants, gleaning good ideas where the field is so full of them, and left a large order for supplies with the Stevenson Company, who equipped his plant.

The Owensboro (Ky.) Sewer Pipe Co. has fortified itself with a new 40x52 inch steam cylinder and new top and lower heads from the Stevenson Company's plant, Wellsville, Ohio, and if not already at it will soon be turning out mud tubes to beat the record.

The entire capital stock, amounting to \$10,000, of the Humboldt (Tenn.) Brick and Tile Company has been purchased by L. E. Rooks, proprietor of the L. E. Rooks Lumber Company, of that place. Mr. Rooks takes charge of the brick and tile business at once and will run it in connection with his lumber and contracting business.

Mr. F. H. Tendreau, for a number of years connected with the Hydraulic Press Brick Companies of Omaha, Kansas City and Oklahoma City, has taken the position of manager of the Granite Brick Company of Des Moines, Iowa. The plant, which is located eight miles east of Des Moines on the Wabash railroad, is equipped with Bonnot stiff-mud machinery and U. S. dry-press machine.

The Hedgecock Brick Company of Walnut Cove, N. C., has been incorporated with a capital stock of \$100,000. Among the incorporateors are Messrs. R. N., N. R. and Robert Hedgecock, of Winston, N. C., and J. W. Walker, of Walnut Cove. The company already owns two large brickmaking plants and a quantity of fine clay land, and it is the intention to improve the present plant and add more machinery.

Henry Hasbrouck, general manager of the Johnsonburg Vitrified Brick Company, Johnsonburg, Pa., has also taken the general management of the Olean Pressed Brick Company, a new concern recently organized at Olean, N. Y. They are now operating a dry-press plant, and expect to erect a model vitrified paving brick plant. They have material of a high quality, Mr. Hasbrouck writes, and they intend to make their new plant one of the largest and best in the East. Mr. Hasbrouck is an energetic fellow of much experience and we pre-

(Continued on page 356.)

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.

THE MODERN WAY

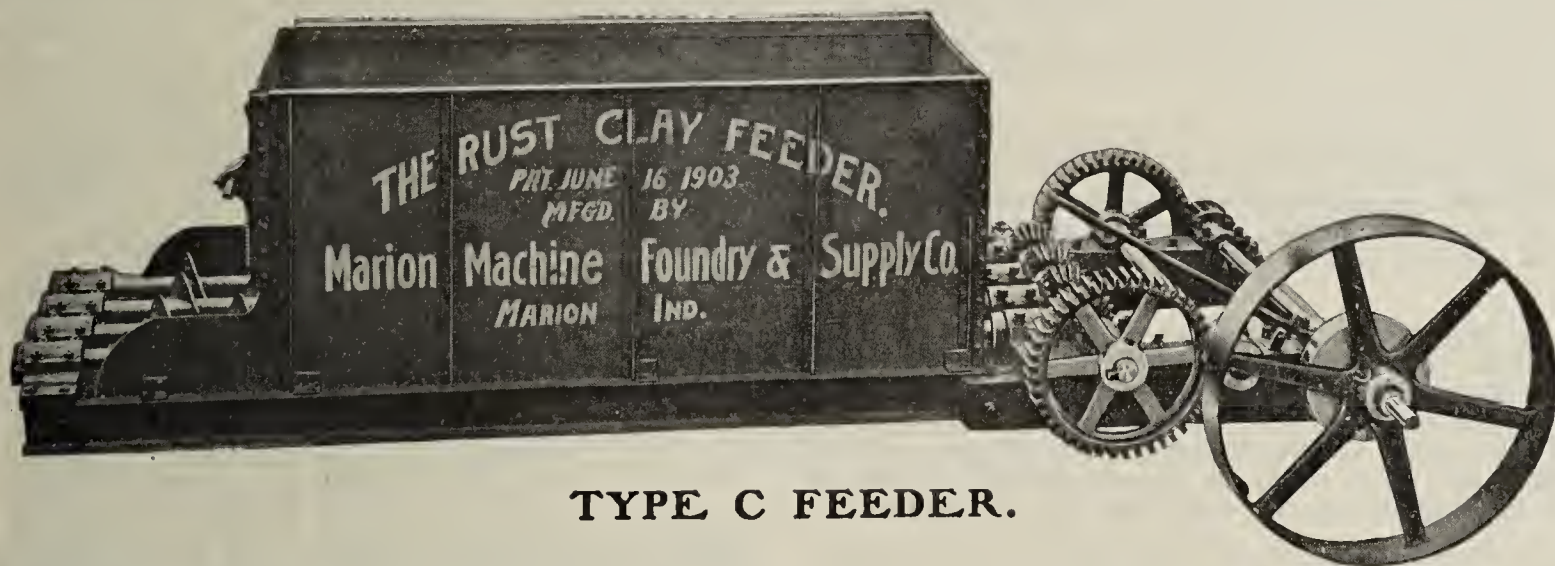
It is wonderful to note the progress that has been made in methods and processes used in the manufacture of clay products.

The operations involved in the mixing of the clay and feeding to the disintegrator have been improved and modernized along with the other processes, and now to see men shoveling clay into a disintegrator seems as antiquated and wasteful and uncertain as the old-fashioned one-horse pugger in the open yard.

It is a revelation to watch a modern clay feeder in operation. Bing!—goes a carload of clay into the hopper. Instead of the uncertain, uneven hand feeding of the old days, with every once in a while a costly stop because of the clogging of the disintegrator by lumps, the clay is whirled around by the spirals of the machine; finely and thoroughly mixed; and, without lumps, reaches the disintegrator in an even, perfect layer automatically providing just the quantity of clay needed; and with never a stop on account of clogging and the consequent wear on the disintegrator by the old method.

This is perfection, and time and money saving indeed. The expensive day labor is done away with. The automatic feeder runs so smoothly, and the power required to run the disintegrator is so much less, that there is really a saving in power. And then look at the difference in quality of product, because of the perfect mixing, and the increase of capacity, as the result of "stopping the stops."

No one who had ever tried the new method of clay feeding would go back to the old way. One manufacturer operating a single machine, after careful records, figures that he is saving \$562 a year in operating expense and has increased his capacity five per cent besides improving the quality of his ware.



TYPE C FEEDER.

We will be glad to tell you all about the "new way" and show you just what you can save. The first cost is small and can be saved in less than a year. Just drop us a line and we will give you some valuable information on clay mixing and feeding, regardless of whether you are ready to buy or not. A postal will do.

SUMMITVILLE DRAIN TILE COMPANY.

Manufacturers of

Porous Drain Tile.

Summitville, Ind., Jan. 22, 1909.

Henry L. Erlewine, Sec'y & Treas.,

Marion Machine, Foundry & Supply Co., Marion, Ind.:

Dear Sir—Acknowledging your favor of the 21st inst., will state that the type "C" Feeder which we have installed in our plant here is "making good" in every way and is all you claim for it.

Since installing the Feeder we have been able to get along with two men less, thereby reducing our weekly pay-roll \$20.00, and at the same time have increased our output ten per cent, decreased our power ten per cent, and as our capacity is 1,200 cars per year, you can easily see the great advantage we have since installing the Feeder and Mixer.

All this saving is effected because of the even, steady feed of the clay to our disintegrator. We have our tracks elevated about 9 ft. above your Feeder and Mixer, and we are enabled to dump about 25 car loads of clay in our storage bin over the Feeder, and the Feeder takes care of all this clay without any further attention on our part.

We feel that this is one of the most valuable machines we have in our plant, and no one who has ever tried one of your Clay Feeders would go back to the old way.

Thanking you for the courtesies shown, we remain,

Very truly yours,

SUMMITVILLE DRAIN TILE COMPANY.

Per James F. Morris, Vice-Pres.

**Marion Machine, Foundry & Supply Co.,
Marion, Indiana.**

EDITORIAL NOTES AND CLIPPINGS—Continued.

dict a great future for the new venture and continued success for the plant at Johnsonburg as well.

J. C. Johnson has purchased the brick plant at Newfield, a small village near Berlin, Conn., and will resume the operation of same in the spring.

G. W. Martin contemplates building a brick plant at Graysville, Ill., where he has secured an option on a site containing a splendid shale deposit.

Adolph Pritchau, of Leroy, Ohio, has secured an option on a site of land at Madison, Ohio, on which he will erect a brickmaking plant. Mr. Pritchau is an old-time brick-maker.

Charles Seacrist, of Garfield, Ohio, died February 17th, from injuries received while at work at the Alliance Clay Products Company, Alliance, Ohio. He was forty years old and leaves a widow.

Goodwin & McBroom expect to spend \$10,000 in improvements on their brick and tile plant at Redfield, Iowa. The capacity of the plant will be more than doubled, and will run the year round in the future.

An explosion of natural gas wrecked the plant of the Tuna Valley Pressed Brick Company and seriously injured R. C. Gordon and Philip Derry, employed in the engine room. The plant is located at Lewis Run, Pa., and the damage is very heavy.

The Miller Bros., of North Side, Pittsburg, Pa., have purchased some of the best of the machinery with which Sankey Bros' dismantled East End works was equipped, and the Stevenson Company, of Wellsville, Ohio, have furnished a right smart lien of renewals.

The Tama Brick & Tile Co. is the name of a new concern at Tama, Iowa, in which L. E. Bentley and S. D. Dye are interested. The former gentleman is an experienced brickmaker. The company has a fine deposit of shale on their property and an up-to-date plant of 40,000 daily capacity will be erected at once.

A new paving brick company has been formed at Cleveland, Ohio, to be known as the Murray Brick Co. The company, which has been incorporated for \$125,000, owns seventy acres of fine shale land which it will develop. Building operations on the new plant will begin early in the spring, and it is hoped to have the plant ready for operation by the first of July. Both building and paving brick will be manufactured.

Articles of incorporation have been filed by the Spokane Asbestos Fire Brick Company, with principal offices at Spokane, Wash., and branch offices at Kamiah, near the asbestos rock deposits. The company is capitalized for \$100,000, H. M. Roberts and T. G. Malony, of Spokane, and Charles Hofstetter, of Kamiah, being the incorporators. Plans are under way for the construction of a factory at Kamiah to manufacture asbestos brick.

Walter P. Grath, president of the Illinois Supply & Construction Co., St. Louis, Mo., advises us that on and after March 1st the office of his company will be Suite 733 and 734 Century building, that city. This company also expects to have a new 1909 catalogue out in a few days to which readers of the Clay-Worker will be welcome, if they are interested in any of the machinery and brickyard supplies turned out by this company.

William Brunt, Sr., East Liverpool, Ohio, the last of the founders of the Ohio pottery industry and the man who made the first "white ware" ever successfully marketed west of the Allegheny Mountains, died at his home there recently, aged 81. Mr. Brunt was born in Burslem, England. He was a "forty-niner" during the California gold rush, and returned from the West in 1855 with a snug fortune of \$5,000. With that he embarked in the pottery business, and in the half century that followed he founded five pottery concerns in East Liverpool.

The plant of the Ridgway Brick Company, Ridgway, Pa., has been purchased by Fiske & Company, of Boston, who are dealers as well as manufacturers of brick, and have been selling agents for the Ridgway Brick Company, having had a contract with them for a number of years for their entire product. The company has been reorganized, with J. Parker B. Fiske, Boston, president; C. S. Estes, of Boston, vice president and treasurer, and Fred H. Clough, of Ridgway, secretary. W. H. Signor, the present superintendent, will be retained in that capacity. Mr. Fiske says the main reason for

buying the plant is to establish a closer connection between the selling and manufacturing end of the business.

S. Kahn, of Belle Plaine, Minn., has purchased the plant of the Blakely (Minn.) Brick and Terra Cotta Company. Mr. Kahn will operate the plant to its fullest capacity.

A. Curry, Bert Wood, Sam Birlingmier and Fred Lash have formed a partnership and have purchased the Farmersburg (Indiana) Tile Plant. They will make both brick and tile.

The Morris Brick and Coal Company, of Morris, Okla., has been incorporated with \$30,000 capital stock by S. J. Allen, J. C. Smith and A. C. Free, of Ockmulgee, and W. E. Kittel and Bruce White, of Morris.

The McLain Fire Brick Co., Wellsville, Ohio, have kept up their splendid record for making and selling brick the winter long. They have placed an order with the Stevenson Company for one of their latest improved iron pug mills.

The Sowell Brick Company, Rock Hill, S. C., advise us that they are in the market for brick cars and track for a hot-air dryer they expect to put in in the near future. Second-hand material will answer the purpose, but it must be in good condition.

The Weaver Clay & Coal Co., of Brazil, Ind., has embarked in the sewer pipe business and with one of the Stevenson company's justly celebrated 40x52-inch presses (illustrated and described on another page) and a 16-foot conveyor, will begin the manufacture with the opening of spring. They are splendidly equipped for the business.

G. N. Fairchild, of the Sioux City Paving Brick Company and the Lower Brick Company, of Sioux City, Iowa, has purchased the plant of Holman & Brother, at Sergeant Bluff, Iowa. The firm's name will be changed to the Holman Brick Company. The members of the company are C. J. Holman and G. N. and Albert Fairchild, but the Holmans have practically retired, after nearly fifty years of successful business life. Mr. C. J. Holman will continue as president of the company, though he will not have an active interest in the

(Continued on page 358.)

White—**CLAY YOU WANT**—Pink

for the

**Paper, Furnace, Terra Cotta,
Wall Plaster, Enamel Ware
and Pottery Trade**

Ready for shipment at all times lump or washed and
bolted, free from grit.

T. J. PETERSON CO., Chicago, Ill.

Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade
Missouri semi-flint fire clay.

A large stock of Number One brick
and shapes always on hand.

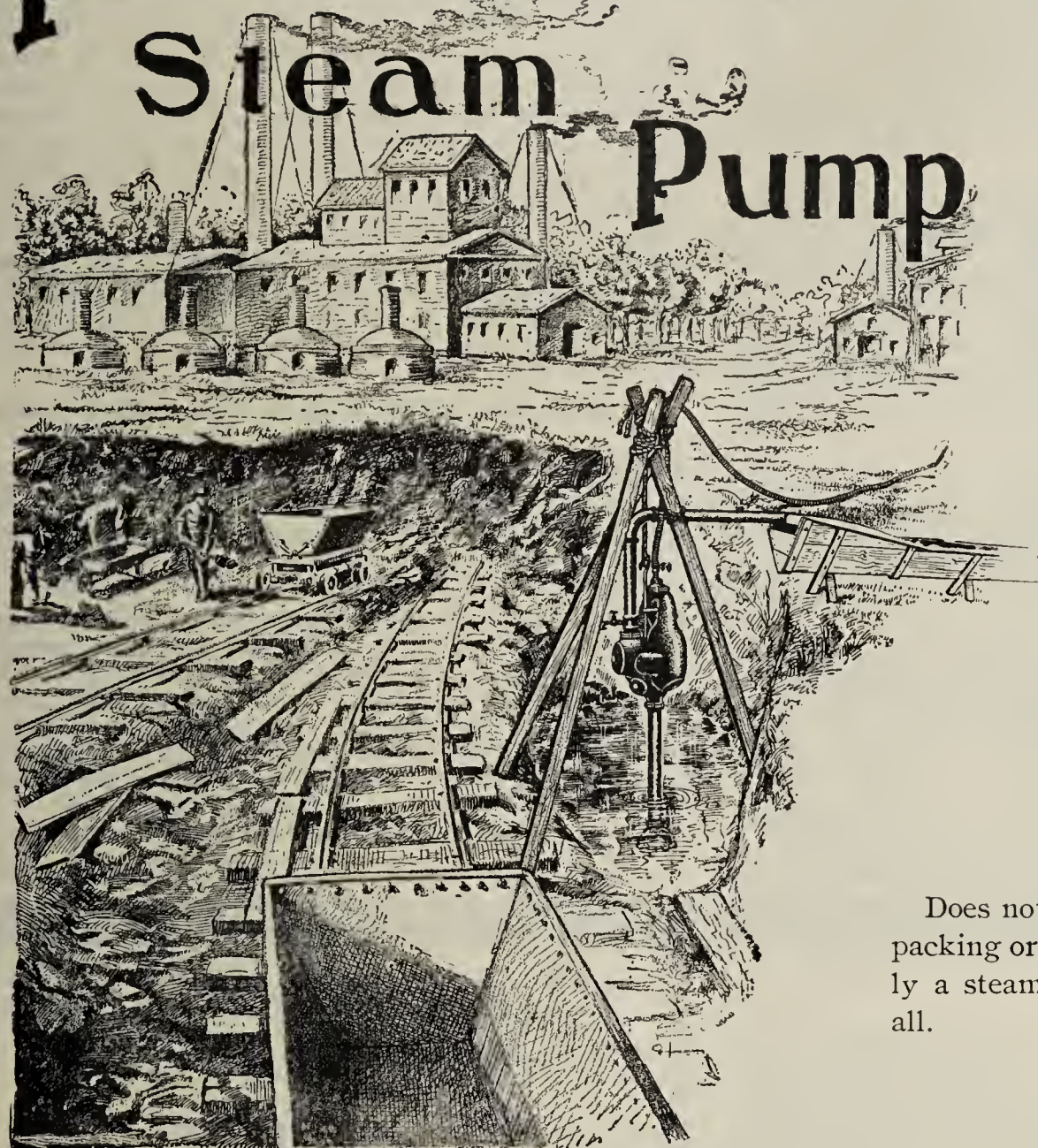
Let us quote you prices and we will
save you money.

Samples sent upon request. Address

Mexico Brick & Fire Clay Co.

MEXICO, MISSOURI.

Pulsometer Steam Pump



FOR USE

in draining Clay Pits, pumping liquid clay, or handling water heavily charged with **mud, sand or grit**, there is nothing equal to the **PULSOMETER**.

Operates as well suspended as stationary, and may be raised or lowered as occasion demands, without interrupting its work.

No easily deranged inside or outside mechanism liable to become choked or clogged.

Does not require engine, belt, oil, packing or special foundation, merely a steam pipe from boiler—that's all.

IN OUR OPINION

every brickmaker, clayworker and pottery plant that requires a **rough-service** pump should take advantage of our proposition.

We will send to responsible owners, who will state under what conditions they desire to pump their liquid

A PULSOMETER STEAM PUMP

On 30 Days' Trial

the final acceptance of the pump to be conditional upon its satisfactorily performing the work described.

We do not believe there is any other form of pumping apparatus so well adapted to the rough service needs of the Clayworker as the **PULSOMETER**.

Write for illustrated, descriptive catalogue telling all about them.

PULSOMETER STEAM PUMP CO., 14 Battery Place,
New York.

Chicago Office, 61-69 North Jefferson Street.

management of the plant. Mr. A. M. Holman will probably make his home in Denver.

The Alabama Brick & Tile Co., has been organized at Hollywood, Ala., by E. J. Neher, P. J. Matthews, W. B. Neher and J. C. Jacobs. Drain tiles will be the chief product turned out.

George M. Fiscus, secretary and treasurer of the Capital City Brick and Pipe Company of Omaha and Des Moines, and for many years a resident of Omaha, died at the home of his father, J. J. Fiscus, near Liscomb, Iowa, January 17. Mr. Fiscus went to visit his parents at Christmas time. Soon afterwards he was taken sick with appendicitis and obstruction of the bowels. An operation was performed for appendicitis January 15. Mrs. Fiscus is survived by his parents, wife and two brothers.

L. D. Binyon, president of the S. S. Kimbell Brick Company, Chicago, Ill., was elected president of the Builders' Club of Chicago at their recent annual election. This is an organization composed of the prominent contractors and manufacturers of builders' supplies of the Windy City.

Owing to the heavy advance orders and good prospects generally, Miller Bros., Bellingham, Wash., are making a number of improvements in their plant with a view of doubling the capacity of same. They expect to turn out close to 5,000,000 brick the coming summer.

The Kittanning Clay Products Co., of Olean, N. Y., a recent organization of men of ripe experience in the clay business, have added additional machinery to their brick plant at Cowanshannoc, Pa., and are now making brick with increased capacity. They chose the Stevenson Company's machinery and are well pleased with it.

A company has been organized at Benton, Ark., to establish a plant for the manufacture of art pottery. The capital of the company is \$10,000. The following are the stockholders: Arthur Dovey, C. D. Hyten, E. Y. Sinson, J. F. Lee, J. J. Beavers, George Brown, W. H. Lawer, A. W. Warren, and Dr. D. Gann.

After a careful study of the principles of the Stevenson Company's 5-foot wet pan the government expert in charge of the United States Geological Survey work at Pittsburg, Pa., so approved of the machine as to issue requisitions for one, and has it already installed and doing service. This is the first and only machine of the Stevenson make that has ever come under the government's official notice, and it won immediate favor.

The Burnight-Kennedy Company has purchased the entire output of the Oroville Brick Company's plant, which is located near Chandon, Cal., and is now the authorized agent for the company for the whole of Northern California. The company experimented with the clay at Oroville, but the clay did not prove satisfactory. Accordingly they went to Chandon, near Live Oak, where they have turned out a brick of exceptionally fine quality, and are now preparing to push the work of burning brick forward with all rapidity.

Written for THE CLAY-WORKER.

BRICK NOTES FROM CINCINNATI.

THE BRICK AND BUILDING industries in Cincinnati have advanced somewhat since the first of the year. It is thought that building will be considerably increased rather than retarded during the coming year. Interviews given by a number of brick manufacturers indicate that they are expecting to at least hold their own during 1909. The general opinion is that this year will not be an exceptionally good year, and not a boom year by any means, but ought to be a normal one. Some few are more optimistic and say building ought to take quite a jump. The prices of brick are generally about the same, though manufacturers state that they look for better prices. The demand is increasing somewhat, and more men are employed in local brick plants than at any time since the panic; that is, when weather conditions permit working. Work of sewer laying was somewhat retarded last year, but it is thought that cities will let loose again this year and take up these improvements as formerly.

The regular monthly meeting of the Cincinnati Chapter of the American Institute of Architects was held at the Gibson

House, January 14. It is reported that the delay in approving the new building code is holding back considerable building. One firm architects has in its office a commission for a large tenement house, and until the ordinance is passed nothing will be done toward this improvement, which will be a distinct departure in that class of building. Many other builders are holding back that class of work until the ordinance is passed.

A new feature in the use of clay products is the order received by the Rookwood Pottery of this city from the company erecting the new Fort Pitt Hotel in Pittsburg. A rathskeller with the ceiling, walls, floor and all the fixtures, including the tables, will be made of clay by the Rookwood people. The room will be 55 feet square. The feature of the work will be a series of panels illustrative of Longfellow's poem, "The Skeleton in Armor." This is a considerable step further in this line than was taken in erecting the Seelbach Hotel in Louisville. The Seelbach has its basement floor finished entirely in clay and fancy brick, and the Fort Pitt makes an entirely new departure in making the floors and all fixtures in clay.

ARE YOU TROUBLED WITH WHITE WASH?

Do you want to make a better face brick? Do you want a wider and more profitable market for your product? Do you want to make from the same material, whether light or dark, a variety of colors and shades that are winners in the market, and double your margin of profit? Why not go your competitor one better? Let us help you earn larger dividends. J. B. & I. L. Hammond, exclusive agents for the Lynn brick facing machine. Adds \$2.00 to \$15.00 per thousand to the value of your product, and costs but little in comparison. Positively the most advanced step yet taken in the manufacture of impervious face brick. Inquiries promptly answered. A collect telegram will bring a representative.

J. B. & I. L. HAMMOND,
Specialists in the Brickmaking Industry,
Bolivar, Pa.

CLAY HAULAGE

Reduce cost of transportation
by using a

Davenport Industrial Locomotive.



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars.

Davenport Locomotive Works,
Davenport, Iowa.

FOR SALE, WANTED, ETC.

FOR SALE—Eighty-h. p. engine and boiler, No. 3 Adrian stiff mud machine and side cut table; Potts disintegrator and hand repress. Address
LOUIS SCHMIDT,
Grand Island, Neb.
2 1 cm

WANTED.

A second-hand dry pan. State make, size, condition and price. Address
VICTOR CHEMICAL WORKS,
2 1 dm 89 Board of Trade, Chicago, Ill.

WANTED.

Second-hand Martin machine and pallets. When writing, state condition, capacity, price, etc. Address
BURNS & RUSSELL CO.,
1103 American Bldg.,
2 1 cm Baltimore, Md.

FOR SALE—Soft mud machine, disintegrator, elevator, sander, turntable, repress, engine, boiler, trucks, barrows, rack pallets, everything to start up with at your own price. Out of clay. Address
CHAS. H. CROWELL,
2 3 cm Goshen, Ind.

FOR SALE.

About ninety single-deck iron cars for drying brick. Used very slightly; good as new. Also two transfer cars. Will sell part or all. For particulars, address
BOX 304,
1 tf dm Liberty, Mo.

FOR SALE—An Andrus three-brick steam press complete in first-class condition, with a William disintegrator and elevator, sieve, belts, shafting, pulleys, etc., and every part complete ready to run. Also six two-wheel heavy trucks and twelve boxes holding 500 press brick. Address
THOS. J. ROSE BRICK MFG. CO.,
1 3 cm Erie ave. and G st.,
Philadelphia, Pa.

FOR SALE.

Bates Corliss engine (14 by 36), 80-h. p. boiler and Boyd 4-mold dry press brick machine. Address
CLAUDE HARDWICKE,
2 1 cm Liberty, Mo.

WANTED—One good press brick setter, one sorter and one foreman. When writing, state wages expected. Address
THE LONSDALE FACE BRICK CO.,
2 1 d Knoxville, Tenn.

FOR SALE.

One new 4-mold dry press; one complete stiff mud brick plant; one 80-h. p. engine; two 48 by 14-inch boilers in good condition. Address
P. O. BOX 365,
2 1 d Ardmore, Okla.

WANTED—Situation by a first-class engineer with over fifteen years of experience in brick making and with other clayworking machinery. Experienced in waste heat dryers and fuel oil. A1 all-round clay man, strictly sober, and would accept position as superintendent. Address
E. B. B.,
2 1 dm Care Clay-Worker.

WANTED.

Position as superintendent or foreman of a dry press or stiff mud brick plant. Am also machinist and understand brick machinery and burning in up and down draft kilns with wood, oil or coal. Strictly temperate. Best of references. Address
W. G. P.,
2 1 d Care Clay-Worker.

DO YOU WANT TO GET INTERESTED IN THE SEWER PIPE BUSINESS?

I want to correspond with parties who would like to go into the sewer pipe business east of Pittsburg. Have good clay in abundance. Have a good shale brick yard for sale or lease. For full particulars address
GEORGE W.,
2 1 d Care Clay-Worker.

WANTED—A competent foreman for the kiln of a drain tile factory employing 75 men. Must be able to do the burning with common labor helpers. Address
2 1 dm KANE, care Clay-Worker.

WANTED—Position as manager or superintendent of dry press or stiff mud brick plant. At present employed, but desire change. Was six years with largest press brick company in Middle West. A1 references. Have served in all capacities. Address
MANAGER,
2 1 dm Care Clay-Worker.

FOR SALE.

Two pallet brick yards in good order. One yard situated close to the B. & M. & C. V. R. R., with a switch from each to the shed. Ninety acres with plenty of clay and sand. Three of Wiles H pattern machine and pug mills.

One yard on the B. & A. R. R.; about fifty acres of clay and sand. Two of Wiles B pattern machines. Owner wishing to sell on account of other business. Call on or address
FRANK E. WILES,
2 3 L Grassy Point, N. Y.

A RARE OPENING

For the establishment of a brick plant near a rapidly growing city is offered. Twelve acres of clay underlaid with shale. The clay is ductile, easily worked, free from stone, specially adapted to hollow ware; no question as to quality of clay. Operated for several years as a small yard. New plant must be built to meet present demands.

The property is on a brick-paved street. Switch connections with a trunk line arranged for. The plant will have fine territory with no competition except by rail. 3,000,000 brick now shipped yearly into this field, while demand for tile is not supplied. In addition to the local territory, there is an exceptionally good opportunity to get business on short rail shipment.

For further information address
E. H. ARNOLD,
2 1 cm Rocky River, Ohio.

A LITTLE TALK ON CLAYWORKING MACHINERY.

Are you going to buy any Clayworking Machinery? Of course you want to get the best for your money—Machinery that has been thoroughly tried out under all conditions and in all kinds of clay.

This company has been in the business for 30 years and their machinery is in use in hundreds of plants in all parts of the country.

Some of the largest Tile and Brick concerns in the United States are using Madden machinery exclusively. When you buy a **MADDEN** you are not getting an experimental machine, but one which is the result of thorough trial and an absolute knowledge of clays and the clayworker's needs.

A complete line of Horizontal and Vertical Tile and Brick Machines, Disintegrators, Pug Mills, Granulators, Dry Pans, etc. And our catalog is yours for the asking.

MADDEN & CO., Rushville, Ind.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

PRESS BAGS FOR CLAYWORKERS.

Press bags; all sizes and weights. Write for prices on duck.

W. W. STANLEY, Manufacturer,
2 1 cm Victor, N. Y.

FOR SALE—"Ideal" all-iron horsepower soft mud brick machine; hand power sander. Good condition; used one season.

KENILWORTH BRICK WORKS,
2 1 c Asheville, N. C.

FOR SALE—2,000 steel stool pallets, 10 by 33. No. 14 gauge steel. Good condition and price very low, as we have no further use for same.

CRAWFORDSVILLE SHALE BRICK CO.,
2 1 c Crawfordsville, Ind.

FOR SALE—One 85-h. p. engine, in good condition, in use now, \$325. One 50-h. p. engine in working order, \$200. One 4-mold Berg press, good as new, \$2,500.

BUCKEYE FIRE BRICK & CLAY CO.,
2 1 cm Scioto Furnace, Ohio.

WE ARE PRACTICAL KILN BUILDERS.

Are you looking for some one to build your kiln? We have had years of experience. Give us a trial. References the best.

J. L. HOVER & SON,
2 1 cm Jackson Center, Ohio.

WANTED—A machine foreman, also a yard foreman, who thoroughly understands shading and grading of face brick. Send references and state experience.

PACIFIC FACE BRICK CO.,
402 Commercial Club Bldg.,
2 tf d Portland, Ore.

FOR SALE.

Twenty thousand white pine pallets, racks and covering for same. Three clay carts, four trucks, one clay gatherer, shafting, belting, wheel barrows, etc. Cheap.

J. H. MCGREGOR BRICK CO.,
2 tf d Bloomington, Ill.

WANTED—Salesman to handle a good line of vitrified paving and building brick in Indiana and Illinois. Must furnish best of references as to ability, experience, etc. Permanent situation and good salary to right man. Address

VITRIFIED BRICK,
2 1 c Care Clay-Worker.

FOR SALE CHEAP.

One 50-horsepower tubular boiler; 18,000 white pine pallets and racks for same; No. 1 Monarch soft mud machine; 40 kiln doors and grates; four trucks; six barrows; pump; tank; shafting and pulleys. Address

THOMAS McDONALD,
2 1 cm Carlisle, Pa.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
2 tf L Richmond, Va.

WANTED—Position as head burner of a continuous kiln or any other style of kiln. Best of references. Address
2 1 d Box 11, care Clay-Worker.

WANTED POSITION.

A man with long experience wants position as foreman. Is competent in every particular. Address
2 1 d OTTO,
Care Clay-Worker.

FOR SALE.

One 4-mold Ross-Keller brick press in good working condition. Has been used only one year.

CHISHOLM, BOYD & WHITE,
2 tf L 57th and Wallace, Chicago, Ill.

OF INTEREST TO BRICKMAKERS.

I can cite you to the best location in the West for a brick and tile plant. Unexcelled facilities. Address
2 1 cm R. L. CRAWFORD,
Lowry City, Mo.

WANTED.

Brick setters and brick tossers, work the year round. Setters paid \$2.50 per day and tossers \$2.25. Address

BURKE BRICK CO.,
1 2 d Ft. Smith, Ark.

ATTENTION—CLAYWORKERS.

I will share my invention with a pottery or party desiring to invest in manufacture of a household necessity; burnt, porous.

N. J. VOITA,
1 2 cm New Prague, Minn.

FOR SALE—\$50 each will buy two Ohio

Ceramic 1½-yard steel shale dump cars, used only two weeks and replaced on account of steam shovel; heavier service. Address
"DICK,"
1 2 c Care Clay-Worker.

BRICK PLANT—TO LEASE.

An extensive brick plant for sale or lease at Fishkill-on-Hudson, N. Y. Eighteen modern machines; unlimited clay; 2,600 feet river front; convenient docks; 1,834 feet new kiln sheds; four separate steam plants. Would divide yards.

BENJ. RICHARDS,
2 3 cm 75 Liberty St., New York City.

WANTED—A good practical fire brick man to join with present owner of red brick plant, on which has been discovered a good vein of exceedingly high grade fire clay, analyzing less than three-fourths of 1 per cent of iron. Plant is located within less than fifty miles of such immense and permanent markets for high-grade fire brick as Pittsburg, Homestead, Braddock, McKeesport, Duquesne, Rankin, Clairton, New Castle and Sharon, Pa., and Youngstown, O.

The right man with \$5,000 can come in on the ground floor. If interested, write for full particulars. Address
2 1 cm W. B. W., care Clay-Worker.

FOR SALE—Cheap, second-hand brick machine and fixtures, pallets, racks and sheds for medium-sized yard. Address

A. A. EISENMAN,
2 1 cm Green Bay, Wis.

WANTED—To buy or lease a brick plant having shale or fire clay, raw material and round down-draft kilns. Address

LOCK BOX 743,
1 tf dm Uhrichsville, Ohio.

FOR SALE—One right-hand disc fan complete with shafting and bearings. Also Atlas engine, automatic right-hand 100-h.p., used but two years. Address

KANKAKEE TILE & BRICK CO.,
1 2 dm Kankakee, Ill.

FOR SALE OR LEASE.

Good soft mud brick plant in an Indiana city of 10,000. Capacity, 25,000. Will be sold at a bargain on easy terms. Good reason for selling. Address
1 3 cm 5-C,
Care Clay-Worker

FOR SALE—Brick manufacturing plant in New Jersey. Capacity, 10,000,000. Machinery and buildings in good order. Ninety acres clay and sand. The best of shipping facilities. For particulars and terms, address
1 2 c BOX 153,
Matawan, N. J.

WANTED—A thoroughly practical dry press man to manage a dry press brick plant. Fine clay and good market. Prefer man who wants a working interest and permanent job. Address

S. W. BURNHAM,
1 2 dm Lincoln, Neb.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,
2 tf L Cleveland, Ohio.

WANTED.

A competent German brickmaker, with fourteen years' experience, will take full charge of any plant manufacturing any kind of clay goods. Understands the business thoroughly in every way. Am expert burner and not afraid to work. Best of references. Address
2 1 d B. & B., care Clay-Worker.

FOR SALE.

One two-mold Simpson dry press machine.

One three-mold Andrus dry press machine.

One E. M. Freese & Co.'s board delivery cutting table.

DUNLAP MFG. CO.,
1 tf L Bloomington, Ill.

... FOR SALE ...

640 acres of fire clay and coal land being a square mile, adjoining Vandalia, Mo., suitable building site for a large fire brick plant. Is under control of the Commercial Club and can be had by company desiring to manufacture fire brick in a large way. Underlying the land there is a vein of clay and coal showing a face of 25 to 30 feet. Fire brick can be manufactured at Vandalia at a less cost than any other point in the United States. For further information, address
F. P. DYE, Vandalia, Mo.

ON THE BARGAIN COUNTER

ONE Chambers End-cut Auger Brick Machine, 25,000 to 30,000 capacity daily. At Chambers' works. Machine rebuilt with new gear, and all internal wearing parts renewed.

ONE Chambers Auger Machine of about 40,000 capacity daily. These machines will be sent out under the same broad guarantee as accompanies any new machine of same pattern sold from our works.

We have them because in each case our customer's trade increased to justify the use of our largest pattern of Auger Brick Machine.

CHAMBERS BROTHERS COMPANY.

Fifty-second and Media St.,
Philadelphia, Pa.

59 West Jackson Blvd.,
Chicago, Ill.

An Opportunity of a Life Time

Will Sell at a Low Figure and on Easy Terms

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam dryer. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Will sell for 10 per cent. cash, balance in five years.

Address BOX 5, Care Clay-Worker.

FOR SALE

An Up-to-Date Brick Plant Complete.

Formerly run by the GAY HEAD FIRE BRICK CO., of Somerset, Mass., Consisting of MACHINERY as Follows:

One brick machine for fire or red brick, with disintegrator, mixer, automatic cutting off table, all driving gears, capacity 50,000 per day, also a repress machine, with dies for fire bricks and face building brick. Only been used four years, installed by Bonnot Co., Canton, Ohio.

Two Johnson, Leeds clay grinding pans.

One small pug mill.

One 150 horse power Corliss type engine, 16 x 42.

One 30 horse power Porter Mfg. Co. engine.

One Gifford & Houghton 25 horse power engine.

One Westinghouse 25 horse power engine.

One 25 horse power vertical hoisting engine, boiler drum and everything to make it complete.

One Massachusetts Fan Co. heater, installed only four years. Capacity 30,000 feet per day.

One Bates & Co. dynamo, 110 volts.

One Knowles No. 9 fire pump.

One Duplex pump for filling boiler.

One No. 6 blower.

Six hand and wheel presses.

One Roberts' butt strapped boiler, 17 x 6 feet, been used only four years.

One paint mill.

One No. 10 rock crusher.

Two elevators, scales.

Seventy-two brick cars.

One thousand feet of rails, shafting, hangers, pulleys, piping, belting and a large lot of other material too numerous to mention.

This MACHINERY is in first-class condition, and is to be sold as a whole or in lots to suit purchasers. This stock is for sale by the

W. A. BUXTON MACHINERY COMPANY

No. 40 CENTRAL ST., WORCESTER, MASS.

TELEPHONE No. 5518.

BOSTON ADDRESS No. 200 Summer St....Telephone No. 552 Fort Hill

FOR SALE.

8,000 No. 1 white pine pallets, 33 in. x 10 in. x 3/4 in. Price, F. O. B., \$25.00 per M.

MRS. LAURA M. BANKER.

2 3 cm So. State St., Greenfield, Ind.

FOR SALE—Four-mold Boyd and Simpson dry press; 3-mold Boyd and Andrus dry press; 2-mold Berg, Boyd, Whittaker and U. S. dry press; dry pan, pulverizer, elevator and screen; 35 sandlime brick cars and 65-foot curing cylinder. Address 1 2 cm P. O. BOX, 443, Denver, Colo.

FOR SALE.

One Hercules mud machine.

One mold sander.

Three mule brick trucks and a lot of six-brick pallets.

Address 1 3 dm J. C.,
Care Clay-Worker.

FOR SALE—One 9-foot dry pan, made by the American Clay Machinery Company. This pan is as good as new, having been in use only about sixty days. Write for price to THE ALPENA PORTLAND CEMENT CO., 1 2 dm Alpena, Mich.

WANTED—POSITION.

A party at present employed desires a position as superintendent or head burner. Am thoroughly familiar with all kinds of dry clay, press and down-draft kiln propositions. Have first-class testimonials. Address "J. J. K.," 1 tf d Care Clay-Worker.

WANTED.

To hear from face brick manufacturers making light colored stiff mud brick within 200 miles of New York, Chicago and St. Louis, who would be in position to contract to furnish a half million to a million brick in 1909. Address FACE BRICK, 1 3 d Care Clay-Worker.

FOR SALE.

One kiln tile plant, ready for operation. Drying building 30x175 feet, two stories high. Slate roof. Fine and ample clay. Excellent market. Machinery in good condition. Eight miles from Toledo. Price, \$4,000. For further particulars, address D. E. CHILD, 1 3 cm Findlay, Ohio.

FOR SALE.

One two-mold American dry press in first class condition. One Grath Special four-mold dry press. Was bought under guarantee and made good. Strongest and simplest four-mold press on market. Practically new. Factory turned over to manufacturer of fire brick, plastic process exclusively.

SOUTHERN CLAY PRODUCTS CO.,
2 tf d Chattanooga, Tenn.

WANTED.

An experienced and thoroughly competent superintendent and manager for a modern, thoroughly equipped, 40,000 capacity stiff mud brick plant. Only men who have proven successful need apply. State fully with application age, experience and references from last employer.

"NEBRASKA,"
1 2 cm Care Clay-Worker.

FOR SALE.

One of the best-equipped brick and tile factories in Central Iowa, doing good business. Side track in yard, good tributary territory, close to fuel. Everything modern and up-to-date, with Freese and Brewer machinery. Quality of ware the best. Reason for selling, owners have other business interests demanding their attention. Address "M. & K.," 1 2 cm Care Clay-Worker.

WANTED—A competent man to superintend a new paving brick plant. One able to make a small investment preferred. Address **BOX 815,**
12 3 dm **Care Clay-Worker.**

WANTED—Position as superintendent of stiff or soft mud brick plant. Can burn with coal or gas and successfully construct and operate all details, having had fifteen years' experience. Best of references. Position east of Ohio preferred. Address **2 1 c**
WAYNE, care Clay-Worker.

FOR SALE—Second-hand machinery cheap, including 25-ton Ref. Wolf ice machine. Chambers brick machines, pug mills, drying cars, repress, line shafting, boilers, engines, fan pumps, feed water heater, electric locomotive, etc. Address **ANTHONY & BUCHANAN,**
11 6 cm **Kewanee, Ill.**

FOR SALE.

A rare opportunity to purchase an established brick business or an interest in same. One of the latest improved brick manufacturing plants in the State. Located near Philadelphia. Shipping facilities to all points. Address **PENN,**
12 3 c **Care Clay-Worker.**

WANTED—Situation as superintendent by man strictly sober. A good handler of men. Over twenty years' experience. Familiar with dry press, stiff or soft mud brick or drain tile. Can take entire charge or of kiln department. Guarantee to get results or no pay. Specially successful in burning. Can furnish ample proof. Address **2 1 cm**
"L," care of Clay-Worker.

FOR SALE—One Leader Manufacturing Company brick machine, one Kells machine, one Big Wonder, and one Quaker. All in good running order. Also three engines and three boilers. Each from 40 to 50 h. p., which I desire to sell outright or trade for engines of more horse power. For full information, address **D. P.,**
12 6 cm **Care Clay-Worker.**

BRICK PLANT FOR SALE OR LEASE.

Good clay, on railroad in rapidly growing southern town of 25,000 population. Success soft mud machine, Standard steam dryer; also racks, engine, two boilers, hoisting engine and incline, commissary, clay cars, and small equipment. Owner is civil engineer, and has not time to run the plant. Reasonable terms. Address **WALTER G. KIRKPATRICK,**
12 3 cm **Jackson, Miss.**

FOR SALE—ENGINES AND BOILERS.

—Engines—

Corliss and Automatic—20x42 Allis, 18x42 Hamilton, 18x36 Wright, 16x32 Buckeye, 14x24 Atlas; also 12x30, 10x30, 13x16, 13½x15, 12x18, 12x14, 12½x12, 10x10, etc., etc.
Throttling—18x26 H., S. & G., 18x24 Erie City, 16x20 Chandler & Taylor, 14x24 Atlas, 14x14 Vertical, 12x18, 11x16, 10x16, 10x12, 10x10 Vertical, 9x12, 8x16, 8x12, etc., etc.

—Boilers—

Horizontal Tubular—84x18, 78x16, 72x18, 72x16, 66x16, 60x16, 60x14, 54x16, 54x15, 48x14, etc., etc.
Fire Box—60, 50, 40, 35, 30, 25, 20, 16, 14, 12 and 10 horse power, etc., etc.
Vertical—55, 35, 30, 20 and 15 horse power, etc., etc. Pumps, heaters, tanks, saw mills and general machinery.
THE RANDLE MACHINERY CO.,
1735 Powers st.,
1 tf d **Cincinnati, Ohio.**

FOR SALE.

A modern, vitrified paving brick plant situated in central part of Ohio, with unlimited supply of shale and local coal. Plant contains 22 down-draft kilns and has a daily capacity of between 50,000 and 60,000 paving block. Unequaled railroad facilities for shipping. An excellent opportunity for a practical brick manufacturer.

We have acquired this plant in the course of business, and as we are not practical brickmakers we wish to dispose of same. For particulars apply to

R. B. PARSONS,

1 3 cm

Room No. 2, Temple Court, Cincinnati, Ohio.

A FINE BRICK PLANT IN CALIFORNIA.

I have 176 acres of very fertile land on the Sacramento river, the only clay that makes good brick in this vicinity, with sufficient wood to burn several million brick. Brick bring a wholesale price of \$11.50, retail \$15.00. I want a good practical brickmaker with \$10,000 to buy half interest, or will sell entire for \$18,000; one-third cash, balance as you can make it. Country is growing and progressive.

Address
12 6 cm

D. MADIGAN,
Chico, Butte Co., Cal.

J. B. & I. L. HAMMOND,

Specialists in All Kinds of Brick and in All Phases of the Brick Business.

Properties examined, physical and chemical tests of materials made. Practical opinions given as to the adaptability of materials. Estimates made on new plants and remodeling old ones, and class of machinery and kilns best suited to conditions. Practical suggestions as to improvement of quality and workmanship of product. Thorough knowledge of markets. Trade for product developed. If you are in need of treatment, let us prescribe for you. More than twenty years' practical experience and a good knowledge of conditions throughout the continent. An able and competent corps of specialists on our staff.

J. B. & I. L. HAMMOND,

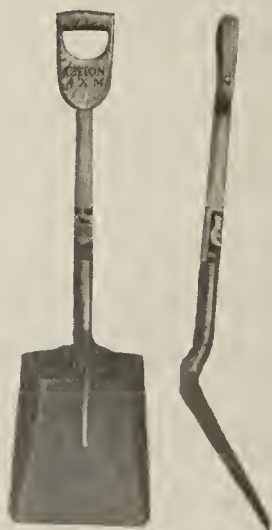
Specialists in the Brick Making Industry, Bolivar, Pa.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

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Our Special **Our Scientific**
Brick Yard Shovel **Round Point**

Two of Our Special Makes

Of the Mikola Patent Shovels

... 70 STYLES AND SIZES ...

Especially designed for handling shale, crushed stone, iron ore, clay, etc. Save time, labor and money by using shovels made just for your line of work. Write us about your needs and for Catalog Department A.

Shovel Specialists

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Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use



Cutting Wires For Brick Machines

CHAMBERS BROS.' CO., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

WE KNEW OF THE RECENT HARD TIMES THROUGH HEARSAY ONLY.

WE WERE BUSY ALL THE TIME building our

IMPROVED FLUE SYSTEM KILNS

and installing our patent flues in old kilns that were not doing as they should. We invite correspondence with those contemplating new kilns, and with those whose old kilns are not giving best results.

Absolute Draft Control. Fuel and Time Economy.

Kiln and Yard Rights, with Plans, Specifications, License, etc., sold at very reasonable rates. Booklet and full information cheerfully furnished.
Address

GEO. E. SNOWDEN & CO., New Cumberland, W. Va.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Schuette, Parker & Co.,

Saginaw, Mich.

PHILLIPS & McLAREN CO.

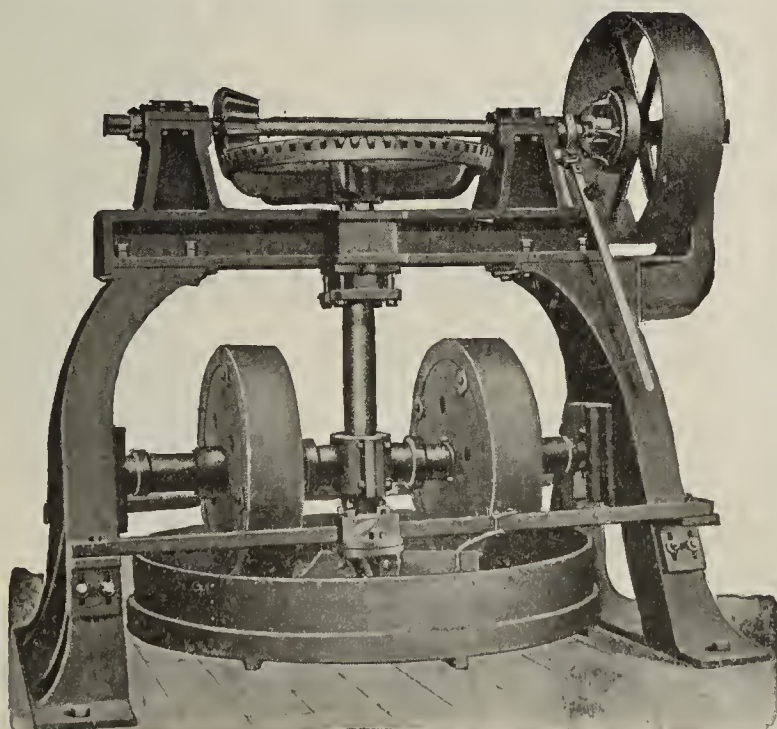
PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.

Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



FOR SALE—One 36-inch Steadman disintegrator. Used 30 days. Also a quantity of fire doors and grates good as new. A bargain. RAFFERTY & RAFFERTY,
2 1 c Lynch, Neb.

WANTED—Position as superintendent. Hold such a position now with a large brick plant, but want change. Can handle men and make the brick. No. 1 references. Address PORTER,
1 1 cm Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS. No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address FRANK P. CLEVELAND,
965 Adams Express bldg.,
2 tf d Chicago, Ill.

WANTED—ANOTHER FIRE BRICK PLANT.

An ideal location with an inexhaustible supply of high-grade plastic clay and coal. The analysis is as follows:

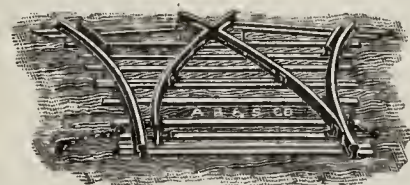
Hygroscopic water, 1.1 per cent. Loss on ignition, 12.1 per cent. Silica, 46.9 per cent. Ferric Oxide, .2 per cent. Alumina, 38.9 per cent. Lime, .2 per cent. Alkalies, .6 per cent. Magnesia, trace. If interested, write to
2 1 cm E. F. DYE, Vandalia, Mo.

FOR SALE.

6 "Little Giant" Traction Shovels.
Dredges for Clay Swamp ½ yd. to 2½ yd.
Locomotives, cars and rails for up-to-date clayworkers.

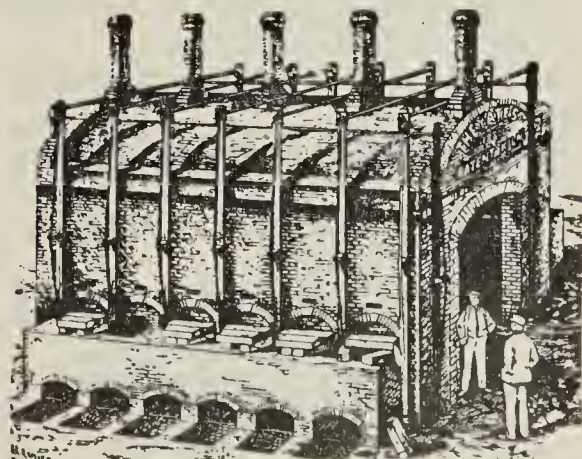
What have you for sale?

THE MALES CO.,
26 Cortland Street, New York, N. Y.,
1508 First Nat'l Bank Bldg., Cincinnati, O.



SWITCHES FOR SALE.

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.



The Yates Patent Down-draft Kiln. Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.

ALFRED YATES,
SHAWMUT, PA.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
11 tf d Zanesville, Ohio.

See additional ads under Table of Contents.

MANGANESE
FOR ALL USES.
LUMP, GRAIN AND GROUND
60-70% 70-80% 80-90% OXIDE.
CLAY WORKERS GOODS A SPECIALTY.
SAMPLES AND PRICES ON INQUIRY.
METALLIC ALLOYS CO.
99 JOHN ST NEW YORK, N.Y.
SUCCESSORS TO KENDALL & FLICK.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

IRONTON CLAY SPECIALTY CO.,
Ironton, Ohio.

Terms	First-class
reasonable.	references.

If you have trouble with Clay, Machinery or Kilns, then consult

THE BRICKMAKERS' ADVISOR,
Julius J. Koch,
(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.

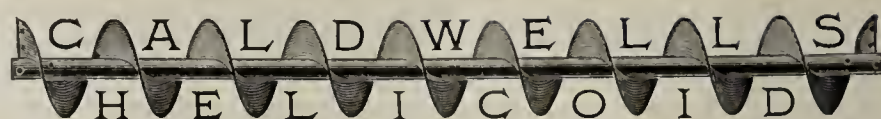
*The Anton Vogt
Down Draft Kiln
and the*

QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,
Elgin, Texas.



HELICOID SCREW CONVEYOR is heavier, stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 28 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

H. W. Caldwell & Son Co., 17th St. & Western Ave. **Chicago**
Fulton Bldg., Hudson Terminal, No. 50 Church St., New York.

CHICAGO RETORT AND FIRE BRICK CO.

Fire Brick for Building Kilns.

Factories :
CHICAGO, ILL.
Brickton No. 1 }
Brickton No. 2 } Ottawa, Ill.

General Office:
45th St., Clark to LaSalle Sts.
CHICAGO, ILL.
Phone Yards 525.

Evans & Howard Fire Brick Co.

ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

MITCHELL CLAY MFG. CO.,

5627 Manchester Avenue.

ST. LOUIS, MO.

\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

THE WEBB WIRE WORKS

MANUFACTURERS OF
MUSIC WIRE NEEDLE WIRE
NEW BRUNSWICK, N. J.

We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



C. A. SHOOP, Pres.

N. R. WITHERS, Sec. and Treas.

H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

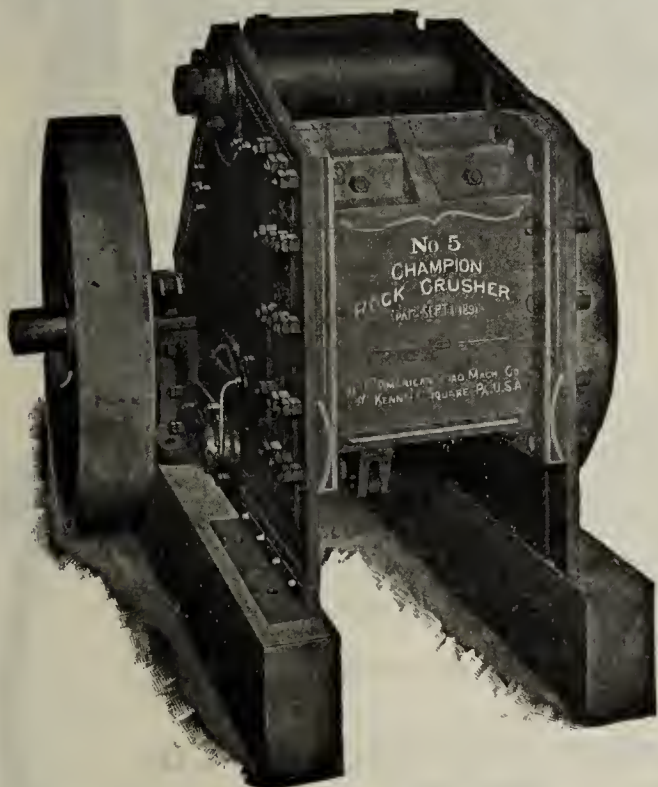
Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do without, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

KENNETT SQUARE, PA.

TAPLIN, RICE & CO., AKRON, OHIO.

Sewer Pipe and Clay-Working Machinery.

ESTABLISHED 1862.

The Department of
Clayworking and Ceramics

Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.

W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

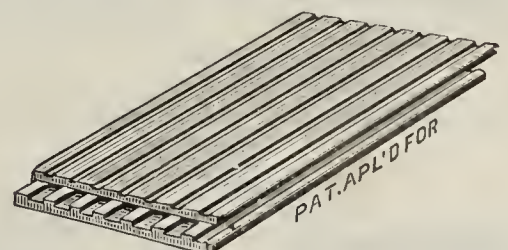
This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address

PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering.
Columbus, Ohio.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,

2935 Clark Avenue.

St. Louis, Mo.

G. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Metallic Paint Co.,
CLINTON, N. Y.

Largest and Oldest Manufacturers
of

Brick and Mortar

COLORING

Be sure you get the genuine with the
"Little Yellow Side-Label"
on each package.

Let us tell you about Side-Walk Black.

GABRIEL & SCHALL
P. O. Box 1712. 205 Pearl Street.
NEW YORK.

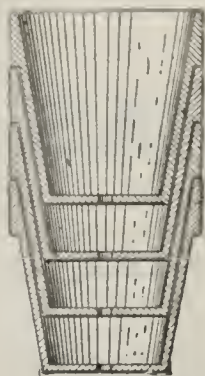
Sole Importers in the United States of the

Precipitated  Carbonate
of Barytes

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine (PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

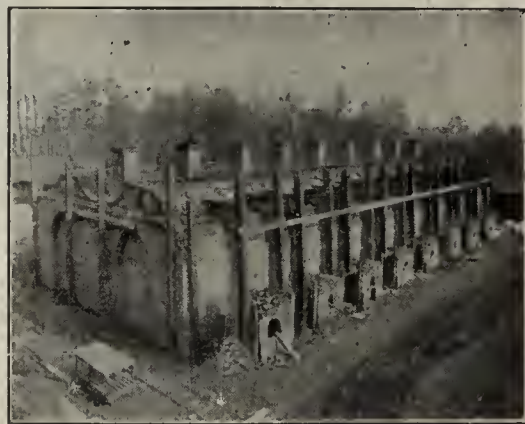
Some Claims Made for the Dennis Double Cham-
ber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.

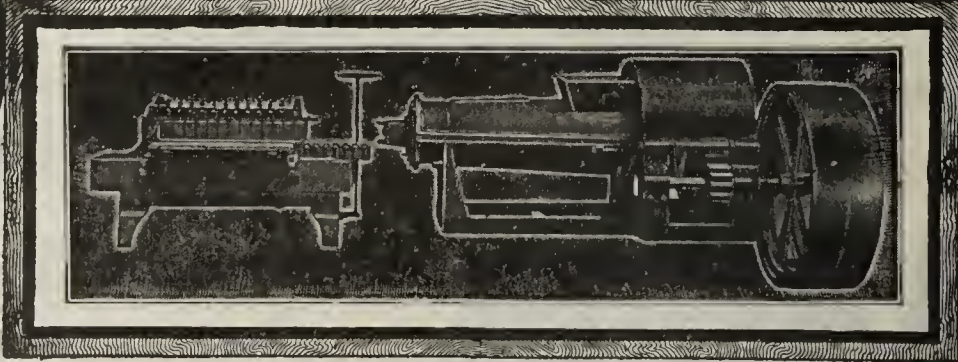


Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

145 Water St.,
NORFOLK, VA.



THE PIONEER.

Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality
of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.

CHOOSE WISELY . . .

when you buy a SEWING MACHINE. You'll find all sorts and kinds at corresponding prices. But if you want a reputable serviceable Machine, then take the

. WHITE .



27 years experience has enabled us to bring out a HANDSOME, SYMMETRICAL and WELL-BUILT PRODUCT, combining in its make-up all the good points found on high grade machines and others that are exclusively WHITE—for instance, our TENSION INDICATOR, a device that shows the tension at a glance, and we have others that appeal to careful buyers. All Drop Heads have Automatic Lift and beautiful Swell Front, Golden Oak Workwork. Vibrator and Rotary Shuttle Styles.

OUR ELEGANT H. T. CATALOGUES GIVE FULL PARTICULARS, FREE.

WHITE SEWING MACHINE CO. . . . Cleveland, Ohio

INDIANAPOLIS OFFICE:

138 E. New York Street, Cor. New York, Delaware and Massachusetts Avenue

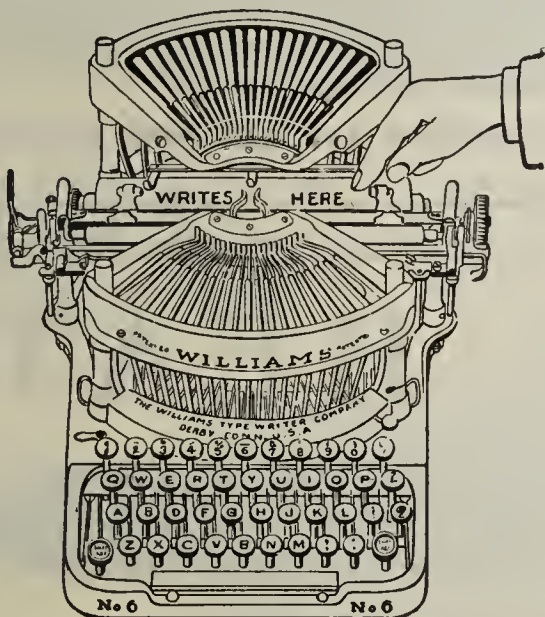
WHEN WRITING TO ADVERTISERS
Mention the CLAY-WORKER.

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.



If...

You Want
to Sell
or Buy...

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

If...
You Want
a Man

for any position or a position in any connection with the Clayworking Trades use the

For Sale
and Want
Columns
of...

The...
Clay-Worker.

RATES

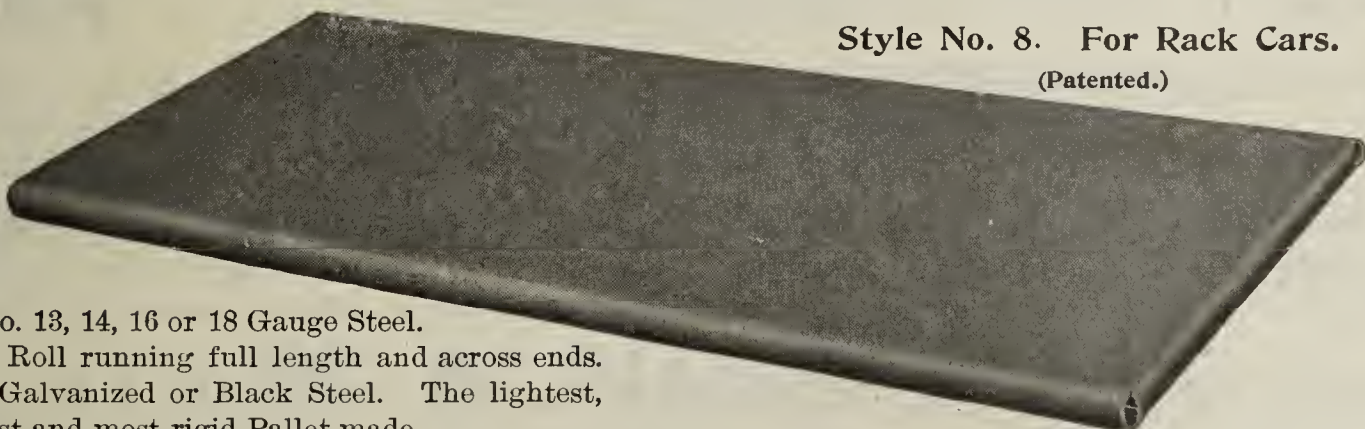
For all transient advertisements, such as "For Sale," "Wanted," etc., the rate is 25 cents a line per insertion. Average of seven words to line. Head line counts as two lines.

The Best, Quickest, Cheapest Method of Securing Results.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.

(Patented.)

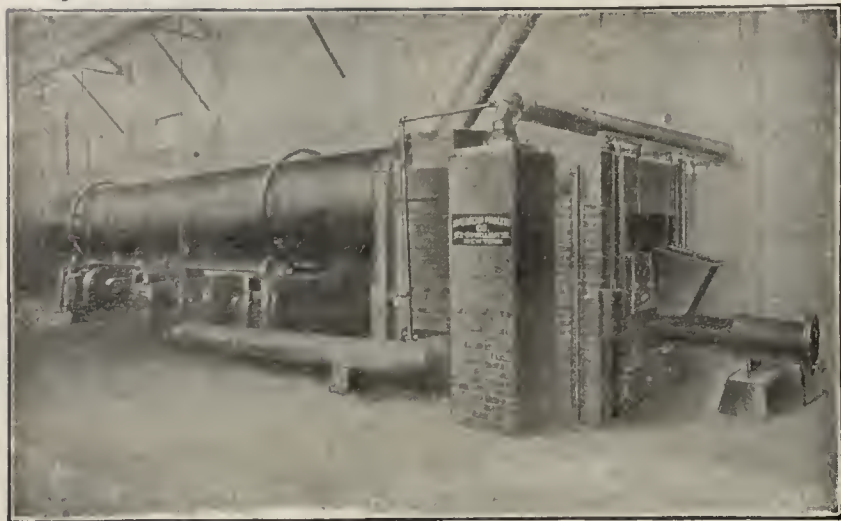


Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.

Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



Automatic Improved DRYERS

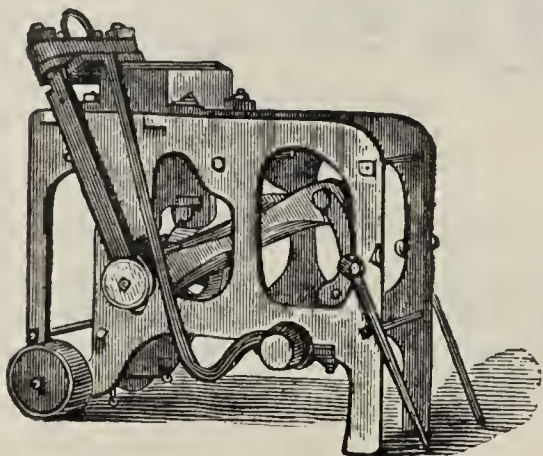
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

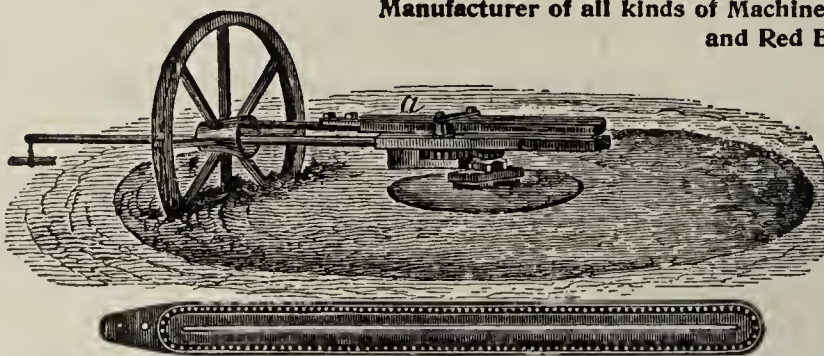


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at } **\$2.50**

The best of all trade papers, The Clay-Worker, for the following twelve months **\$2.00**

This total value of **\$4.50**

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
100 William Street,
NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
R. & H. PRECIPITATED.

Oxide Tin,
Oxide Cobalt,
Red Oxide Iron,
Green Oxide Chrome,
White Oxide Antimony,
Black Oxide Manganese and
all Chemicals used by the Clay Trades.

The Ceramic Supply and Construction Company

Write us for Clayworking Specialties, Brickyard and Pottery Supplies, Controlling Apparatus for
Power Plants, Factories, Dryers and Kilns.

See display advertisement in THE CLAY-WORKER next month.

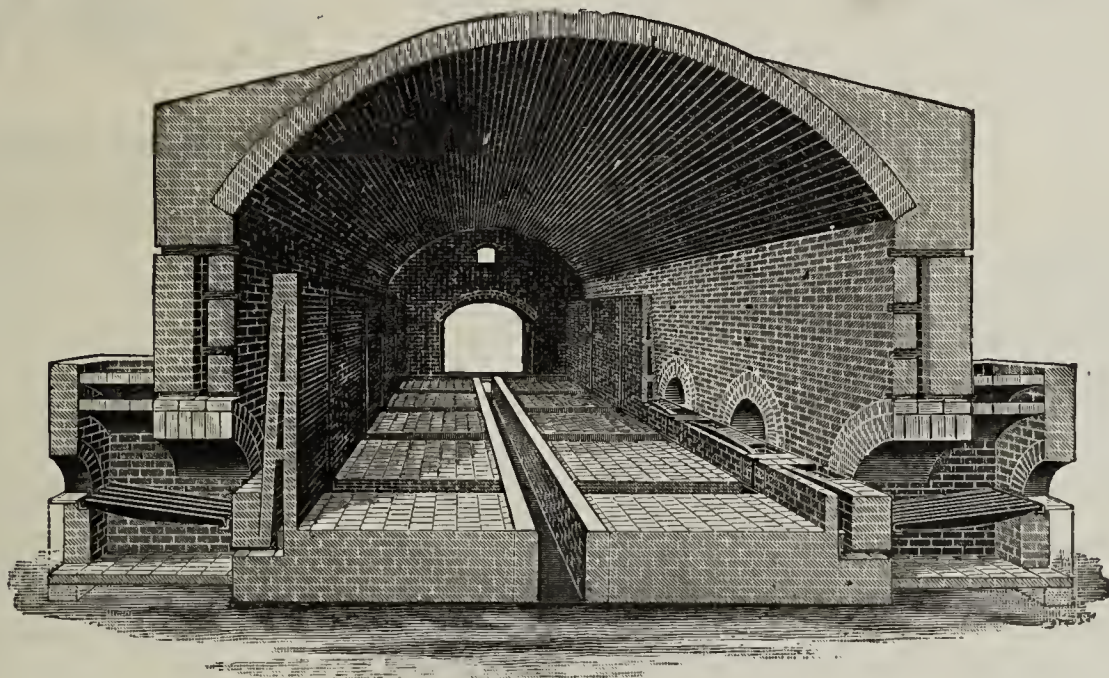
CATALOG?

280 North Front St., Columbus, Ohio.

PRICES?

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:
East Falls,
Philadelphia, Pa.

New York City.

City Office:
Builders' Exchange,
Philadelphia, Pa.
Washington, D. C.
Trenton, N. J.

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

**We Build and Equip
Complete**

**SAND=LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.**

**Ross-Keller Triple Pressure
Brick Machine Co.**

**Offices
Fullerton Bldg., ST. LOUIS, MO.**



Steam Shovels,

**Railroad and
Traction Trucks,**

all sizes and suitable for all
classes of work.

**Placer Mining Dredges,
River, Harbor and
Ditching Dredges.**

For information write

**The Marion
Steam Shovel Co.,**

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.

BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.

Write for Catalogue.

JOHN C. BOSS,
Monger Bldg. ELKHART, IND.

Handle Your Clay With One Man and The Thew Steam Shovel.



Type No. 3—George Gynn Brickyard, Cleveland, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.

Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.



It is good to start with enthusiasm. The test, however, is for the enthusiasm to last.

We began to make LEVIATHAN belting in 1881, and are still selling to brick manufacturers and others who bought of us in those first years. Some say we are making LEVIATHAN better today.

Our enthusiasm has steadily increased. It is contagious for users of LEVIATHAN.

MAIN BELTING COMPANY,
1224 Carpenter Street,
PHILADELPHIA.
59 Market Street,
CHICAGO.

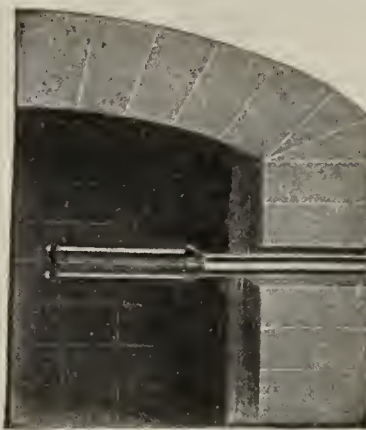
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Morse St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311
Walnut St.,
Philadelphia,
Pa.

The RICHARDSON-LOVEJOY ENGINEERING COMPANY,

Consulting Engineers and Factory Architects.

Geological Examination of Properties.
Chemical Analyses.
Clay Testing.
Investigation of Manufacturing Propositions.
Plants Designed and Construction Superintended.
Dryers for Any Clay Product.
Kilns of Every Type.
Faults of Manufacture Corrected.
Modernizing for More Economical Operation.

PUBLICATIONS.

Ceramic Engineering.....	Free
Brick Kilns.....	Free
Drying Brick.....	\$.25
Burning Brick in Down Draft Kilns.....	1.00
Kiln Records.....	1.00
Scumming and Efflorescence.....	.25

If you are to build and equip a clayworking plant, your past experience in building, whether residence, store or factory, should have taught you that the only wise procedure is to have complete detail drawings and specifications of everything prepared by competent architects and engineers, before undertaking construction. In this way you are not only able to get close competitive bids upon labor and materials and thus save money, but you can have the assurance that you have the best designs and equipment for your special conditions and purposes, and thus save worry and the expense of remodeling before successful results can be obtained.

**Expert service for special cases or by the year
at moderate prices.**

TECHNICAL BUREAU FOR CLAYWORKERS,

Schultz Bldg., 232¹/₂ North High St. Columbus, Ohio.

The STARKEY

Automatic Brick
Counter



Registers

the correct
number of cars,
trucks or wheel-
barrow loads. Will
not lie, cannot forget,
is simple and practica-
bly indestructible. Will

wear for years and pay for itself in a few days. Send for description
and prices. TERMS, ten days' trial, subject to approval.

Manufactured by J. STARKEY, Minerva, Ohio.

Let Us Tell You About Our

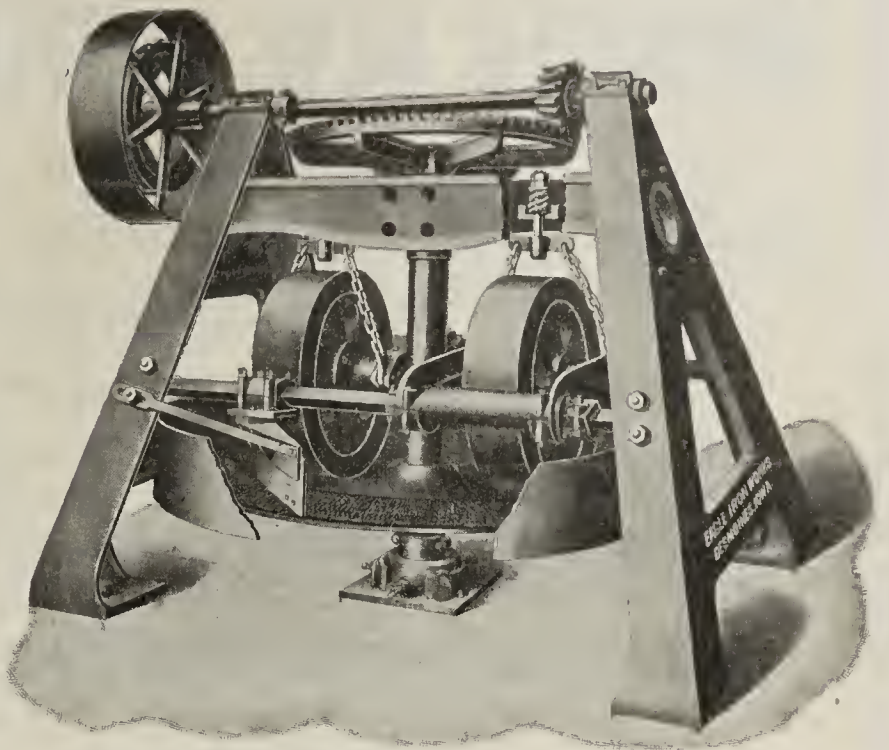
GEAR SHIELD

An Adhesive Compound Lubricant that will accom-
plish WONDERFUL saving in LUBRICATION
and PRESERVE the wear of GEARS and PIN-
IONS by preventing NOISE and METALLIC
CONTACT between the gear teeth.

THE OHIO FILLER & SHIELD CO.,
Columbus, Ohio.

Independent and Suspended Muller

the distinguishing
feature of our **DRY PANS.**



Other valuable features which our catalogue
fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

The Original ^{EXHAUST STEAM} Dryer is the National.

ROCKFORD BRICK COMPANY.

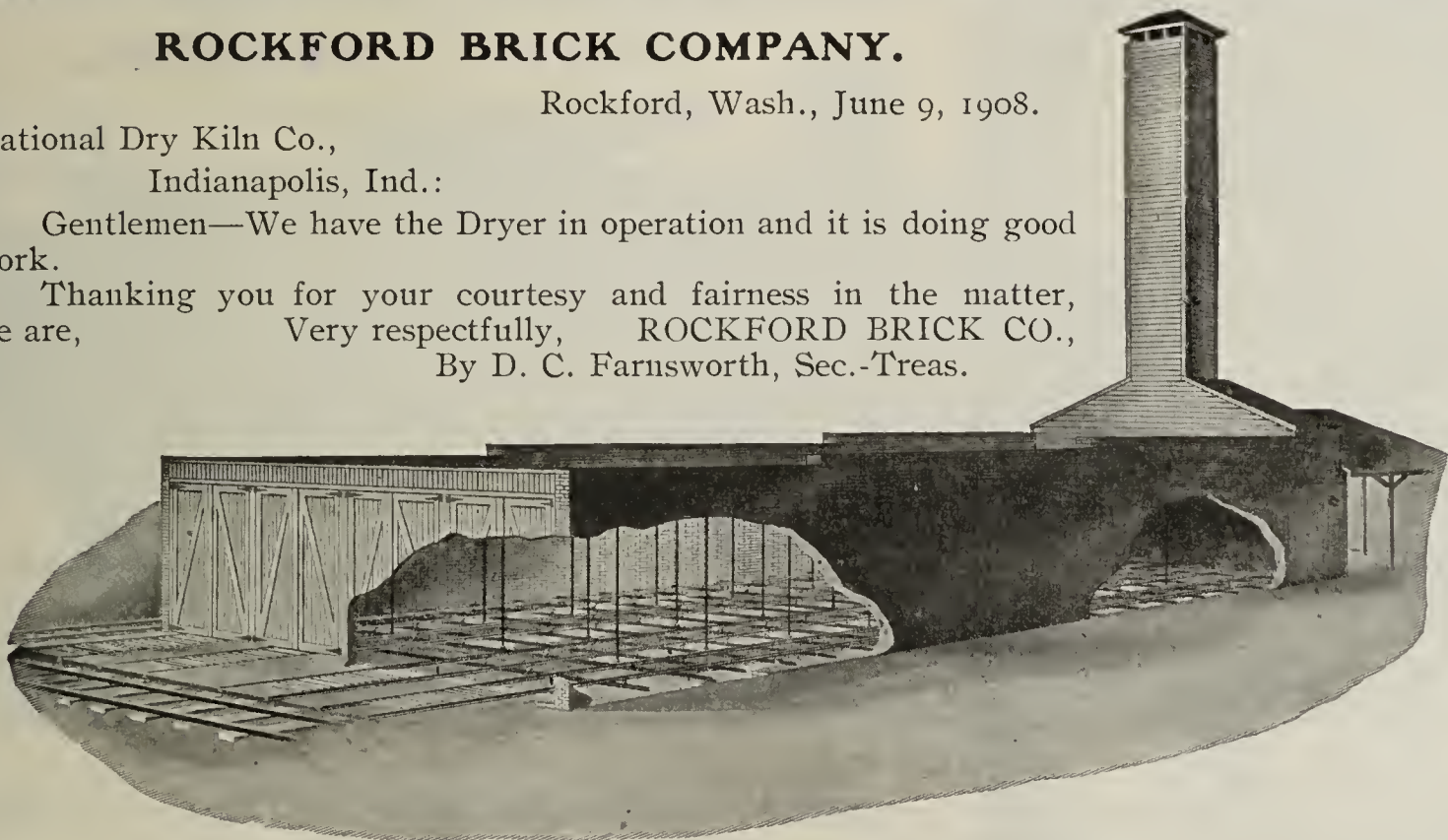
Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good
work.

Thanking you for your courtesy and fairness in the matter,
we are, Very respectfully, ROCKFORD BRICK CO.,

By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

No Fire Danger.
Steel Roller Bearing Cars, etc.

Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
 Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
 Paving and Common Building Brick,
 AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Under-stand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
 particulars
 address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.



JACOB BÜHRER'S TECHNICAL BUREAU

CONSTANCE, GERMANY.

ESTABLISHED 1860.

Construction of Brick, Tile and Lime Works for coal or gas firing and of kilns with or without artificial dryer.

Bührer's Shortened Kilns are very suitable for burning ordinary and enameled goods, lime and cement.

Brick and Tiles made by the plastic process of clays of normal qualities may be dried in the Bührer Dryer in 1½ to 4 days.

The Bührer Fan applied to existing kilns increases the output from 50 to 100% of first-class goods with great economy of fuel.

Bührer changes existing kilns after his system for quick-burning.

Clay is tested in a thorough way. Ask for pamphlets. Correspondence solicited.

BUHRER BRICK AND TILE WORKS WITH BUHRER FANS.

TAKEN UP IN NOVEMBER, 1908.	Num- ber of Kilns.	Num- ber of Fans.	Single Fan Wings.	Artifi- cial Dryers	Length of fire canals worked with fan draught.	Total output of these works in bricks of 25 x 12 x 6,5 cm.
Works in Operation. . .	132	133	170	95	Meter 12795,00	732,500,000
Works in Construction.	16	14	15	13	1460,00	79,000,000
Total Amounts.	148	147	185	108	14255,00	811,500,000

Record of a Six-Track King Radiated Heat Dryer.

"This dryer has tunnels 110 feet long, and is in operation on the brickyard of W. Benj. Davis, Manchester, Va. Dryer has been in use 17 months with no expense for repairs on dryer or cars; present condition of each is excellent. Use three men to move cars from machine into dryer, attend furnaces night and day and take cars out of tunnel ready for the setters. Consumes $2\frac{1}{2}$ tons of coal each twenty-four hours. Highest temperature in tunnels 136 degrees. Number of brick dried as taken from Mr. Davis's books:

1908—June 8, 44,520. June 9, 48,230. June 10, 42,930. June 11, 37,100. June 12, 42,400. June 13, 32,330. Brick dried in six consecutive days 247,510, an average of 41,251 each day."

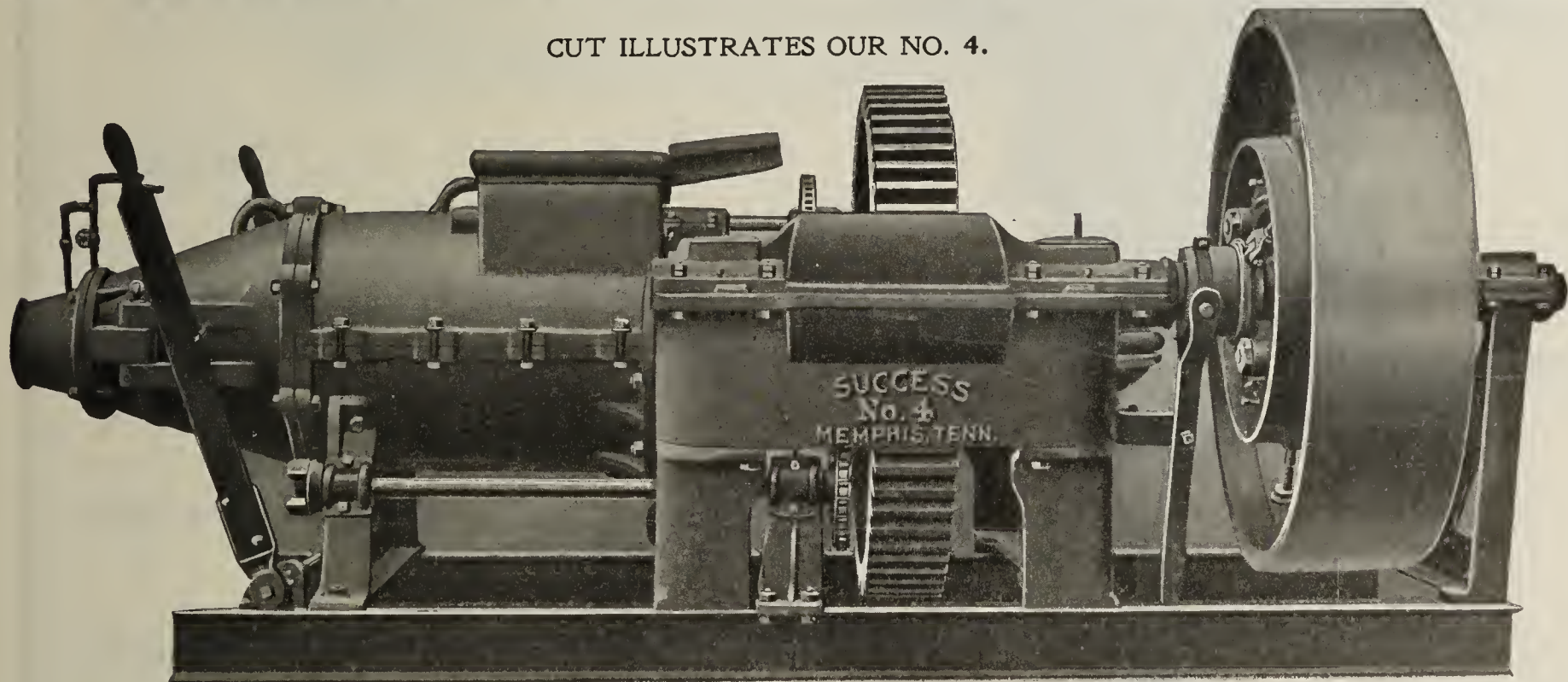
The above are extracts from a letter written Sept. 26, by Mr. J. W. Holt, manager of Mr Davis's brickyard.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

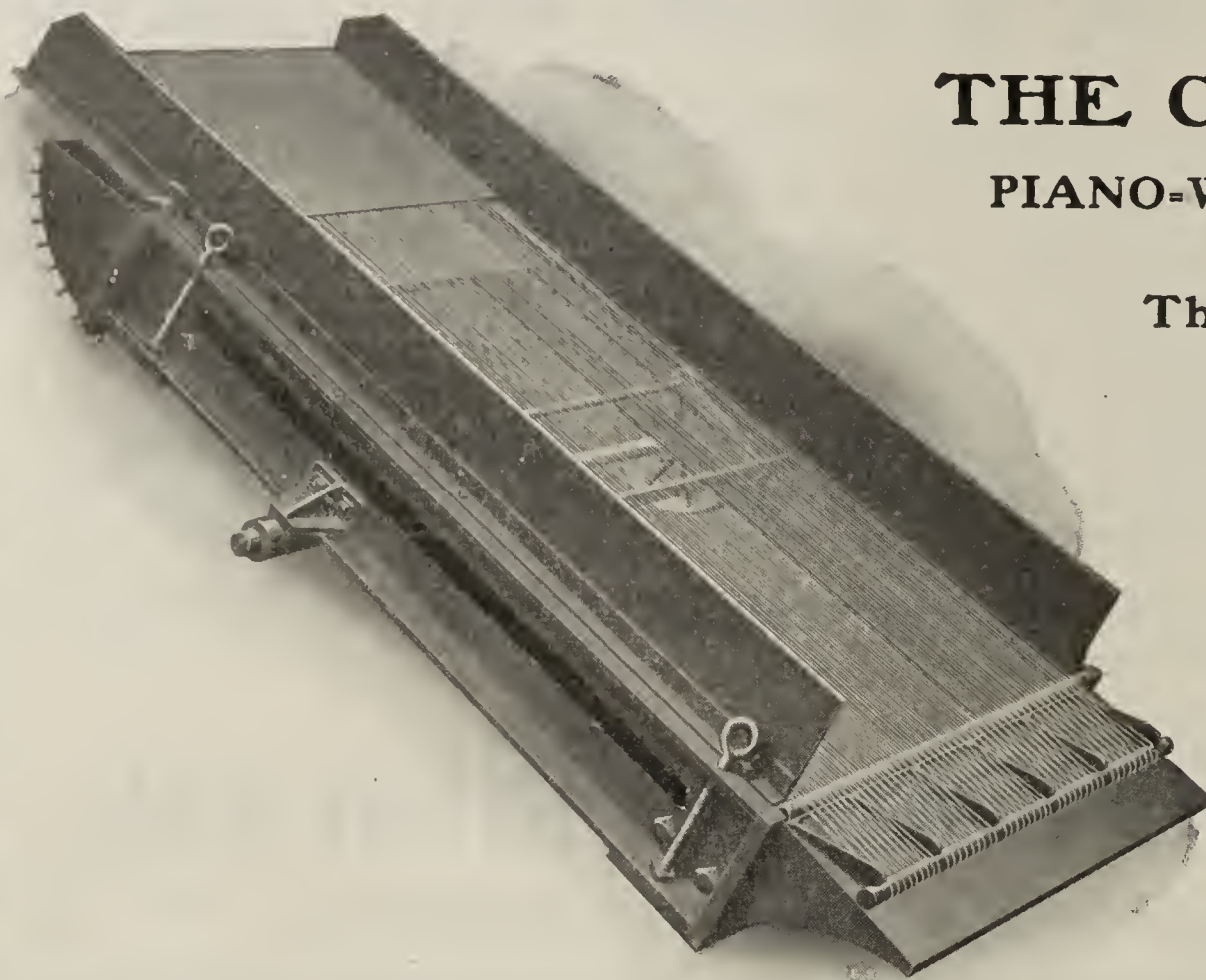
Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

TWO NECESSITIES

For the Manufacturer Using Pulverized Clay or Shale.

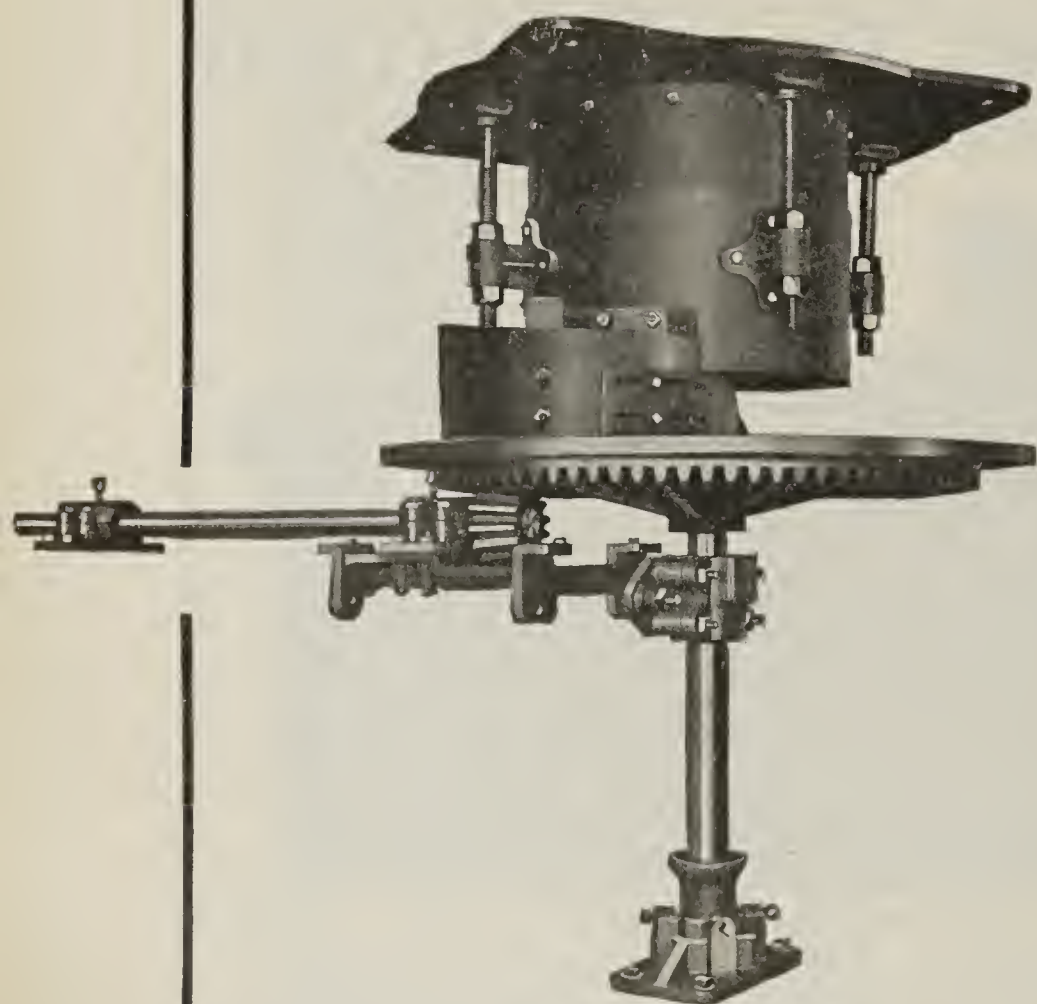


THE COLUMBUS PIANO-WIRE SCREEN.

The Best Made.

Five Sizes.
Any Mesh.

See Our Catalog
for
Superior Features.



THE COLUMBUS FEEDER.

Nothing Equal to It for Feeding
Pug Mill.

Uniform Feed—Even Tempering.

Made for Any Capacity.

Also Used in Sand-Lime Brick and
Cement Factories.

For further information of this simple
and most efficient machine see
our catalog.

THE CERAMIC SUPPLY AND CONSTRUCTION CO.,

Contracting Engineers and Machinists.

280 North Front Street, Columbus, Ohio.

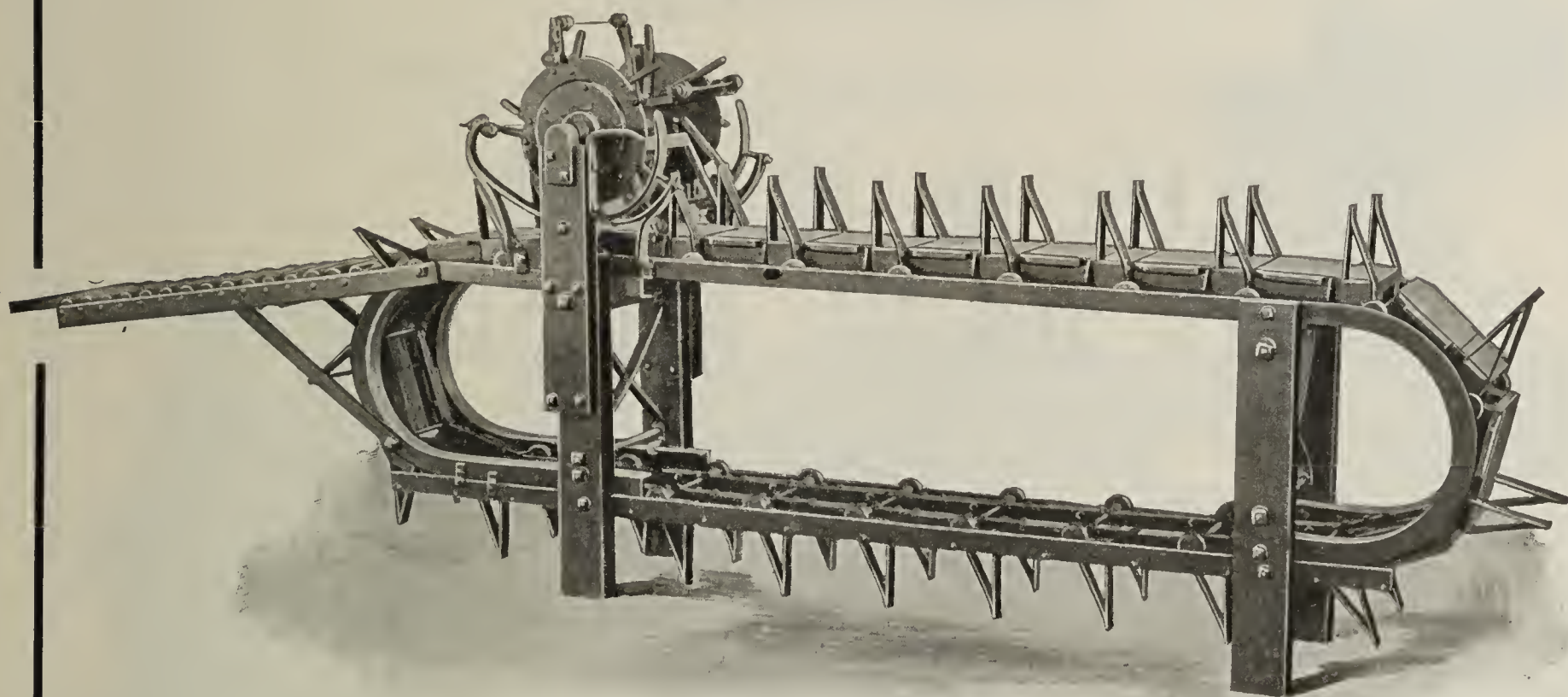
The Kindest Cut of All

It's Kind Because It's True and It's the Truest of Its Kind

The Cut of The Bechtel "Simplicity" Cutter

Automatic in Action. Efficient in Operation. The Peer of Cutting Tables

The addition of a "Simplicity" Cutter to your plant will subtract your troubles, multiply your profits and divide your clay column with mathematical exactitude



The "Simplicity" Cutter.

Georgia's Dry==But Brick Dried

In a Bechtel Carless Dryer are in the dryest state of all

NO CARS

NO CARES

The P. D. Q. Dryer Gives Best Drying Results at Lowest Cost of Installation, Operation and Maintenance

Buy the Bechtel Cutter and Dryer and you will KUTRITE, DRYRITE, BUY-RITE. Soft Mud, Stiff Mud and Dry Press Machinery. Write for catalog and description of our lines to

Bechtels Limited

Dept. C.

WATERLOO, ONTARIO, CANADA

WONDERFUL!

The Greatest Money=Saver
Ever Introduced on a
Brick or Tile Plant.

Use the McKissick Brick and Tile Kiln Steam Boiler

Patented June 30, 1908,

which utilizes the waste heat from the kilns and saves 80 to 100 per cent of the boiler room fuel. This system has been in successful operation at the plant of the Carlisle Brick and Tile Works, Carlisle, Ia , for the past seven months.

Write for further information and blue prints concerning its workings.

W.L.McKISSICK & CO.,

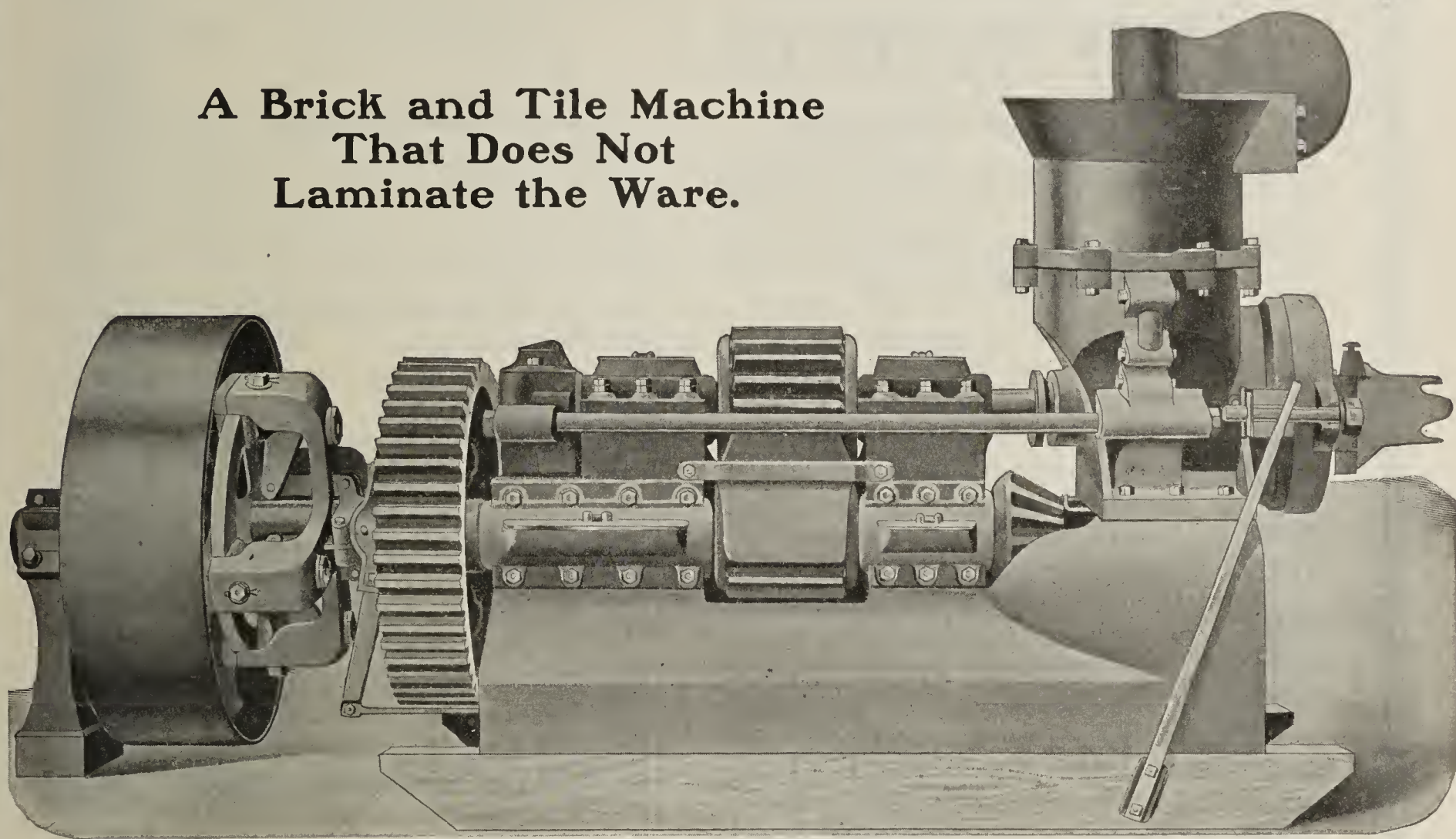
Carlisle, Iowa.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

GRUMIAUX



The Magazine Man
LET ME TEACH YOU

The Magazine Subscription Game
A BUSINESS WITH A BIG FUTURE
How I Developed My Business From \$47
to \$400,000 a Year

The subscription agency business is just beginning to develop, and every man and woman can learn it by my complete instructions, personally conducted by mail. You can in your leisure hours conduct a mail-order business that is dignified and earn **large profits** by the **Grumiaux System**.

Begin in a small way and watch it grow. The principles upon which I built my business becomes yours and the benefits of my 22 years' experience—you need not make the mistakes I did—the elements of success as I discovered them, my ideas, my schemes, all become yours through the **Grumiaux System**.

Year after year, the renewal business increases profits and before you know it, you have a substantial business of your own. Start by working a few hours evenings.

Full particulars by mentioning this magazine.

Ask for Our Complete 64-Page Catalog. It's Free.

We Can Save You Money

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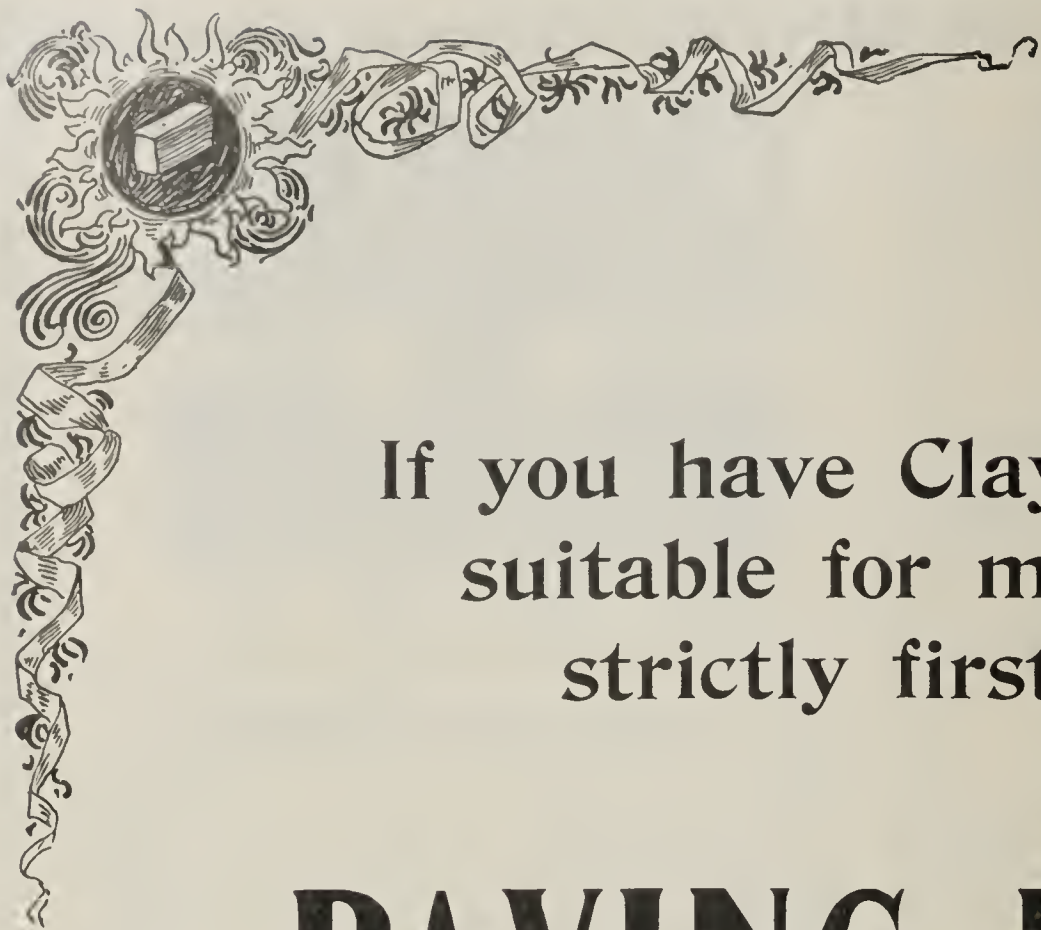
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Address All Orders to

The Grumiaux News and Subscription Co., Le Roy, N.Y.



If you have Clay or Shale
suitable for making a
strictly first-class

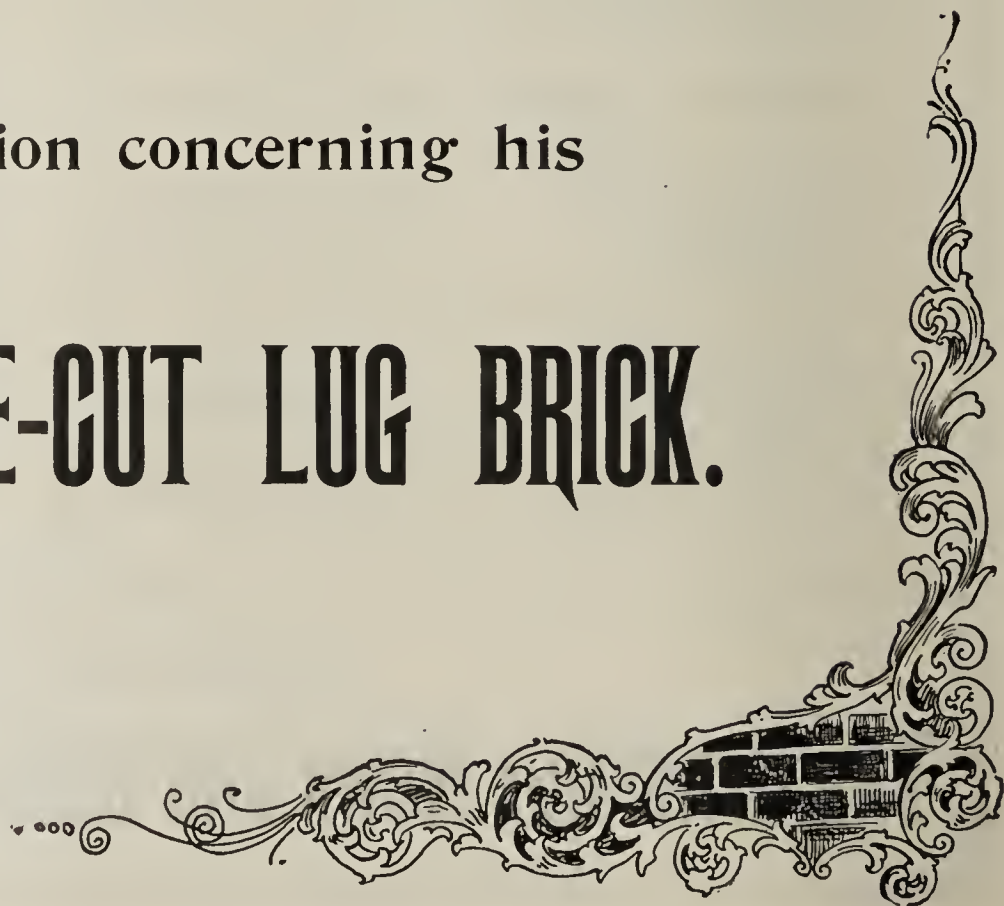
PAVING BRICK

Write at once to

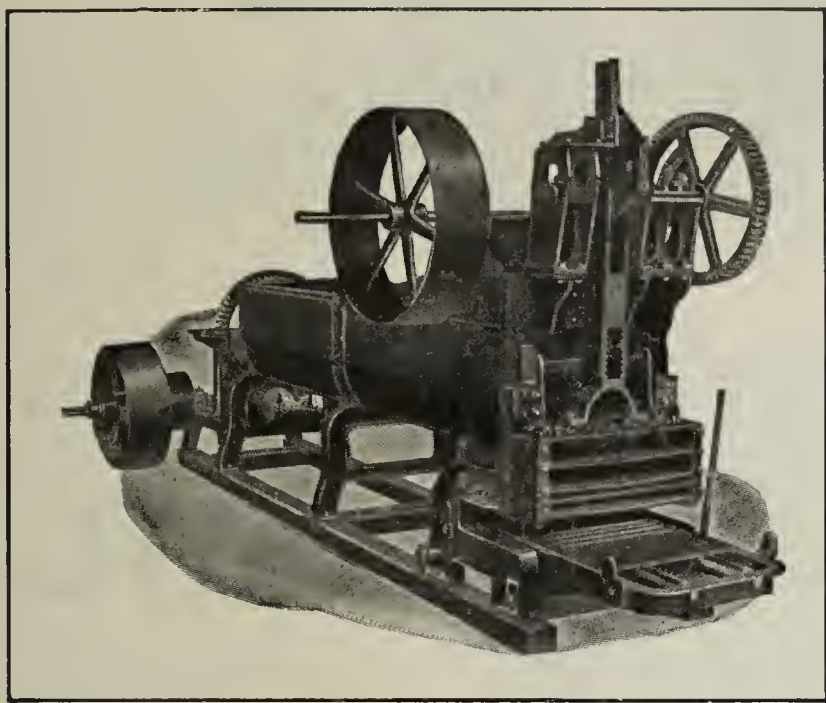
FRANK B. DUNN,
CONNEAUT, OHIO,

For information concerning his

PATENT WIRE-CUT LUG BRICK.



SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.
No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

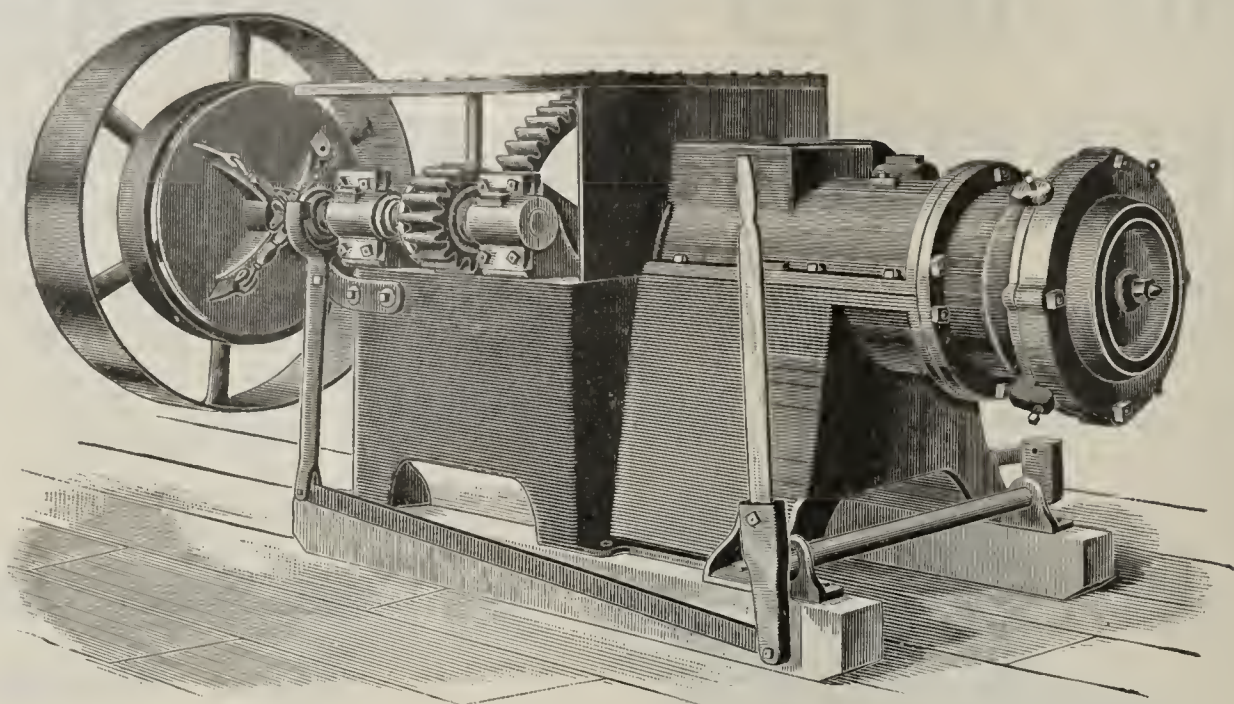
We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.



NO. 25 LEADER BRICK AND TILE MACHINE.

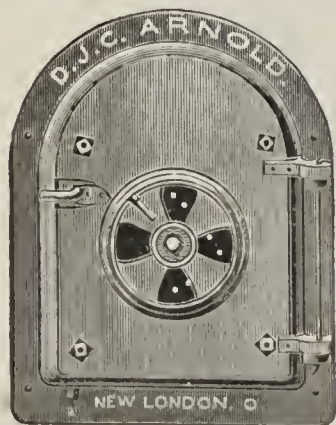
We Are Not

THE ONLY PEBBLE

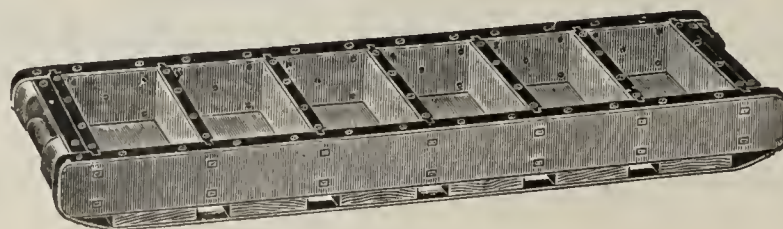
on the beach. Nor are we the only people supplying the needs of clayworkers. And to be honest, we are glad of it. We do not care to be a monopoly for several reasons. It would put too many temptations in our way. We might make our prices unreasonable. We might produce inferior goods. We would have to supply those people who want something CHEAP—who see everything in the price, and nothing in quality, efficiency or durability. That does not appeal to us now. Half the pleasure we get in life comes in letters from satisfied customers. Those who buy cheap goods are not of that sort. It is not possible to get a good article for a small price, although you may pay a big price for a poor one. Cheap goods generally have a brief and unsatisfactory existence. They please no one—neither the manufacturer, the buyer or the user.

Kind reader, if you have used Arnold-Creager goods, tell us how you liked them, for that will please US. If you are not using them, it is time to begin, for they will please YOU. You will find that you have been missing half the fun in your business—the satisfaction of knowing that your equipment will stand by you, that this or that thing is not going to give out when you need it most. Of course our goods WEAR out in time, but they give full and generous value in the service. Whatever you need on your brick or tile yard, just address

The Arnold-Creager Co., New London, Ohio.



KILN DOOR



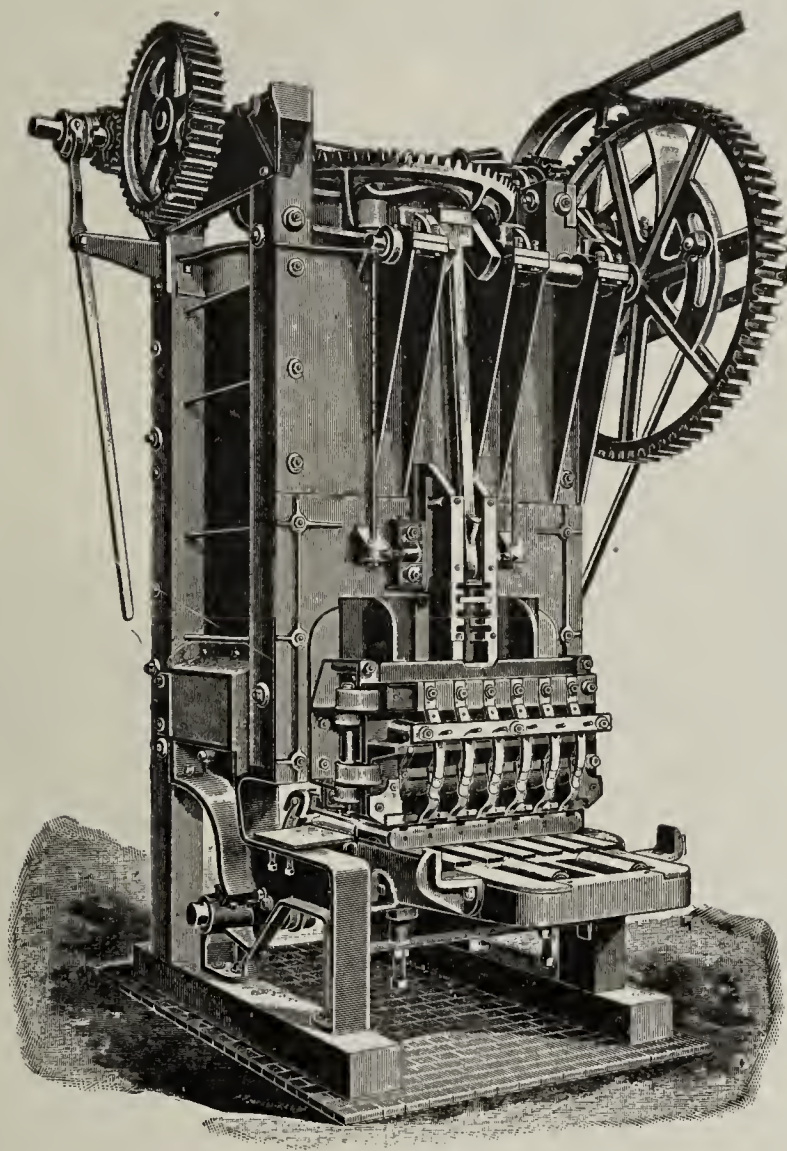
MACHINE MOULD
STEEL LINED FULL DEPTH AT ENDS
OF BRICK.



TRUCK WHEEL

EARNING CAPACITY.

The thing which gives value to any machine is its earning capacity. The earning capacity of brick machinery depends as much on strength and thorough construction as anything. Most brickmakers have learned this in the expensive School of Experience. When a machine is broken down its earning capacity and its value is gone. Continued results, therefore, determine the economic value of a machine, rather than first cost. On this basis "New Haven" Machines have proven to be the least expensive on the market.



"New Haven" Vertical Brick Machine.

Because of their simplicity, unusual strength, and excellent construction, "New Haven" Vertical Brick Machines are seldom out of repair, and hence earn more and are much more valuable to their owners than the light weight affairs that break so often. They do better work than is possible with less powerful machines. It will pay any prospective buyer to think seriously about this matter of earning capacity, and look into the merits of the "New Haven" Machine from that point of view.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

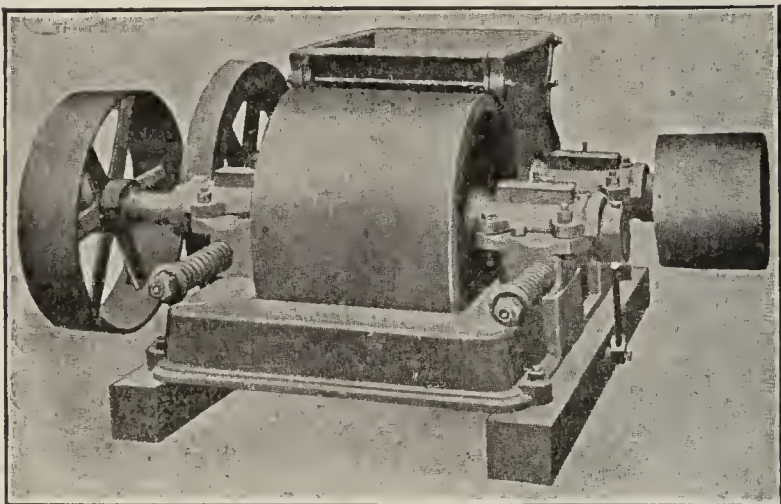
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



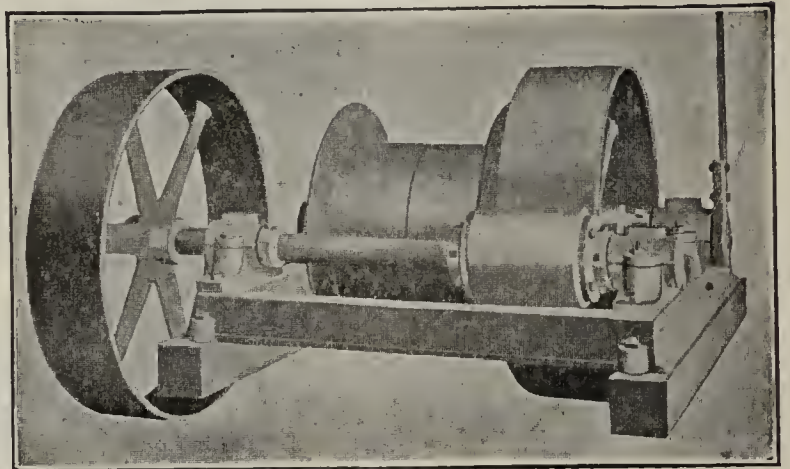
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

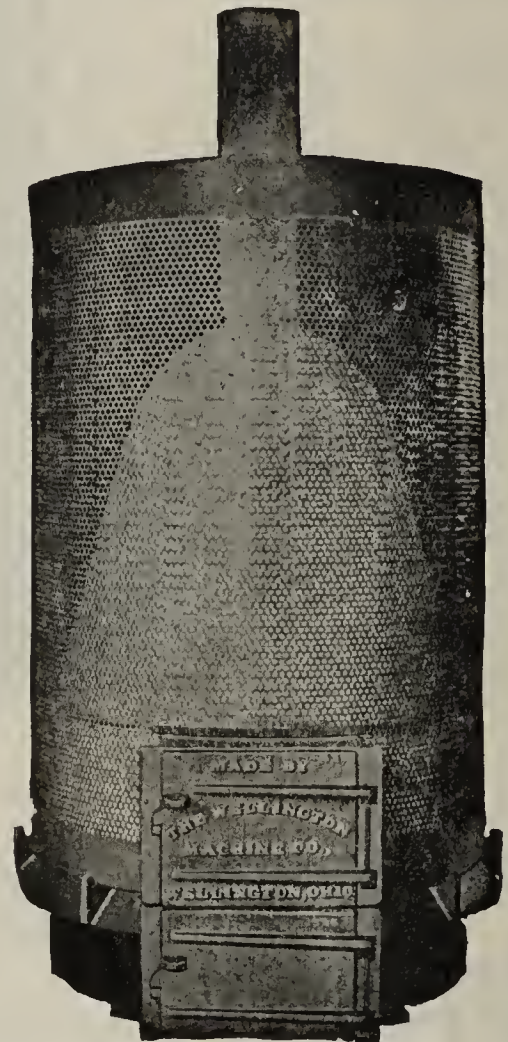
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1909 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

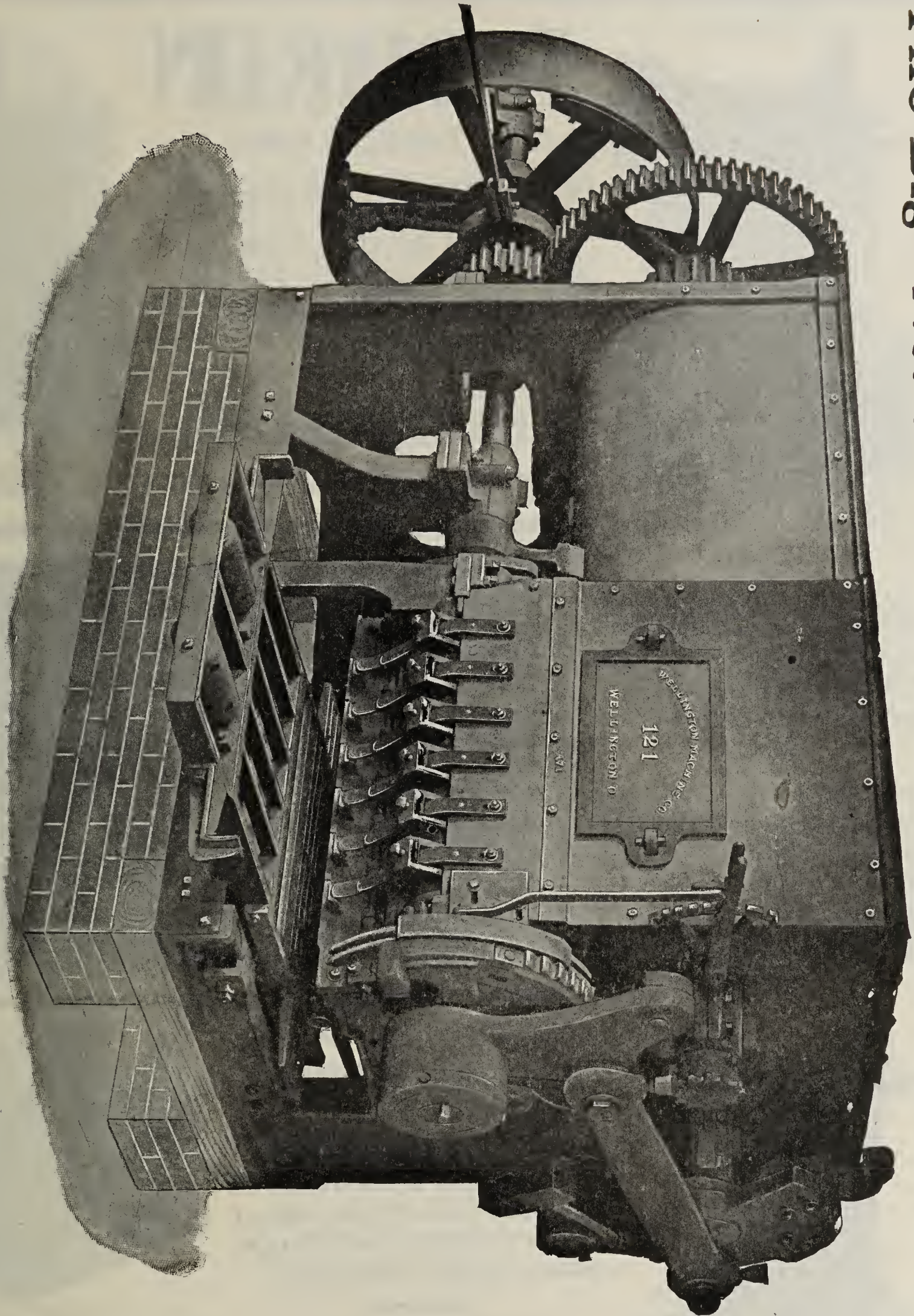
Indianapolis, Ind.

Mention The Clay-Worker.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

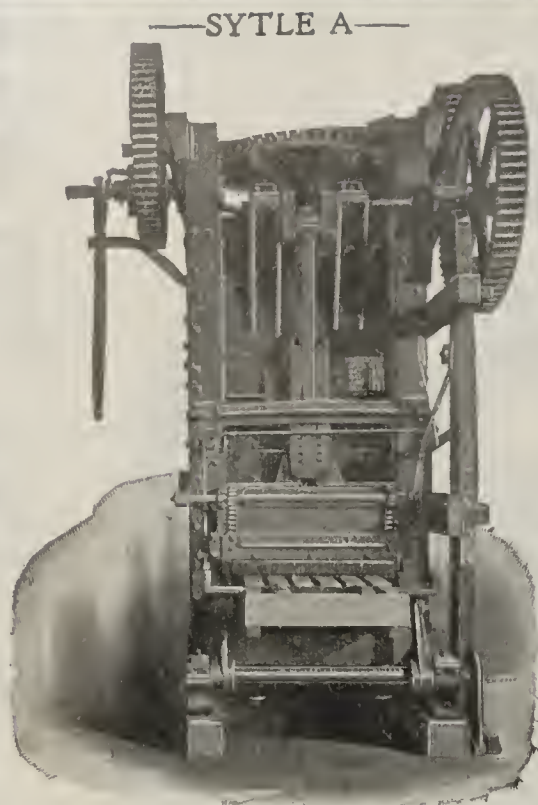
You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,
WELLINGTON,
OHIO.

Send for Catalogue.

Mention the Clay-Worker.



STEAM POWER BRICK MACHINE

This View Shows the  Handling of the Raw Materials to the "MARTIN" Patent Crusher==also to the Brick Machinery.

The "MARTIN" Company Have the Most Complete Line of Yard Supplies, Brick Moulds, Barrows, Trucks, Elevators, Cars, Conveyors, Dry or Wet Pans

THE "MARTIN"

UP-TO-DATE
Clay Working Machinery
IS BUILT FOR
WORK AND WEAR

WE ARE BUILDERS OF
BRICK PLANTS FOR THE
MANUFACTURE
OF HIGH GRADE BUILDING BRICK

MARTIN
SAND DRYER

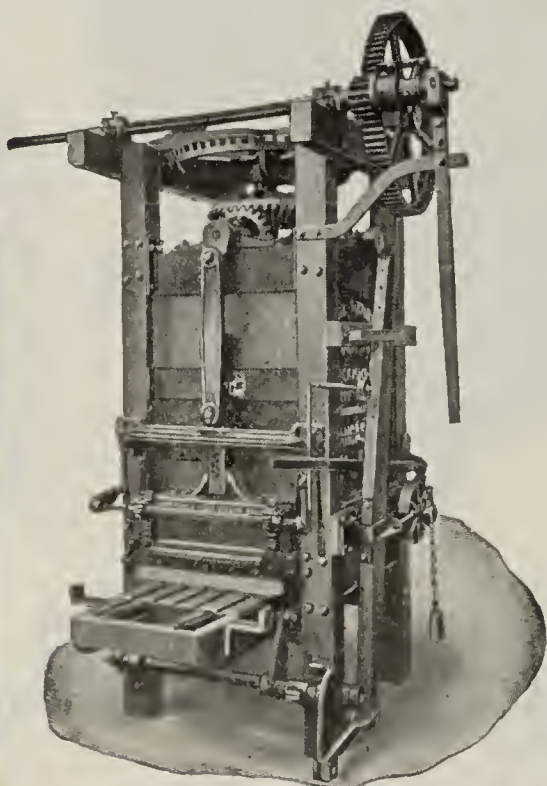
— THAT'S US —

"WE FURNISH EVERYTHING
THE BRICKMAKER NEEDS"

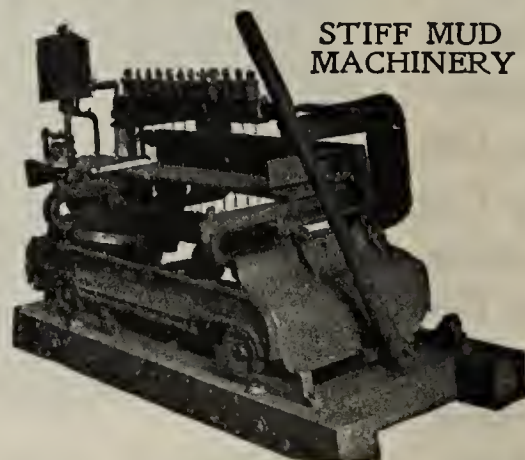
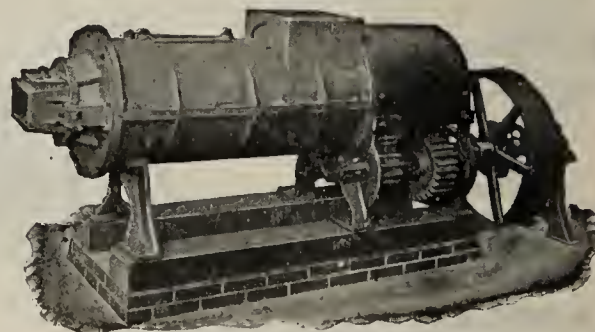
Let Us Talk it Over?
We Are in a Position to
Handle Your Order Most
Satisfactory and Guar-
antee Good Results.

DROP US A LINE

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "B" BRICK MACHINE

STIFF MUD
MACHINERY



ANIMAL POWER
BRICK MACHINERY

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

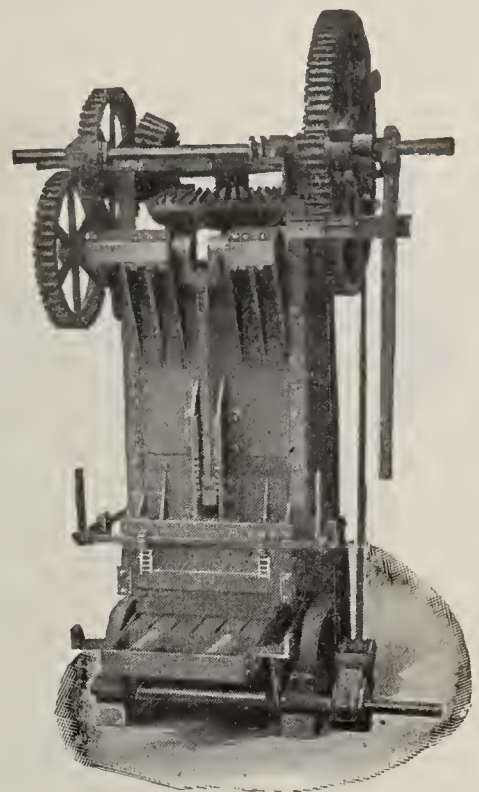
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PATENTED

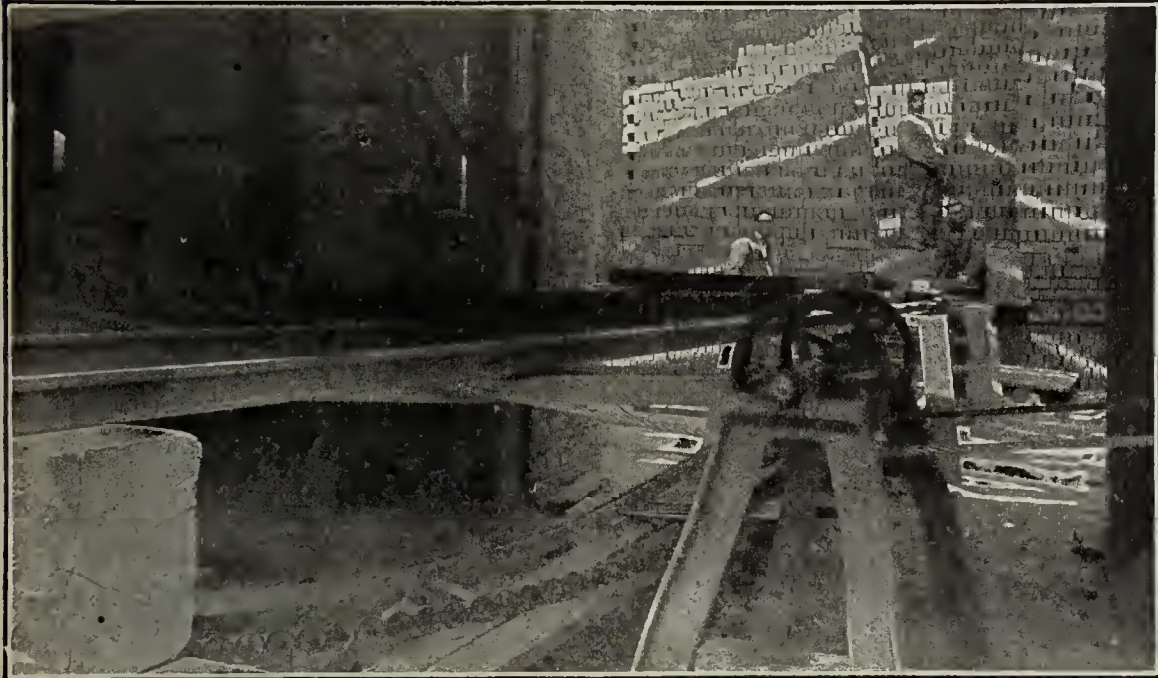
Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

UNITED STATES & CANADA

—STYLE "P"—

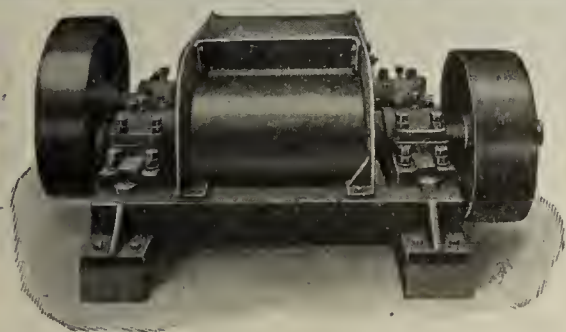


STEAM POWER BRICK MACHINE



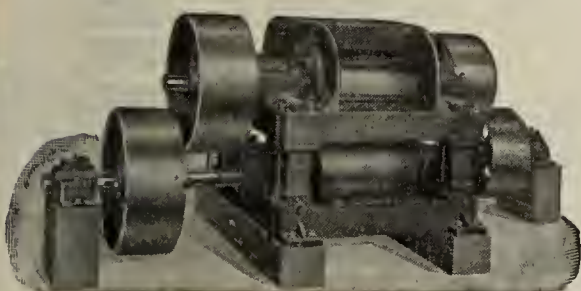
— This View Shows the
Dried Brick Coming From
A "Martin Patent System"
Steam Brick Dryer to
the Kilns == Labor Saving

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem == Quick to Install and
Low in Price == Investigate



TWO-ROLL DISINTEGRATOR
—PATENTED—

FOUR-ROLL DISINTEGRATOR



THE "MARTIN" COMPANY
AT LANCASTER, PA.

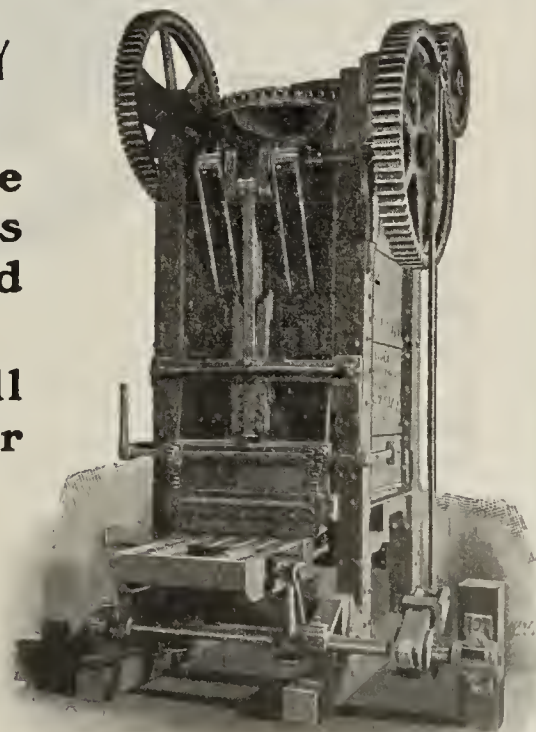
Own and Control These
Important Dryer Patents
and Have Authorized

— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE

OUR NEW 1909 MODEL ANDERSON GIANT



Is positively the last word on Soft Mud Brick Machinery. A Giant in both strength and capacity, embodying the latest and most up-to-date improvements, it is the result of our thirty-six years' experience in the manufacture of this class of machinery. Write to-day for our illustrated booklet containing a full description of this new machine. "It is free for the asking." We also manufacture a complete line of Dry Press Brick and Drain Tile Machinery and yard supplies of every description. Write us your needs and let us figure with you.

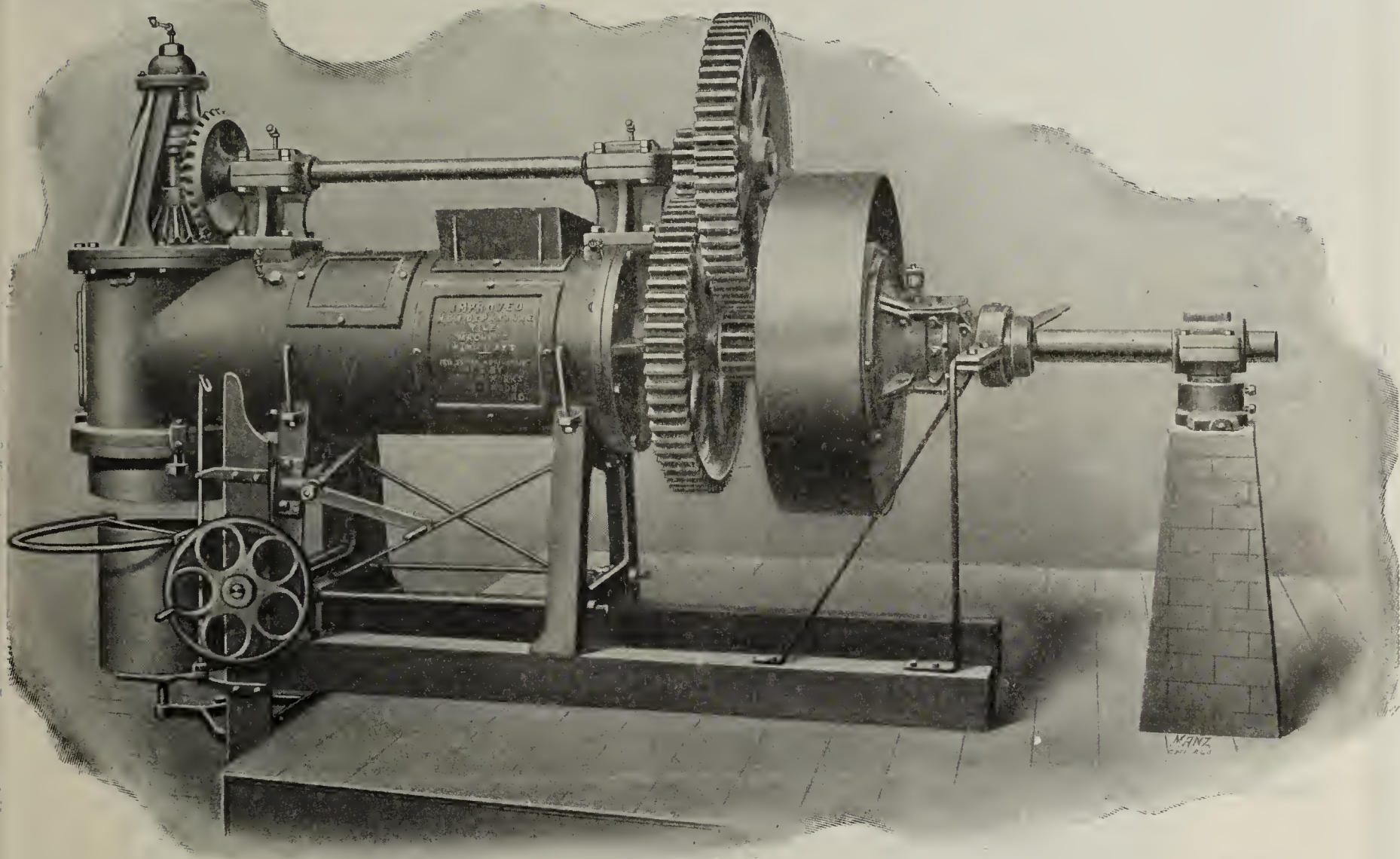
THE ANDERSON FOUNDRY & MACHINE WORKS,

Anderson, Ind., U. S. A.

Southwestern Headquarters, Wilson Building, Dallas, Texas.

1908 NEW DEPARTURE

**The Only Mill for
Making Successfully Tile from
3-in. to 24-in. Diameter.**

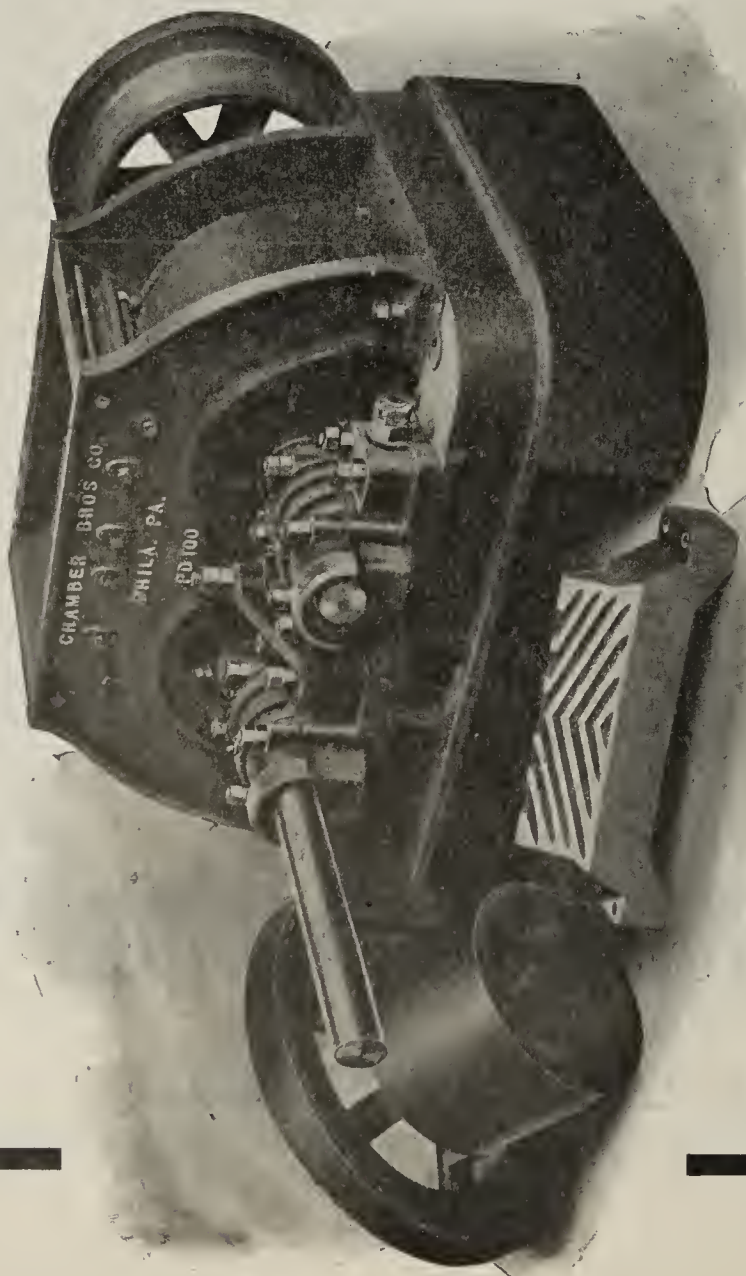


Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent. less than formerly. Write for new catalogue.

**The Anderson Foundry & Machine Works,
Anderson, Ind.**

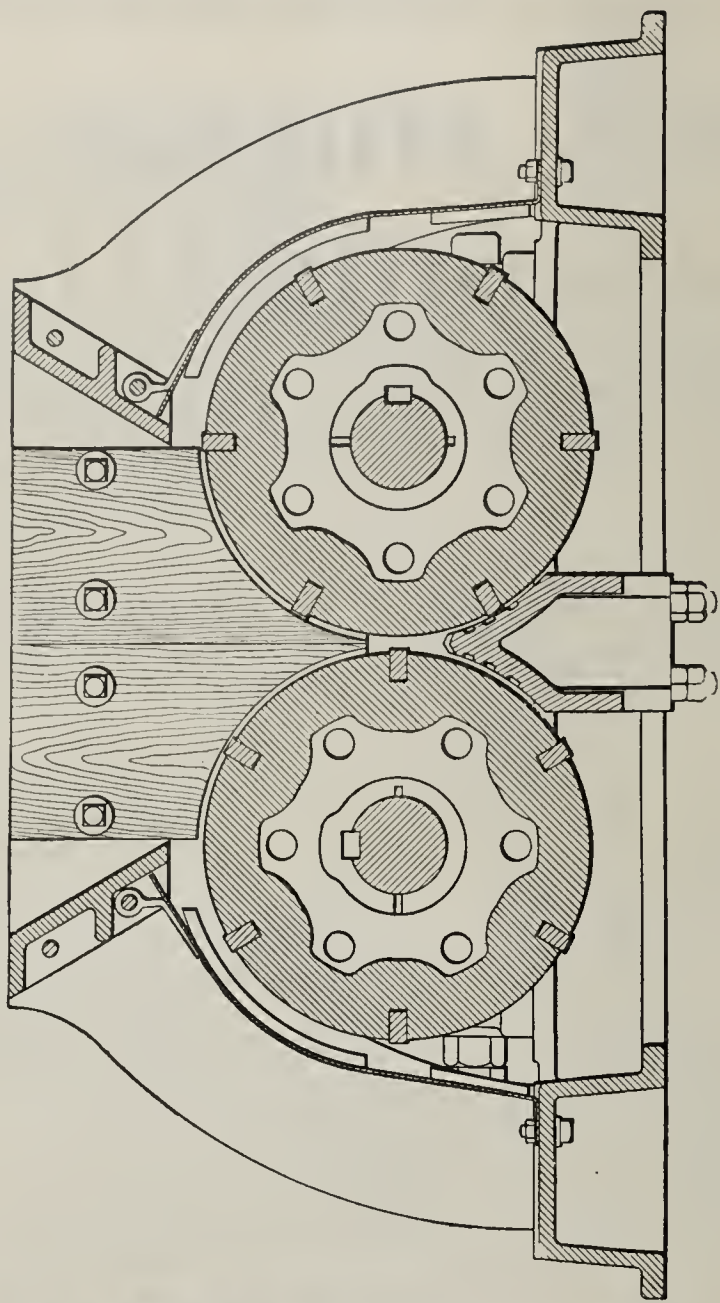
See ad on page 221.

Keystone Double Disintegrators.



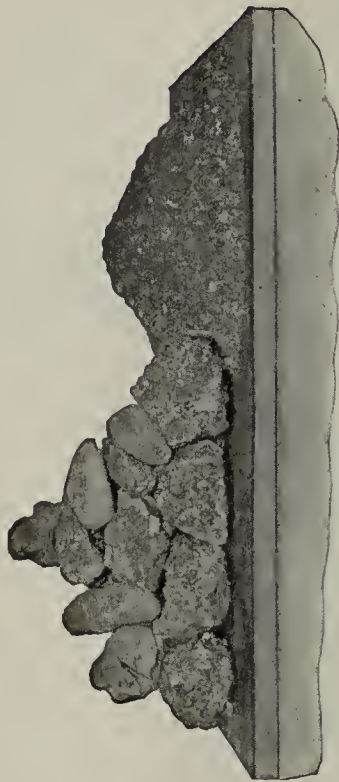
No. 30 Size Keystone.

For Grinding Clays, Wet or Dry, With or Without Stones, Pieces of Ore, etc.



Patents Applied For.

Grinding Tests Made on Full Size Machines for Intending Customers.

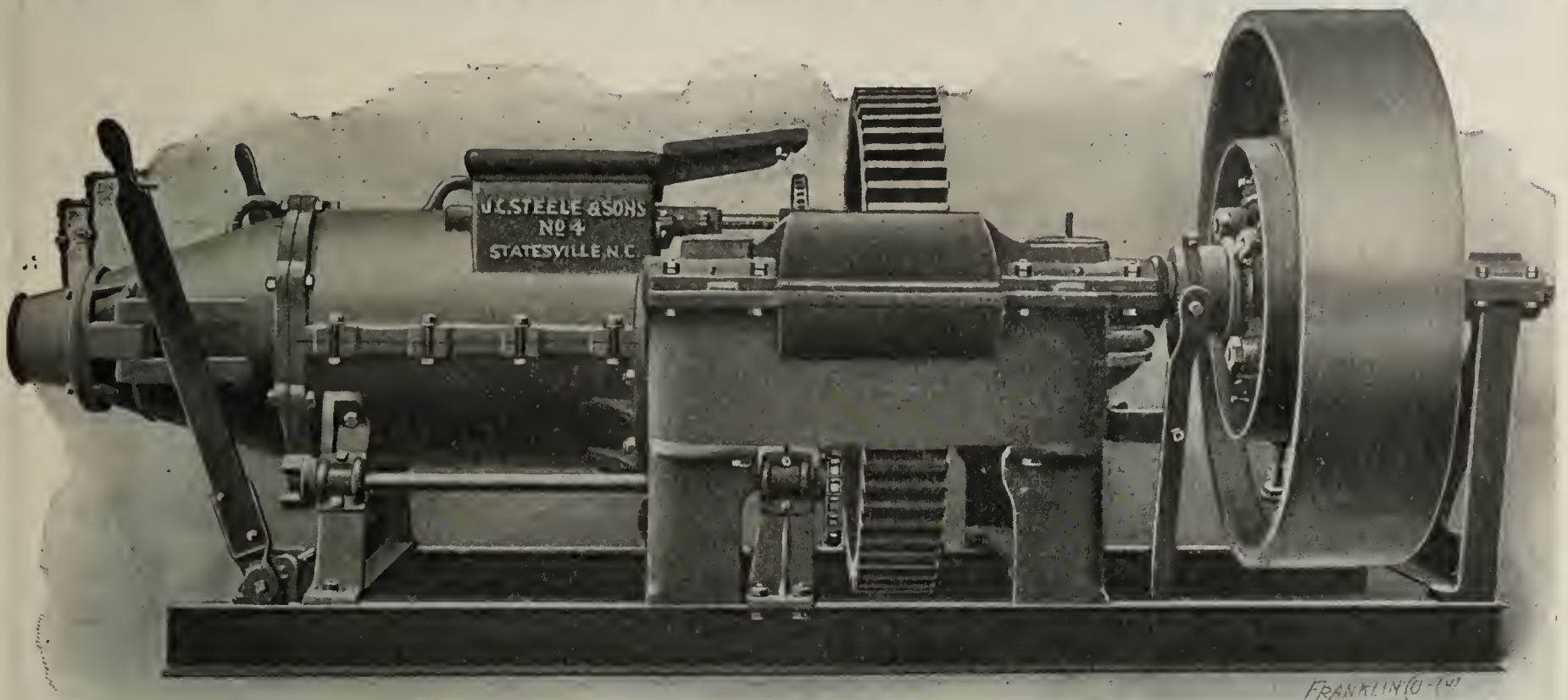


CHAMBERS BROTHERS COMPANY,

PHILADELPHIA, PA.

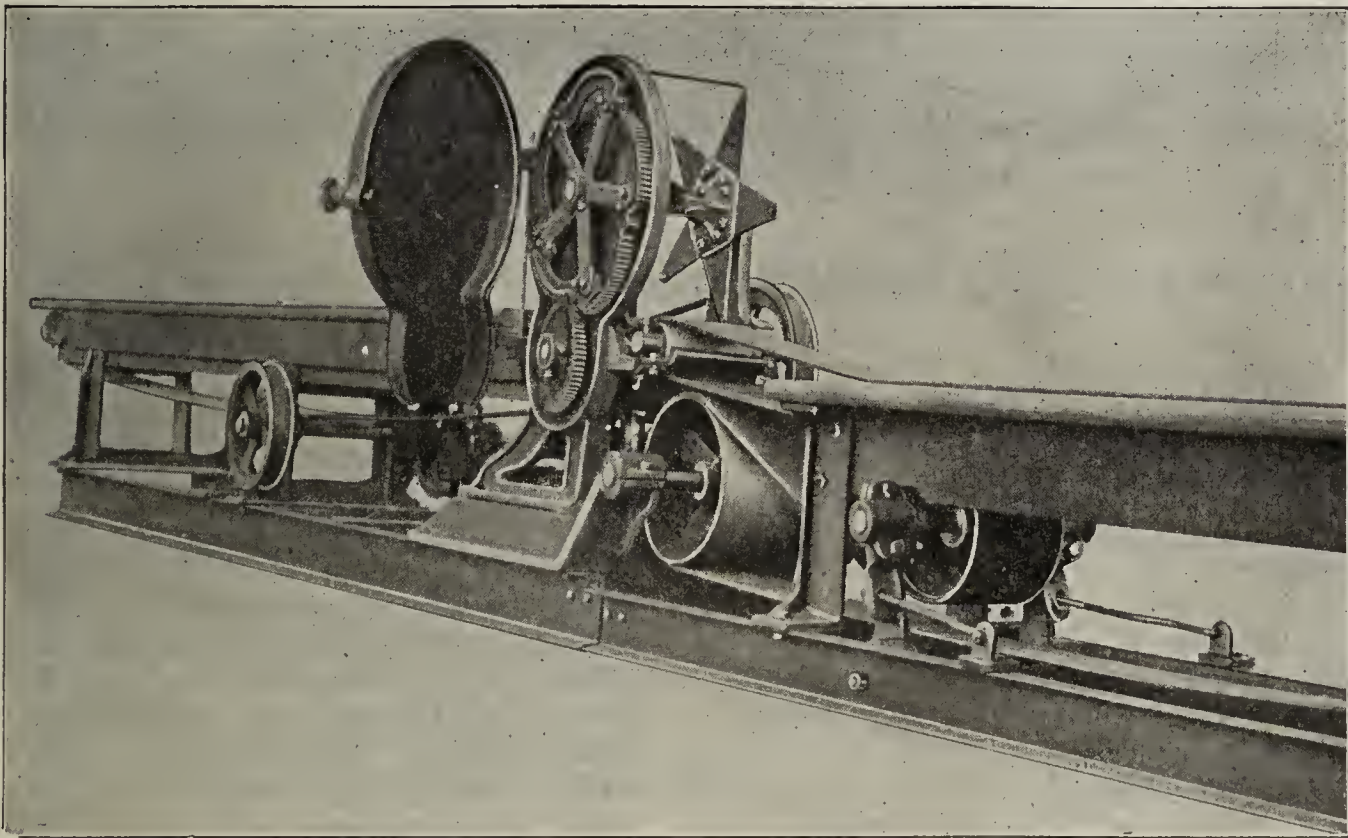
CHICAGO, ILL.

Ask the Man Who Owns One.



No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

J. C. STEELE & SONS
STATESVILLE, N. C.

The Youngren Gas Fired Continuous Kiln

ANNOUNCEMENT.

We are pleased to announce to the Brickmaking World that we have taken over all patents of the late Peter L. Youngren, of Milwaukee, Wisconsin, covering the Youngren Gas Fired Continuous Kiln and all other types of the Youngren Kiln.

The success of this kiln is now most thoroughly established. All who are interested in the installation of the Youngren Producer Gas, Gas Fired Continuous Kiln are invited to consult us for particulars regarding construction, operation and contracts of same.

The C. W. Raymond Co.,
Dayton, Ohio, U. S. A.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG

"Smiles"

Exhibits

- 2040. Heavy Duty Dry Pan.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Conveyors.
- 2047. Four-Roll Combination Crusher.
- 2049. Niagara Hollow Ware Machine.
- 2053. Bevel-Geared Pug Mills and Clay Granulators.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Press Machinery.
- 2063. Raymond System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Daytonian Brick Machine.
- 2075. Universal Semi-Automatic Cutter.
- 2078. Soft Mud Machinery.
- 2081. Automatic Wet Pan Emptier.
- 2083. No. 1 Rotary Automatic Cutter.

"Old Methods Discarded"

Exhibits

- 2084. Dryer Cars.
- 2085. Hand Dry Press.
- 2086. End-Cut Cutting Table.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.
- 2090. No. 2 Daytonian Brick Machine.
- 2091. Cup Elevators.
- 2092. Conical Roll Crusher.
- 2093. Piano Wire Screens.
- 2094. Single-Geared Pug Mill.
- 2095. No. 2 Rotary Automatic Cutter.
- 2096. "555" Brick Machine.
- 2097. Low Frame Dry Pan.
- 2098. Victor Repress.
- 2099. Radiated Heat Dryer.
- 2100. Standard Pug Mills.

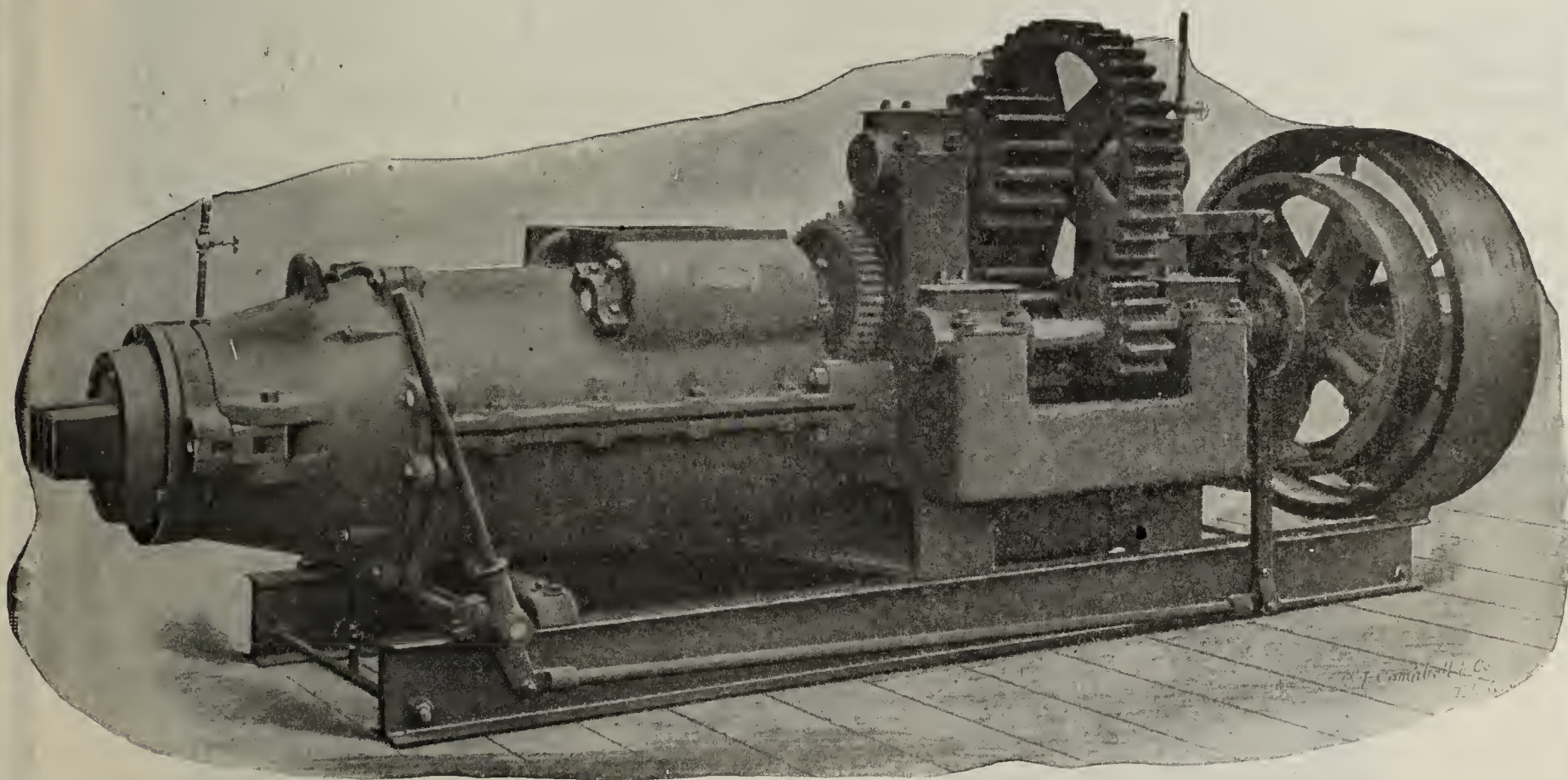
"Dry and Why"

Practical Tests and Chemical Analyses.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

HORIZONTAL BRICK MACHINES.

Brewer patterns embody all that is good. They have weight and strength in excess of any other models on the market, their design is modern to the minute and their efficiency the highest.



Some Features of Brewer Construction.

Gear frames cast in one piece. Back thrust bearings self-oiling, self-aligning and adjustable so that wear upon the expressing screw may be taken up. Knives forged from hard, high carbon steel; each one adjustable for pitch and can be set out as it wears. Journals self-oiling. A feed-roll to keep the hopper clear. Mounting, upon steel I-beams, self-contained.

There are three sizes ranging in weight from 5,500 to 15,000 pounds. In capacity from 1,000 to 5,000 bricks per hour.

Our catalog shows a full line of stiff-mud clayworking machines. It will be mailed upon request.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.

Modern Clayworking Machinery

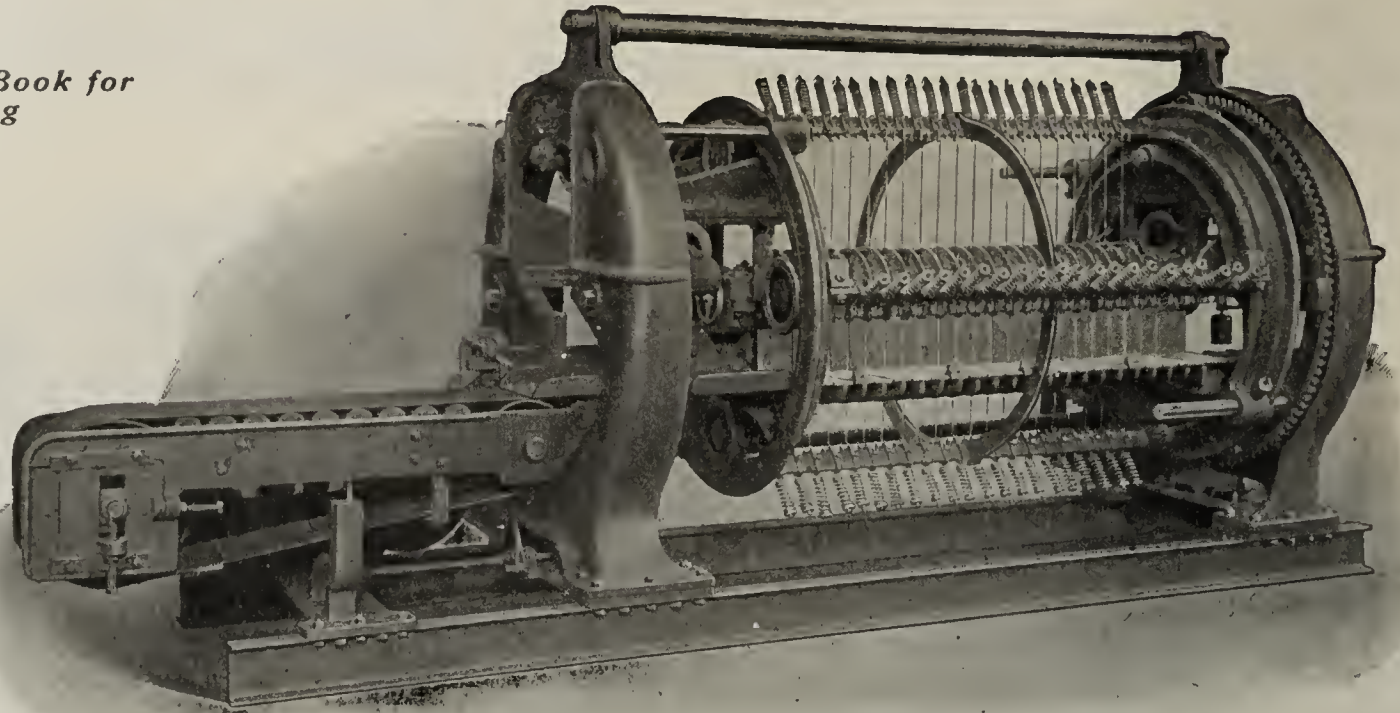
Complete Stiff-Mud Equipment

*Memorandum Book for
the asking*

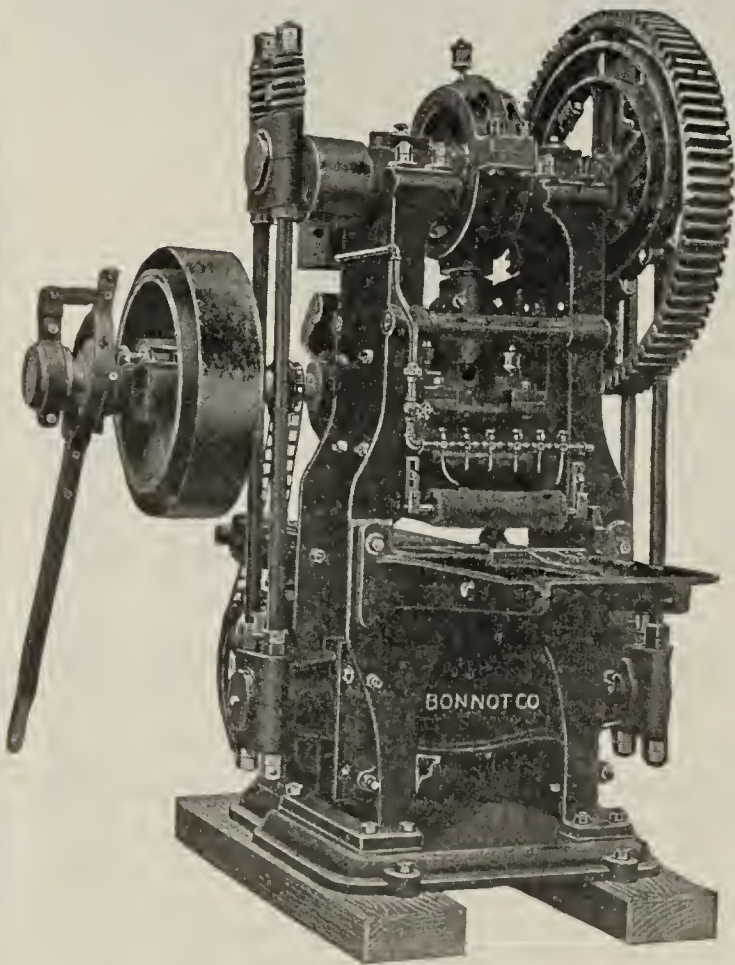
Self-Contained
Accessible
Simple-Cutting
Mechanism

All wearing
parts above
clay column and
out of dirt

Capacity
100,000 Brick
in 10 hours



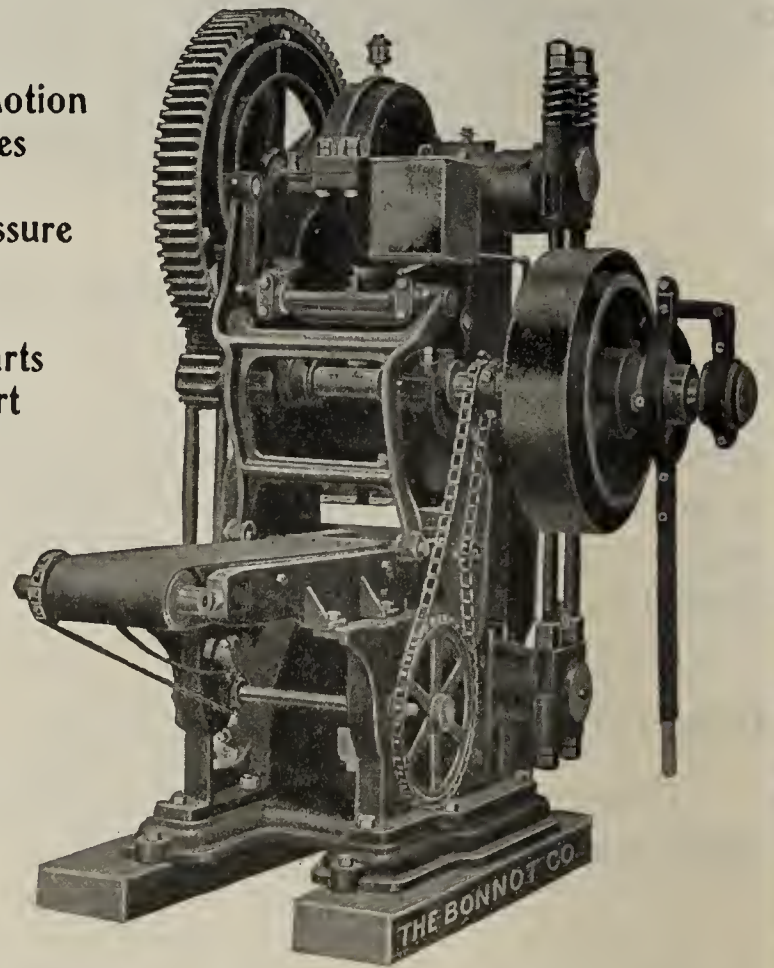
ROTARY AUTOMATIC CUTTING TABLE
Cuts Brick Within 30 Inches of Brick Machine Die



Continuous Motion
No Toggles

No High Pressure
Cams

Wearing Parts
Out of Dirt



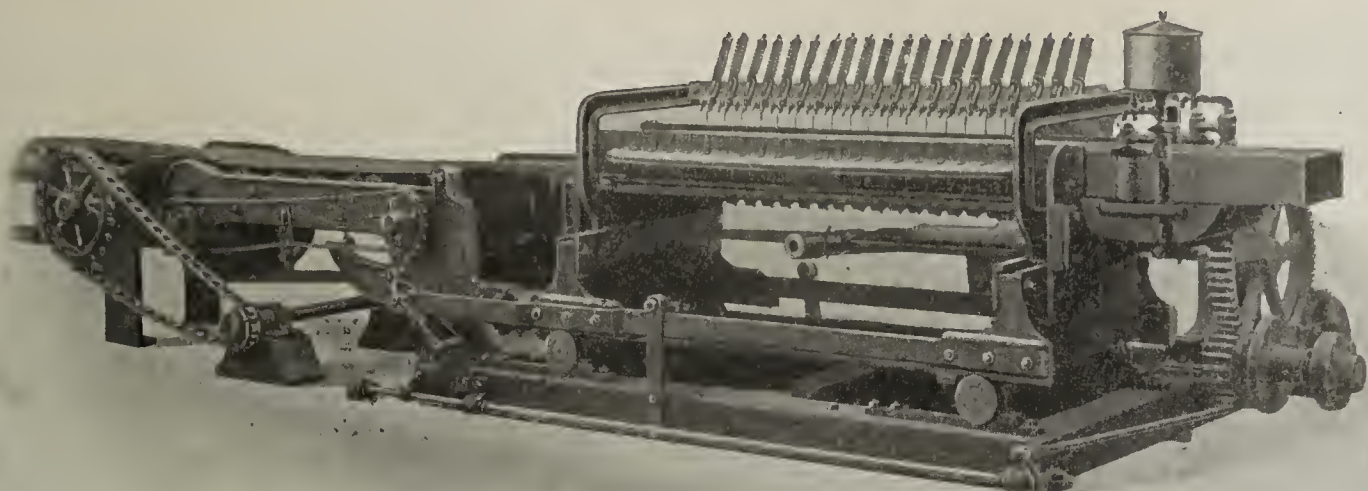
"CANTON" DOUBLE-DIE REPRESS

THE BONNOT COMPANY

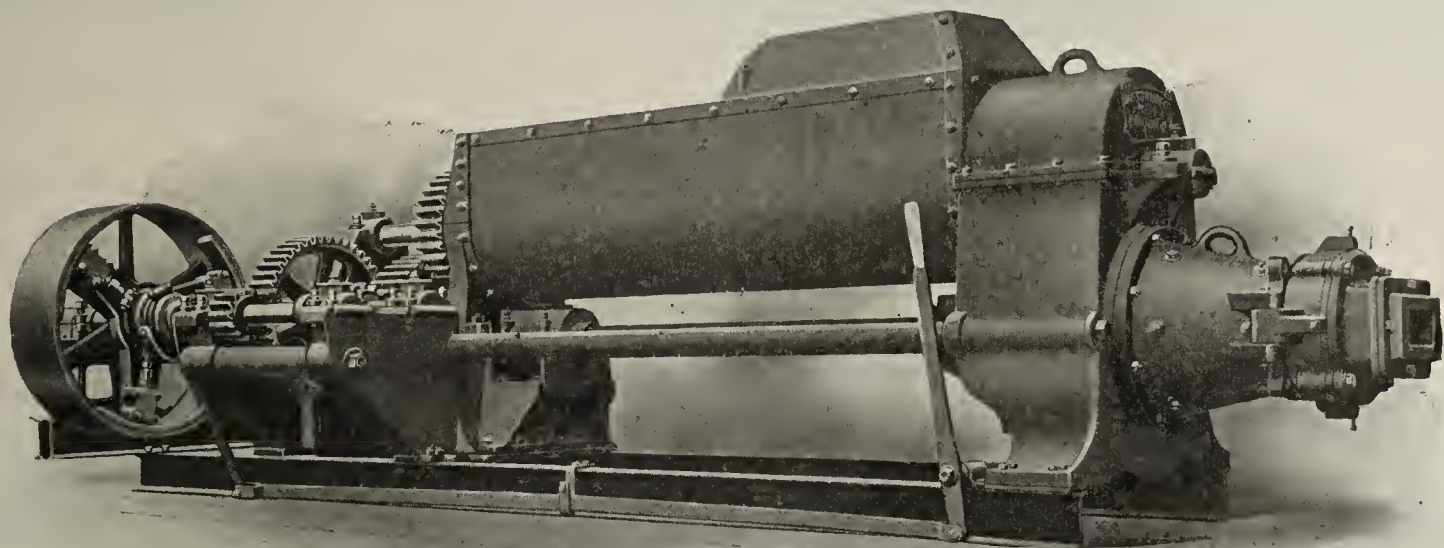
305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

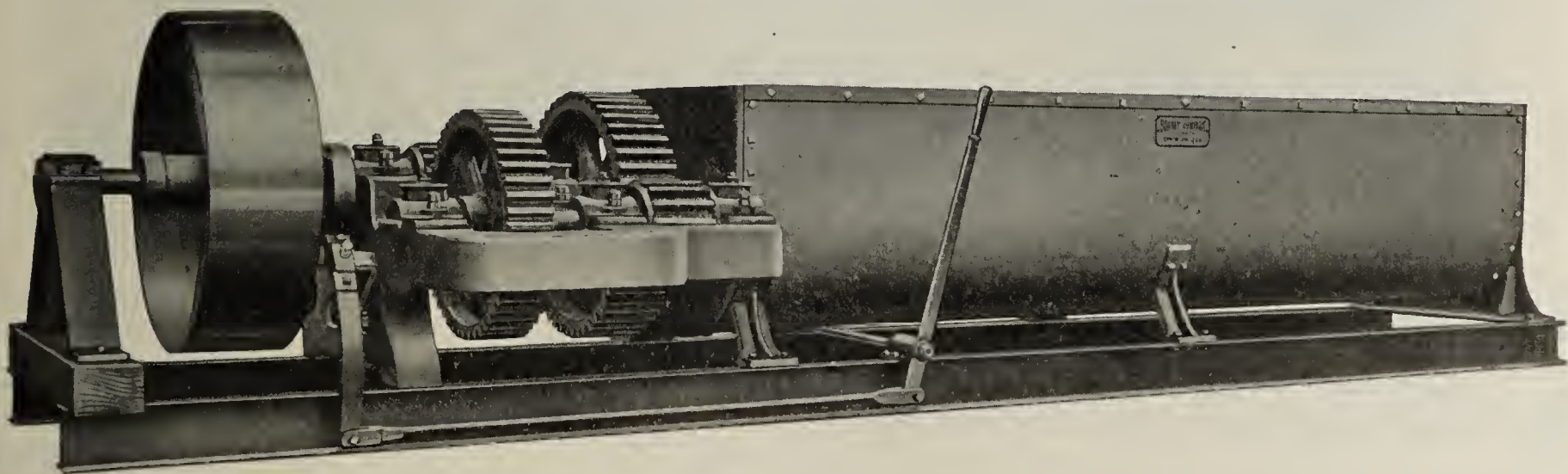
Modern Clayworking Machinery



Automatic Side Cut Table. Cuts Brick 26 Inches from the Die. Durable and Free from Trouble



No. 14 Combined Machine, 25,000 to 40,000 Capacity. We Have Combined Machines from 25,000 to 125,000 Daily Capacity



12-Foot Pug Mill for Heavy Duty

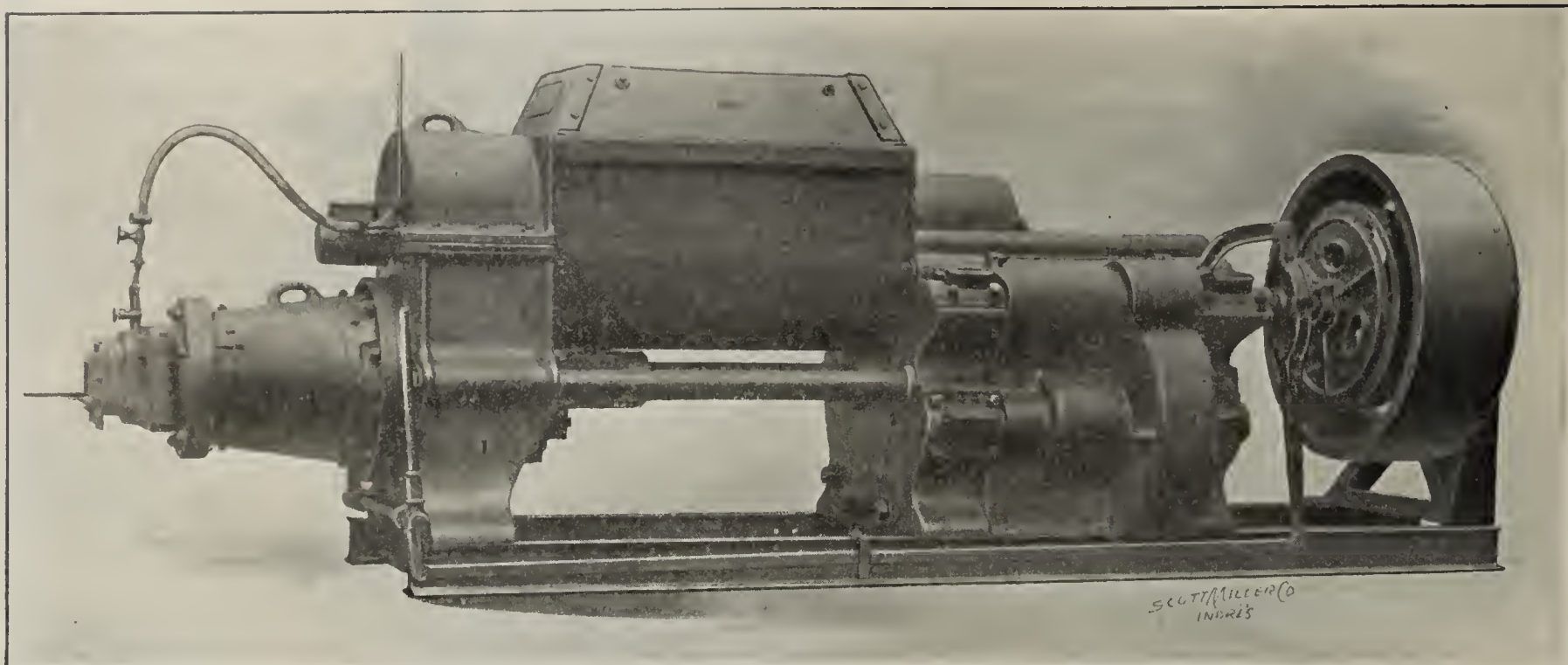
LET US FIGURE ON YOUR NEEDS. GET OUR NEW CATALOG. IT WILL INTEREST YOU

THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

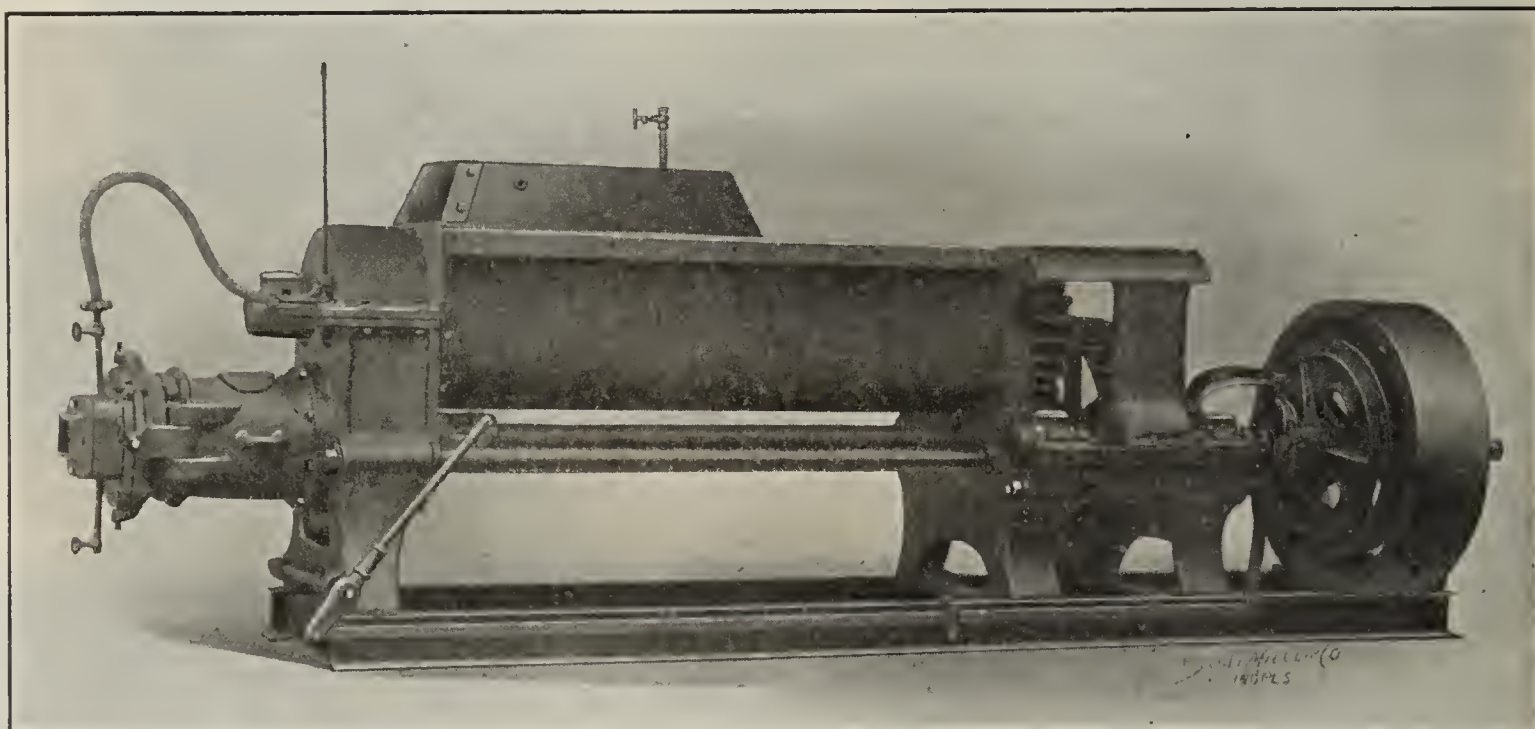
CANTON, OHIO

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill:

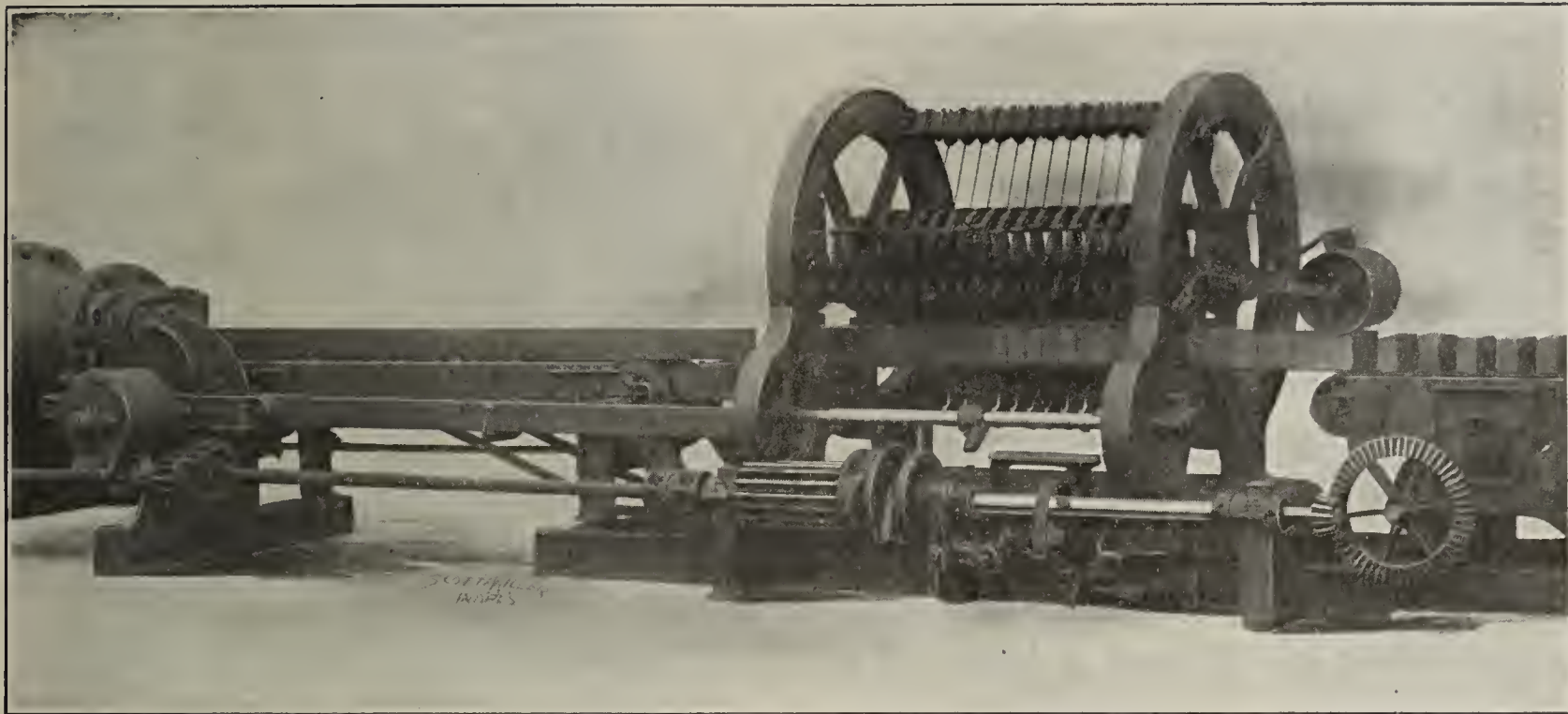
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

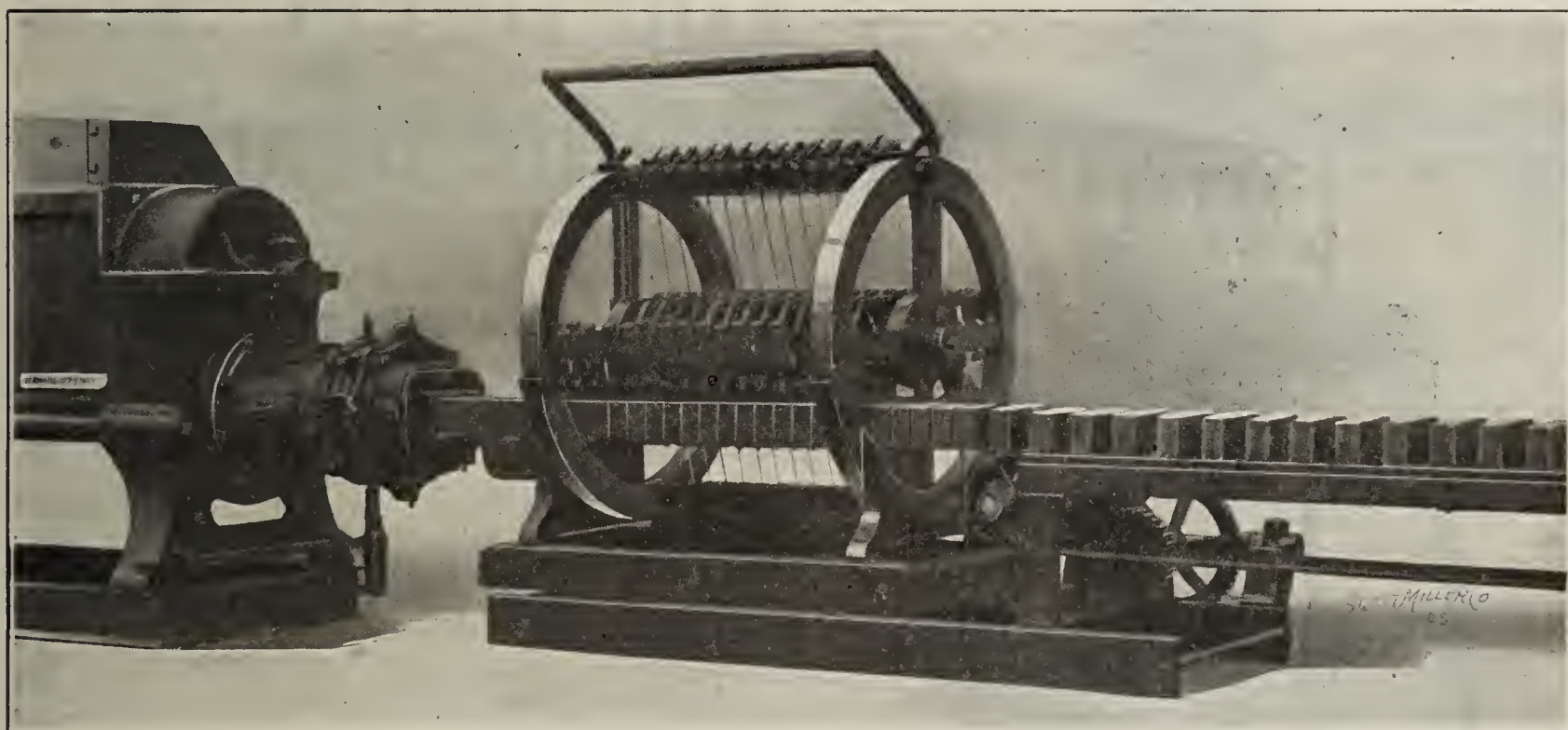
Galion, Ohio.

Write for Catalog.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

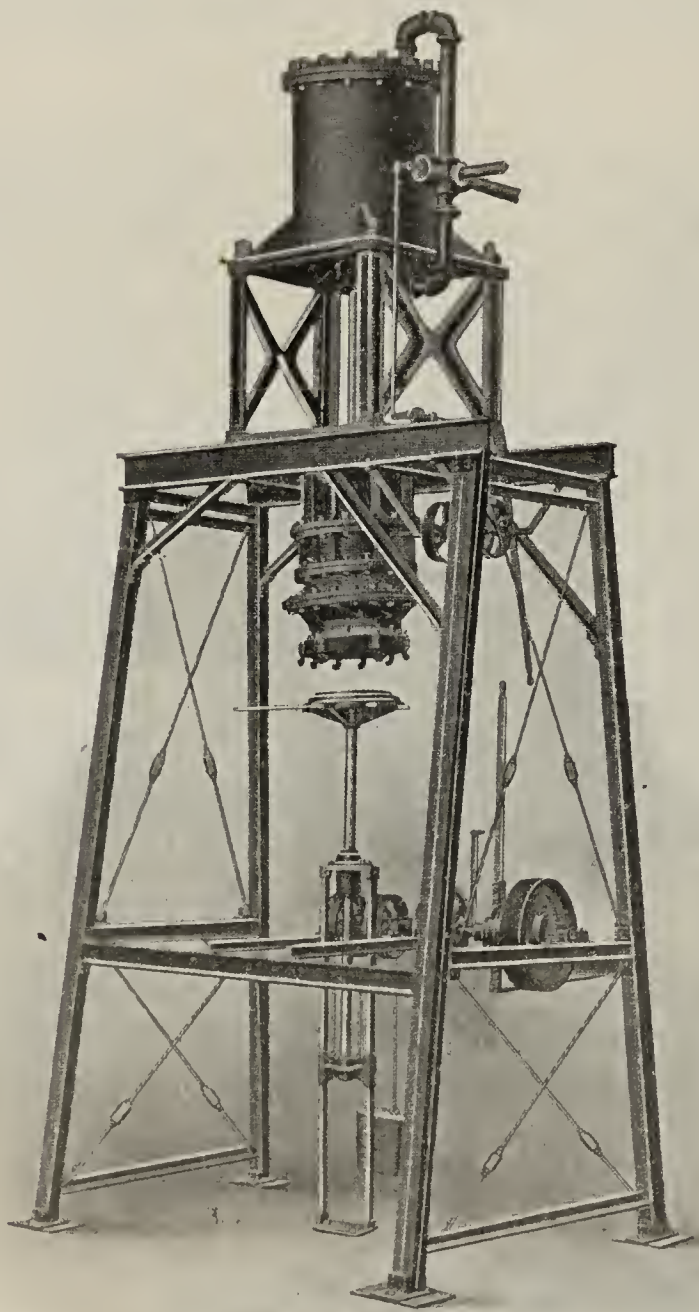
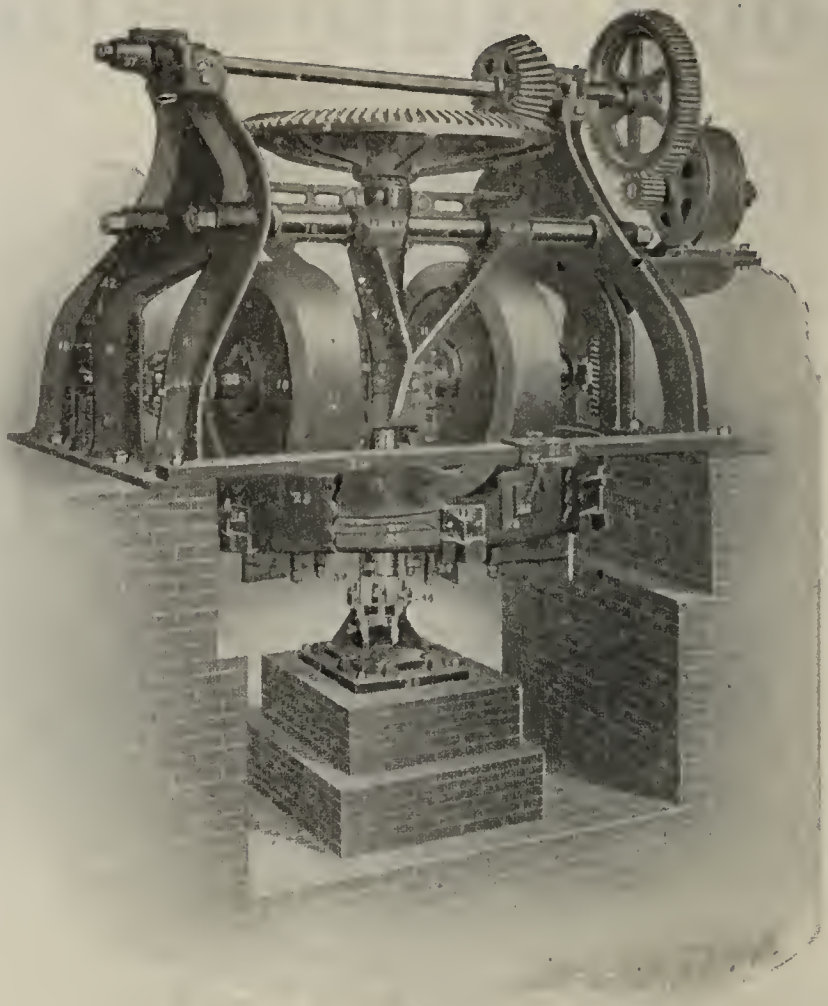
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

• You may never have obtained them from us. It would pay you to do so.

• There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

• There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

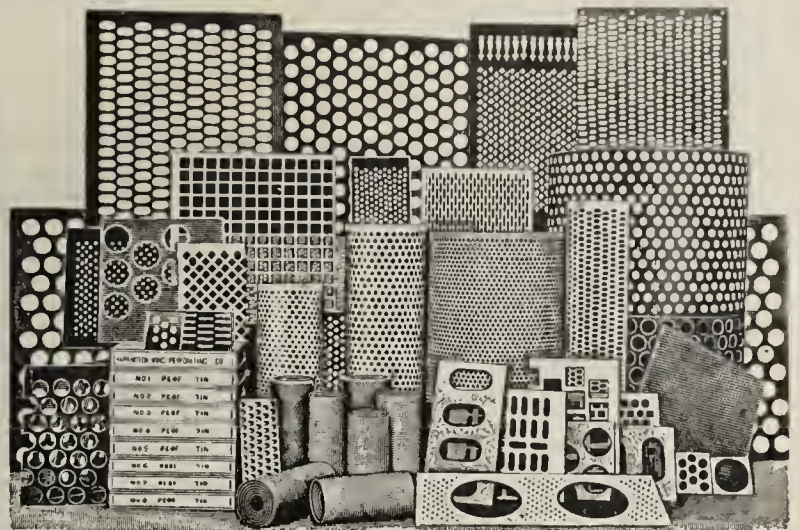
• We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

• You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

• Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

• With quotation we will send samples or Blue Prints.

• The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 231 North Union St.,
CHICAGO, ILL., U. S. A.



CREDIT TO YOUR NAME

AND CREDIT TO YOUR ACCOUNT IN THE BANK—the two results you desire to attain by means of the brick you manufacture.

If you have failed, as yet, to reach the height of your desire, in either direction, it may be due to your Dryer. Quality of product, upon which your REPUTATION DEPENDS, and quantity—as well as quality—upon which your PROFITS DEPEND, are mainly due to the Dryer.

Rodgers Waste Heat Dryers

are always constructed from individual plans, drawn for the particular plant in which the Dryer is to be installed, and consequently always obtain the RIGHT RESULTS.

With the RIGHT DRYER	}	RIGHT BRICK
you will get the		RIGHT REPUTATION
		RIGHT BANK ACCOUNT.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

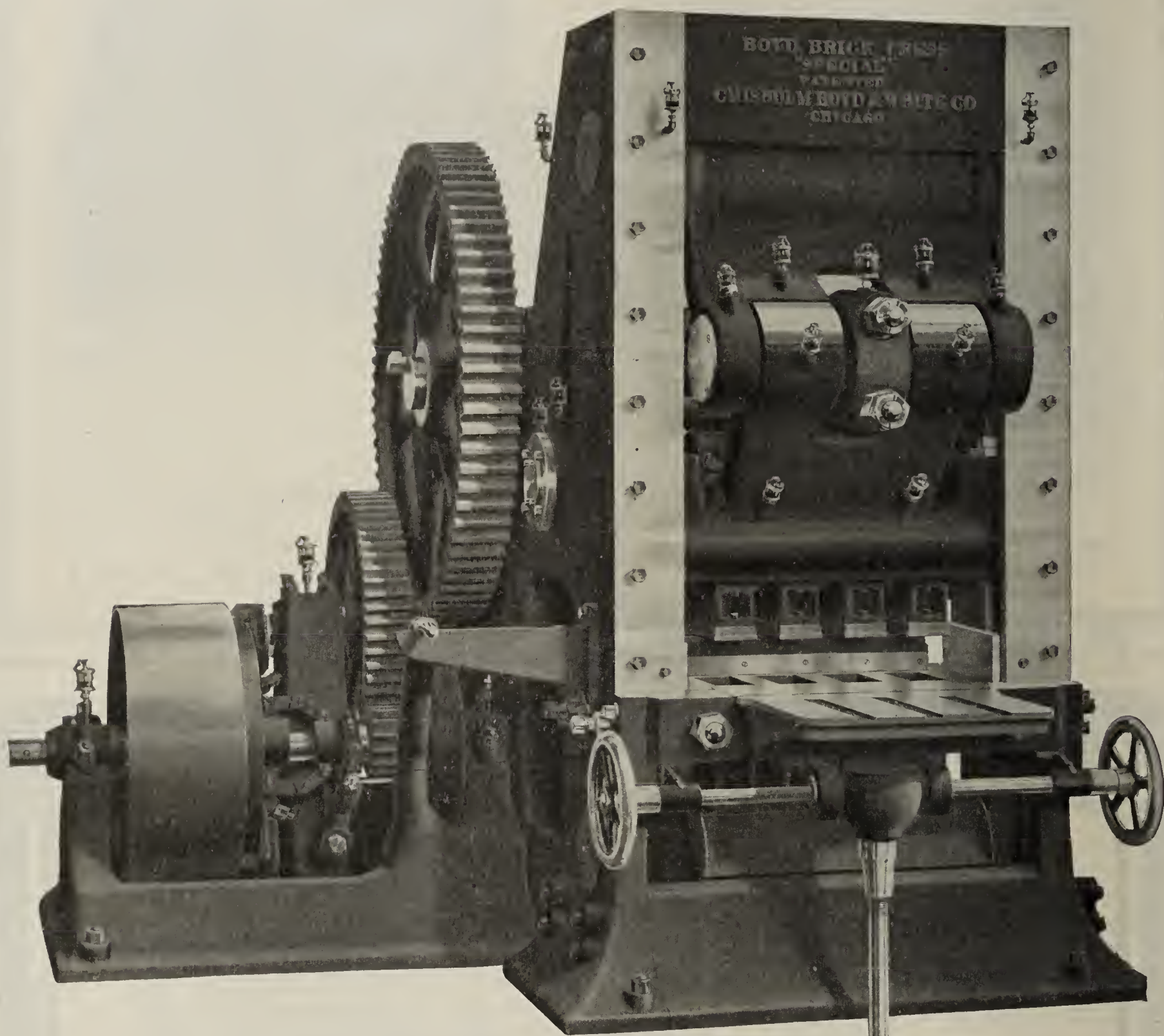
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

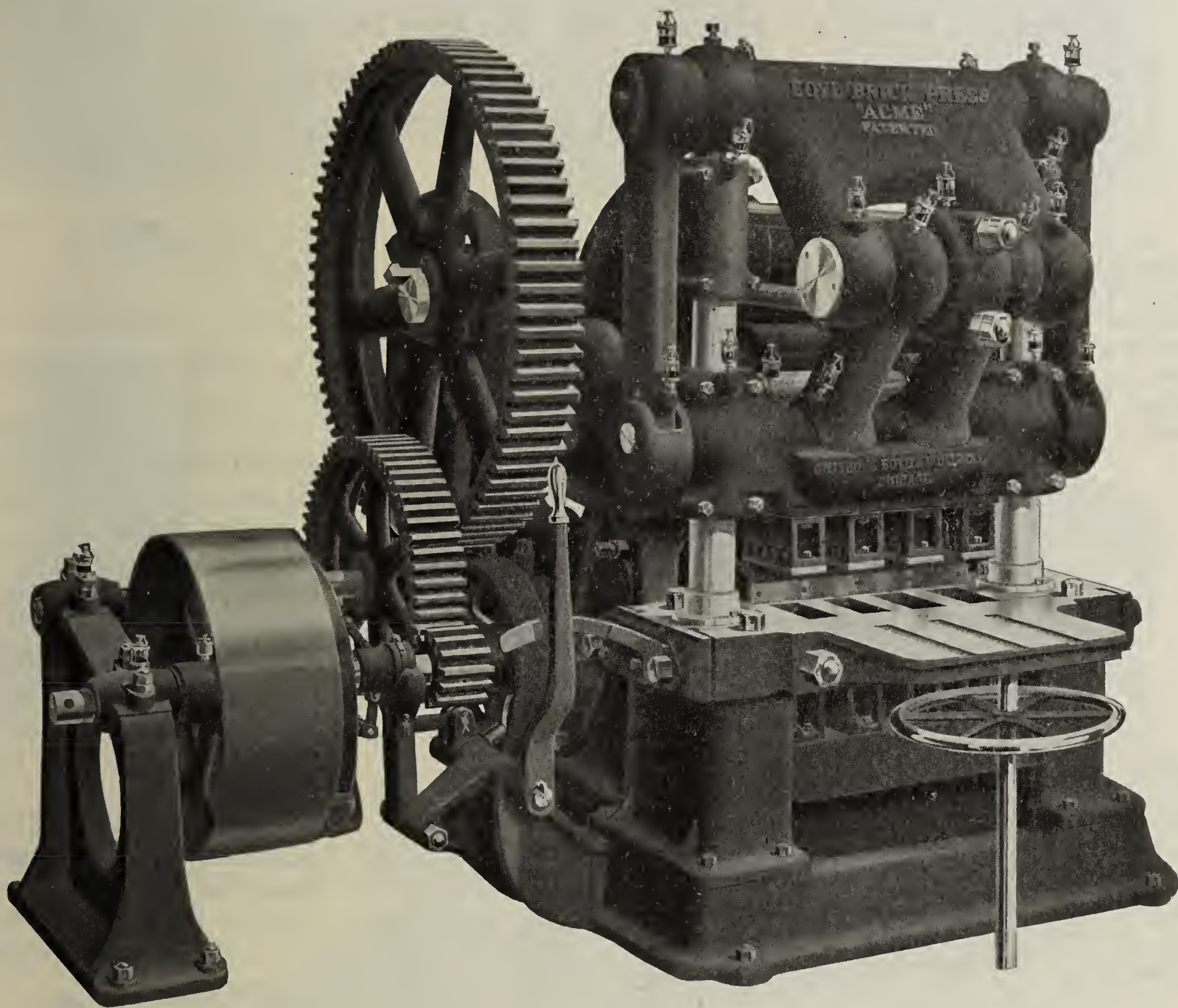
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Grath Special Brick Press

Patented.

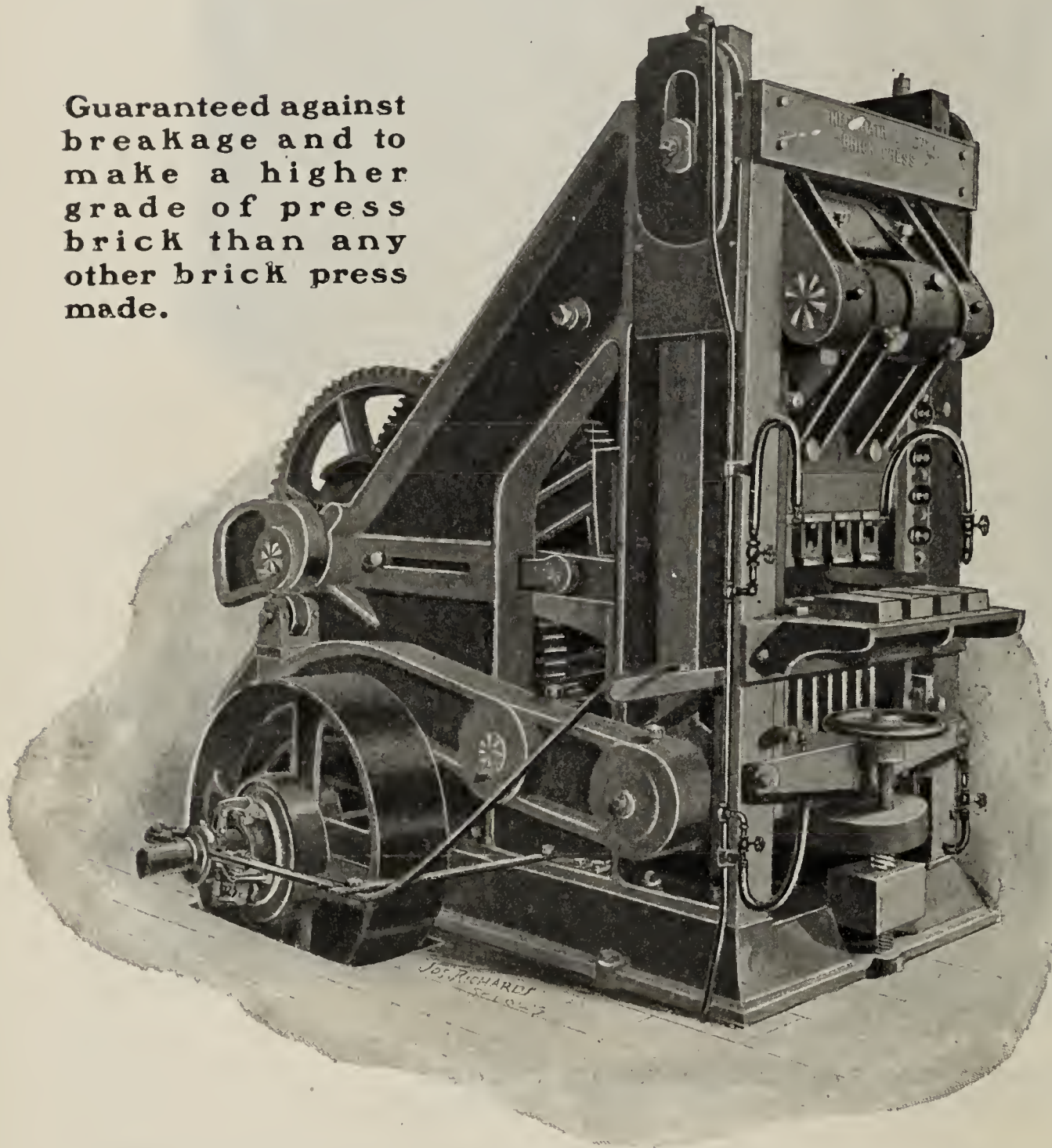
Made in Two, Three, Four and Five-Mold Sizes.

THE ONLY PERFECT BRICK PRESS

For SAND-LIME and DRY CLAY BRICK of Unequaled Quality.

FOUR MOLD MODEL.

Guaranteed against breakage and to make a higher grade of press brick than any other brick press made.



BRICKMAKERS

Do not buy Brick Presses every month or year.

When you **do** buy get a **modern** press. It costs no more than one which is **out of date**.

Unless the press is **double geared**, with gears between frames and bearings, which prevents all side strain and twisting of crank shaft, it is out of date and behind the times.

The above construction is contained in the **Grath Special** and is securely covered by patents. All infringements will be prosecuted.

THE PRESS OF TODAY.

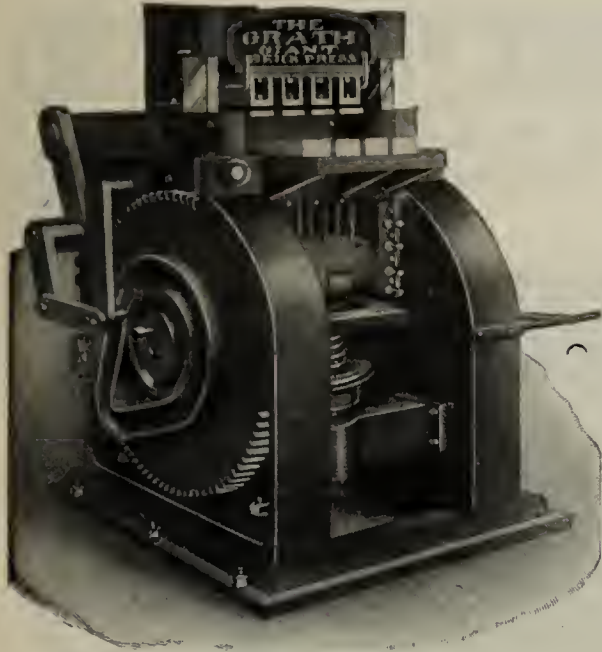
Simplest in Construction, Most Powerful in Action and Guaranteed Against Breakage. All parts above floor level and easy to get at.

Illinois Supply & Construction Co.,

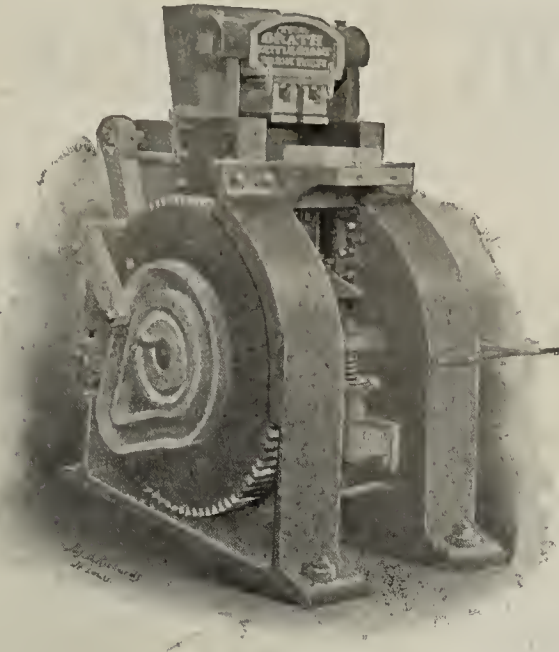
CENTURY BLDG.

ST. LOUIS, MO., U. S. A.

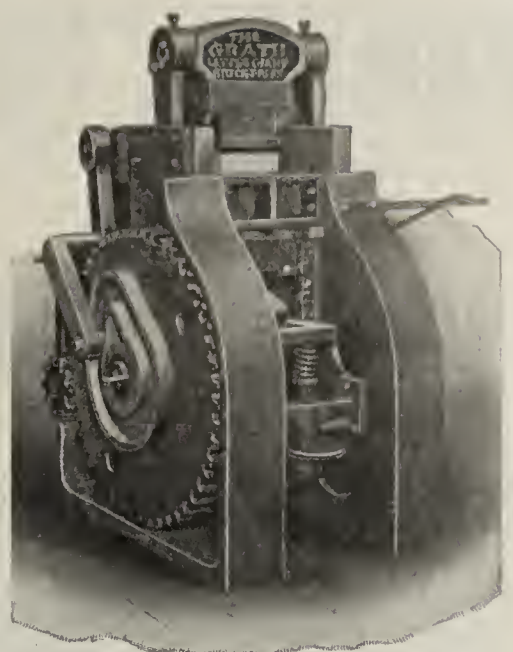
Mention The Clay-Worker.



**THE GRATH GIANT FOUR MOLD
BRICK PRESS**
For Fine Press Brick
From Dry Clay or Sand-Lime.



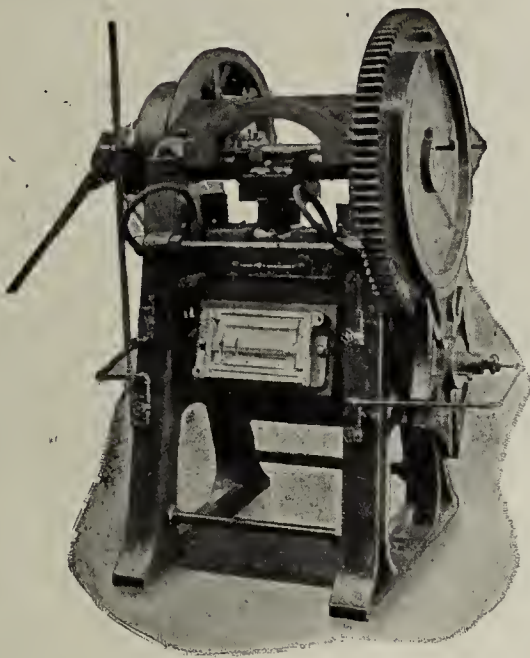
**THE GRATH LITTLE GIANT TWO
MOLD BRICK PRESS**
For Fine Dry Press Brick.



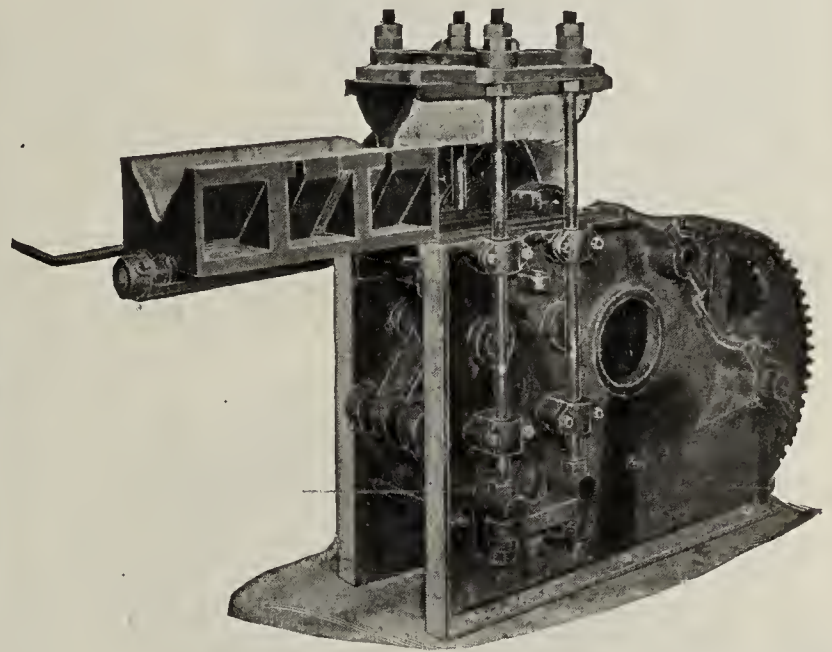
**THE GRATH LITTLE GIANT
ONE MOLD BRICK PRESS**
For Perfect Sand-Lime or
Dry Clay Face Brick.



**The Grath Special Hand-Power Brick
Press, for Plain and Ornamental
Press Brick.**
From Dry or Semi-Dry Clay or Sand-Lime
Guaranteed against breakage.



**The Grath Revolving Roofing
Tile Press.**
Strongest and Simplest Made.
For Plaster or Metal Dies.
Top Cross Head and Pentagon Adjustable.



The Grath Roofing Tile and Trimming Press
No Roofing Tile Plant
Complete Without This Press.
For Plaster or Metal Dies.
For Special Tiles, Hips and Crestings.

GUARANTEED AGAINST BREAKAGE.



Selling Agents for The **SCHURS PATENT PERFECT OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices and information.

Illinois Supply & Construction Co.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

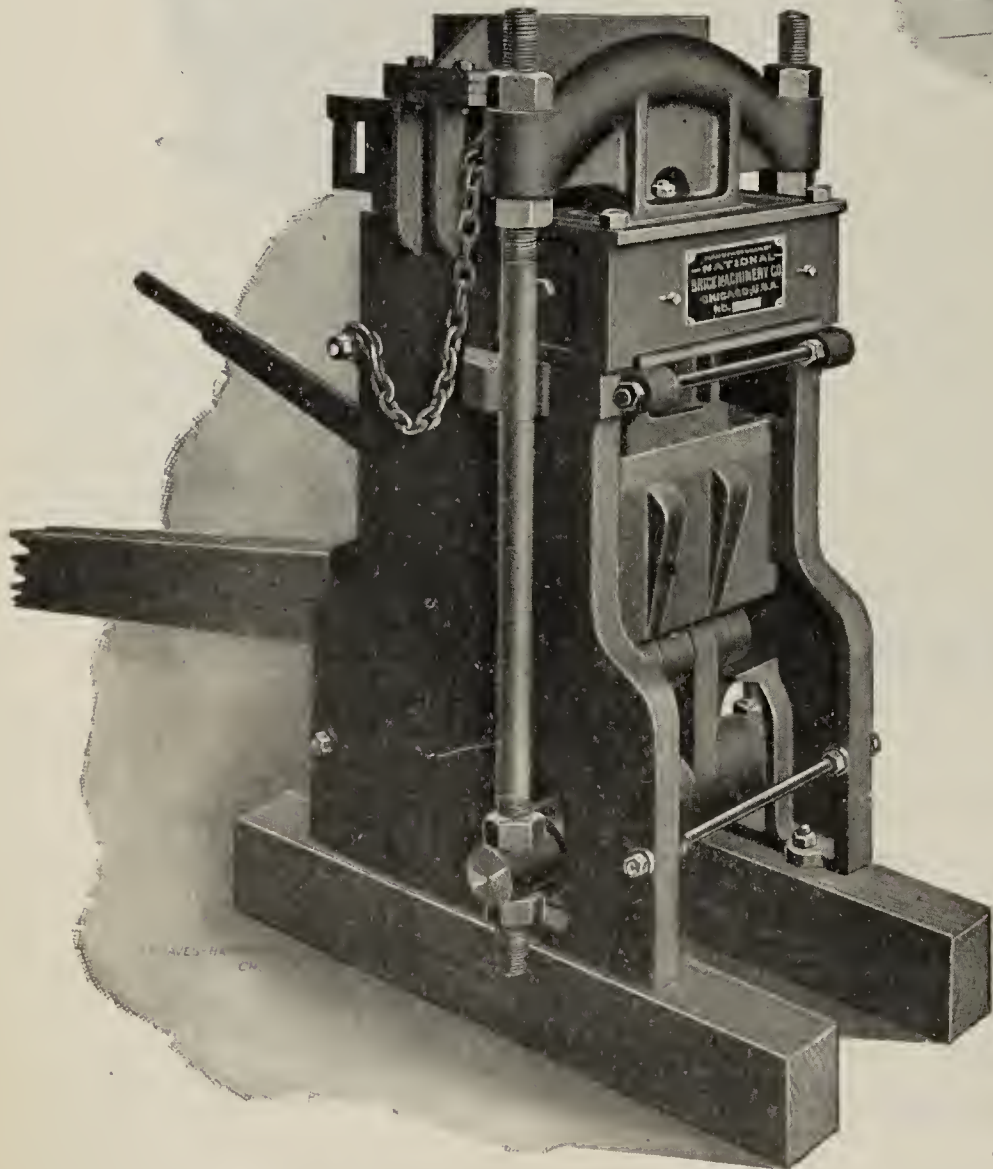
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

Write for prices on supplies of all
kinds for your yard.

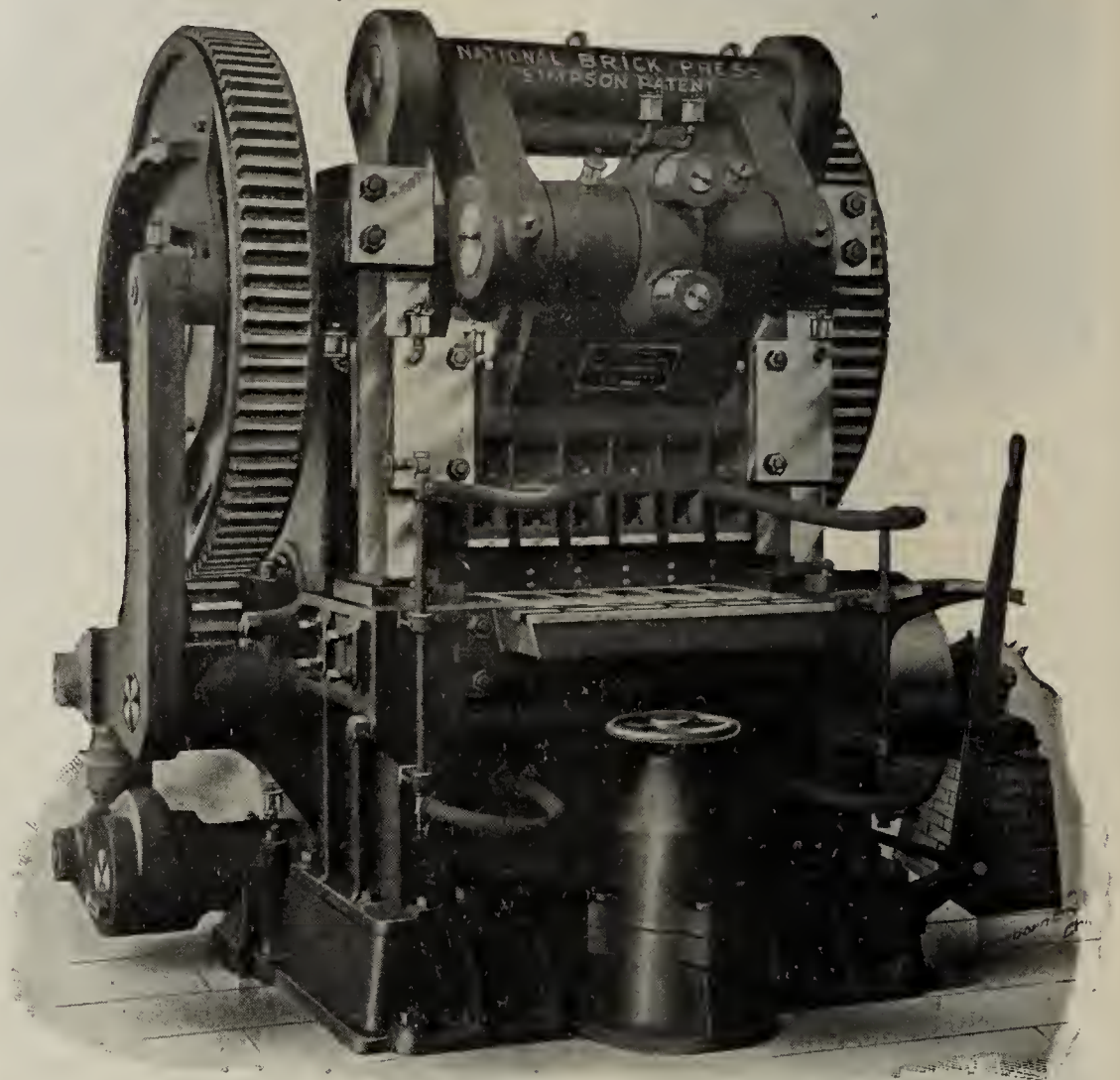
Correspondence solicited.

SIMPSON HAND PRESS.

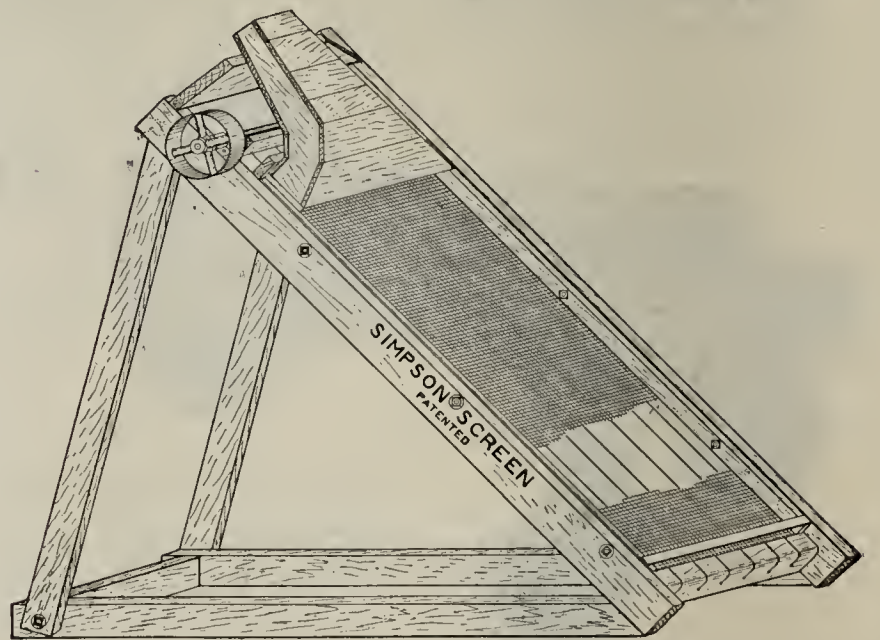


NATIONAL BRICK PRESS (SIMPSON PATENT)

Built in Four, Five and Six-Mold Sizes.



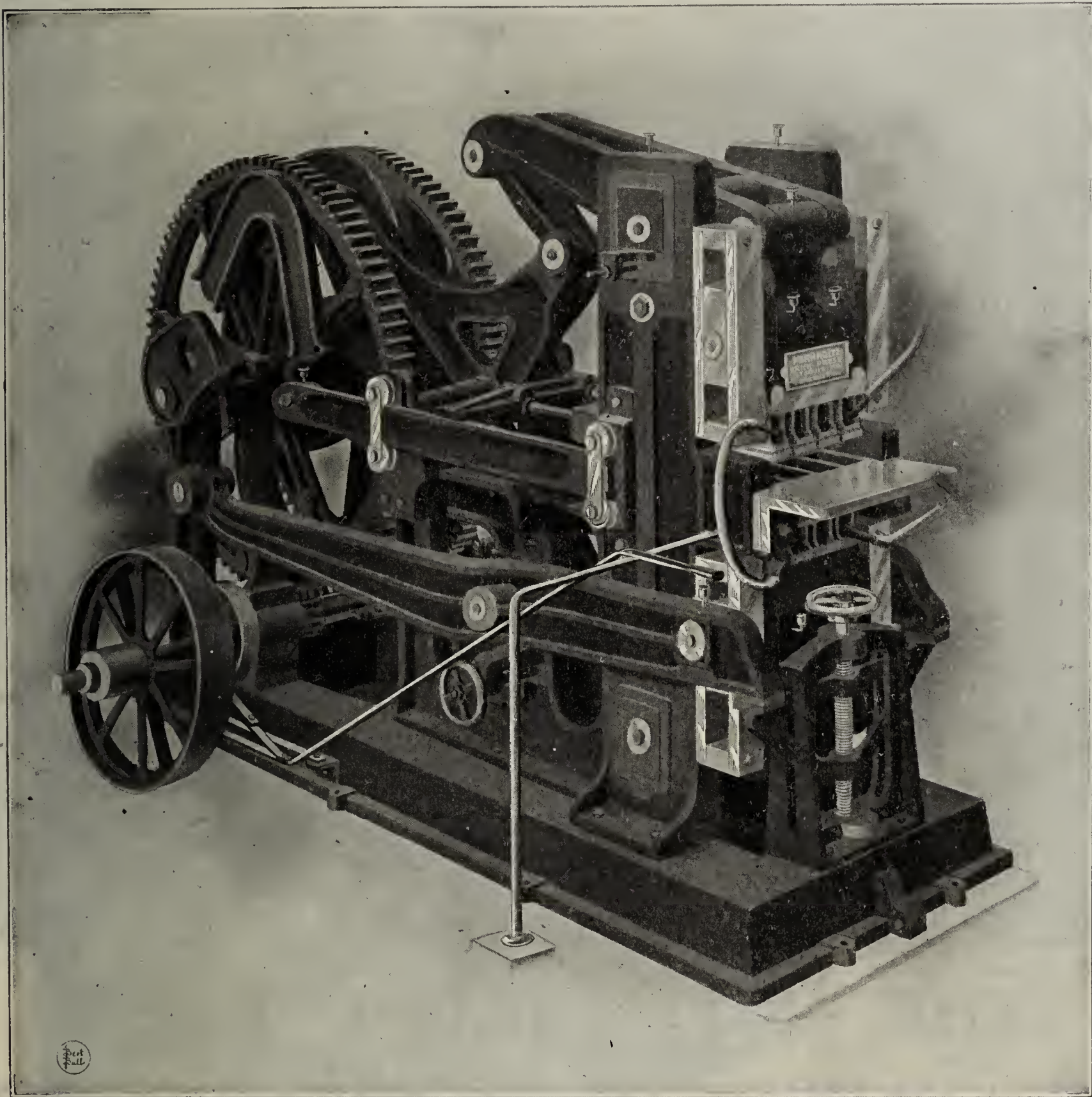
SIMPSON SCREEN.



National Brick Machinery Co.,
Chamber of Commerce Bldg. **CHICAGO, ILL.**

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

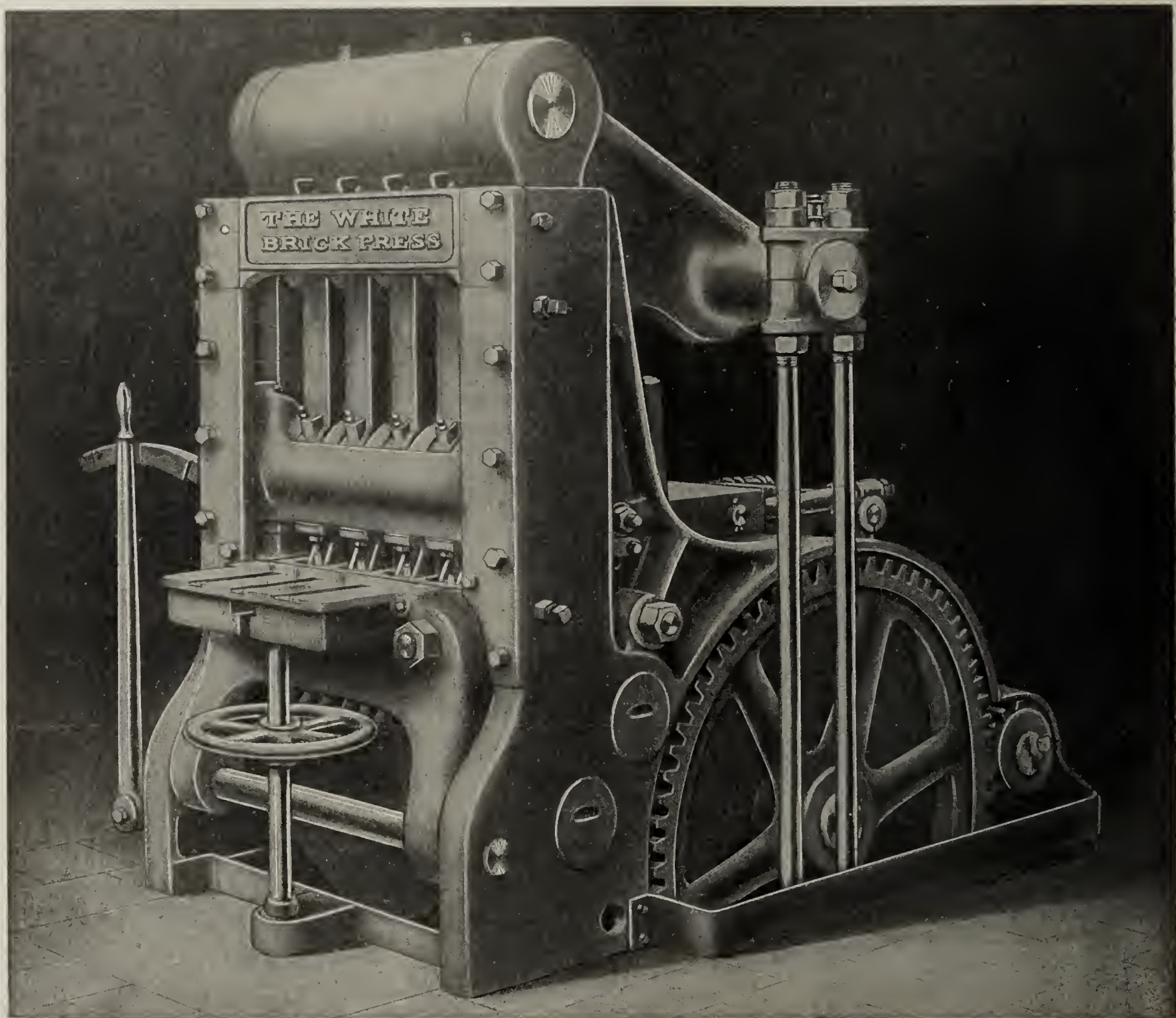


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

Always Worth More Than You Pay For It



THE WHITE BRICK PRESS.

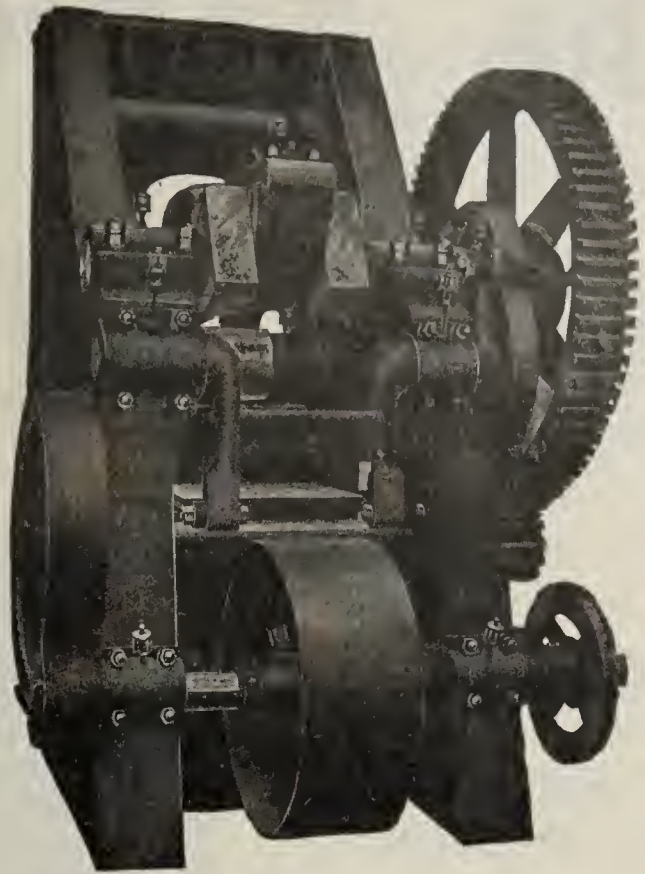
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

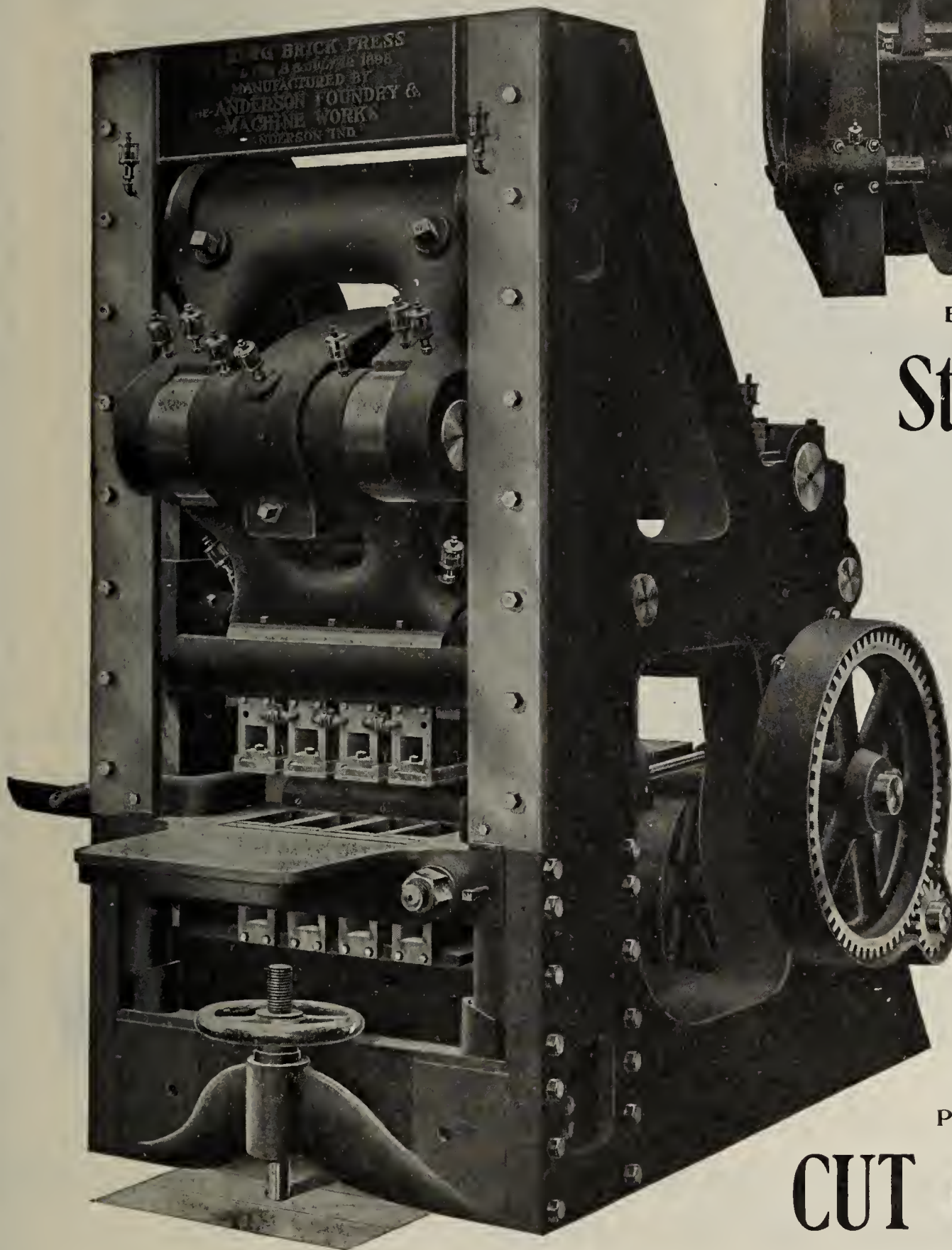
of either iron or steel, if desired.

Sold by

CHICAGO BRICK MACHINERY CO.,
Great Northern Bldg.
77 Jackson Blvd.
CHICAGO.

Manufactured and Sold by

Anderson Foundry & Machine Works,
Southwestern Office, Wilson Bldg., Dallas, Texas. ANDERSON, IND.



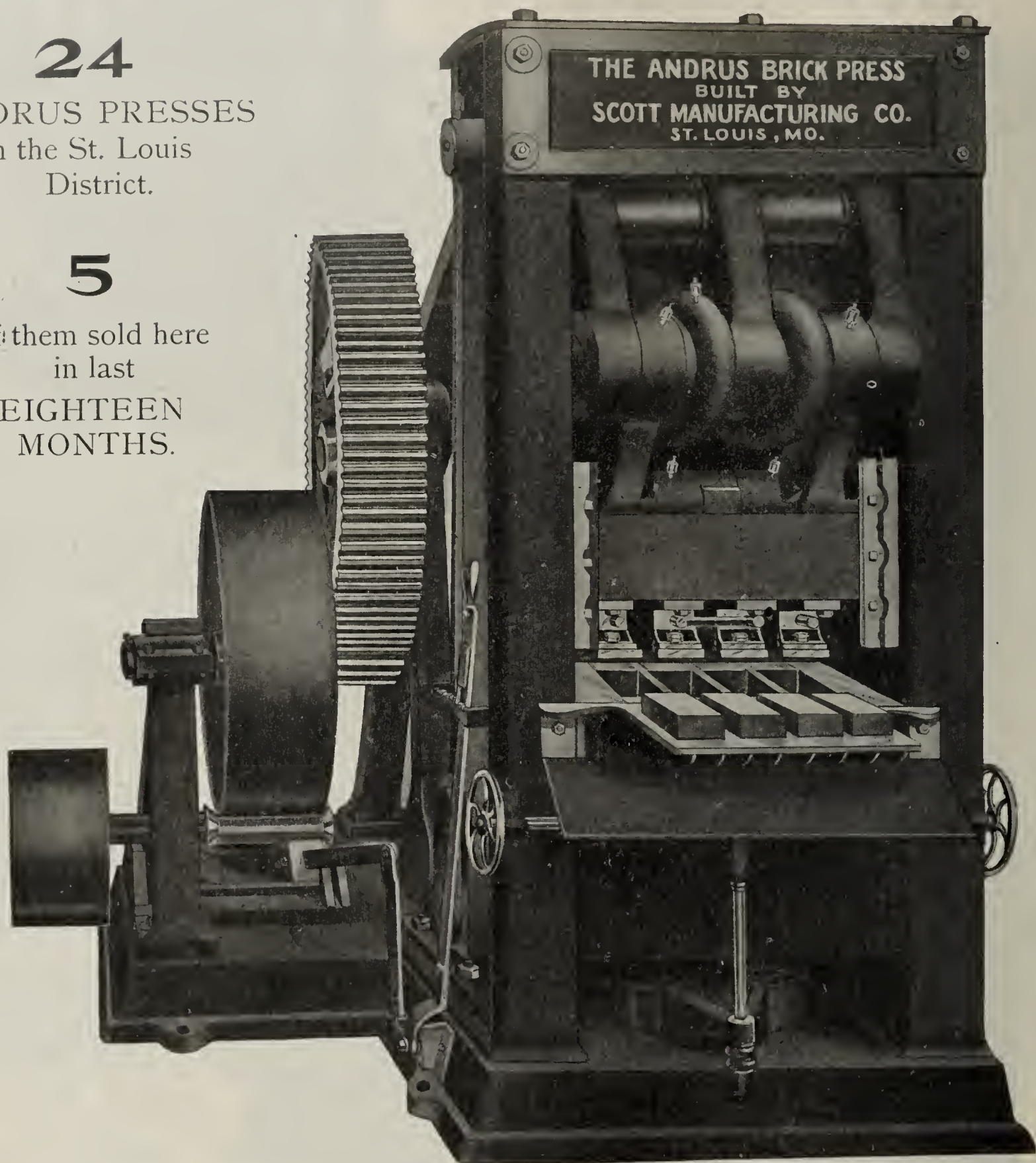
The Andrus Brick Press.

24

ANDRUS PRESSES
in the St. Louis
District.

5

of them sold here
in last
EIGHTEEN
MONTHS.



The Press That Scott Builds.

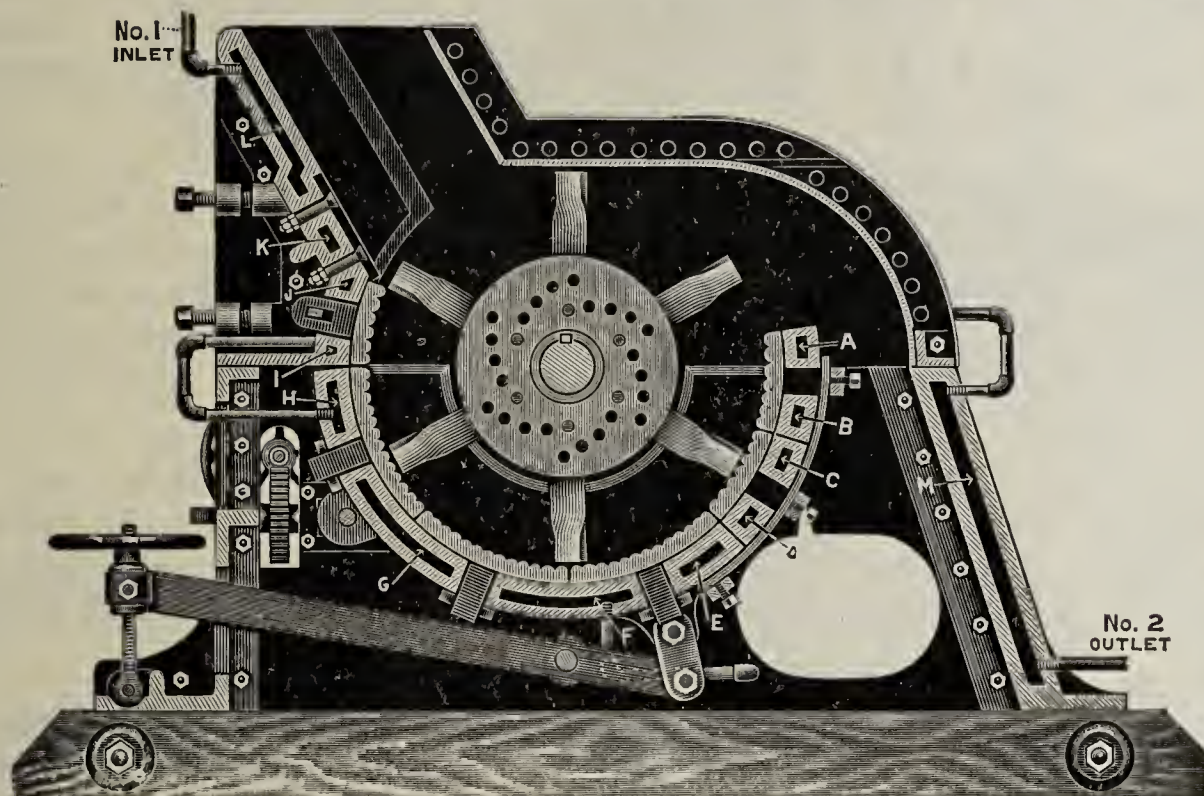
Come and see the Andrus Press making face brick, common brick, fire brick and shale brick right here at home.

Scott Manufacturing Company,

1812 Third National Bank Bldg.

St. Louis, Mo., U. S. A.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

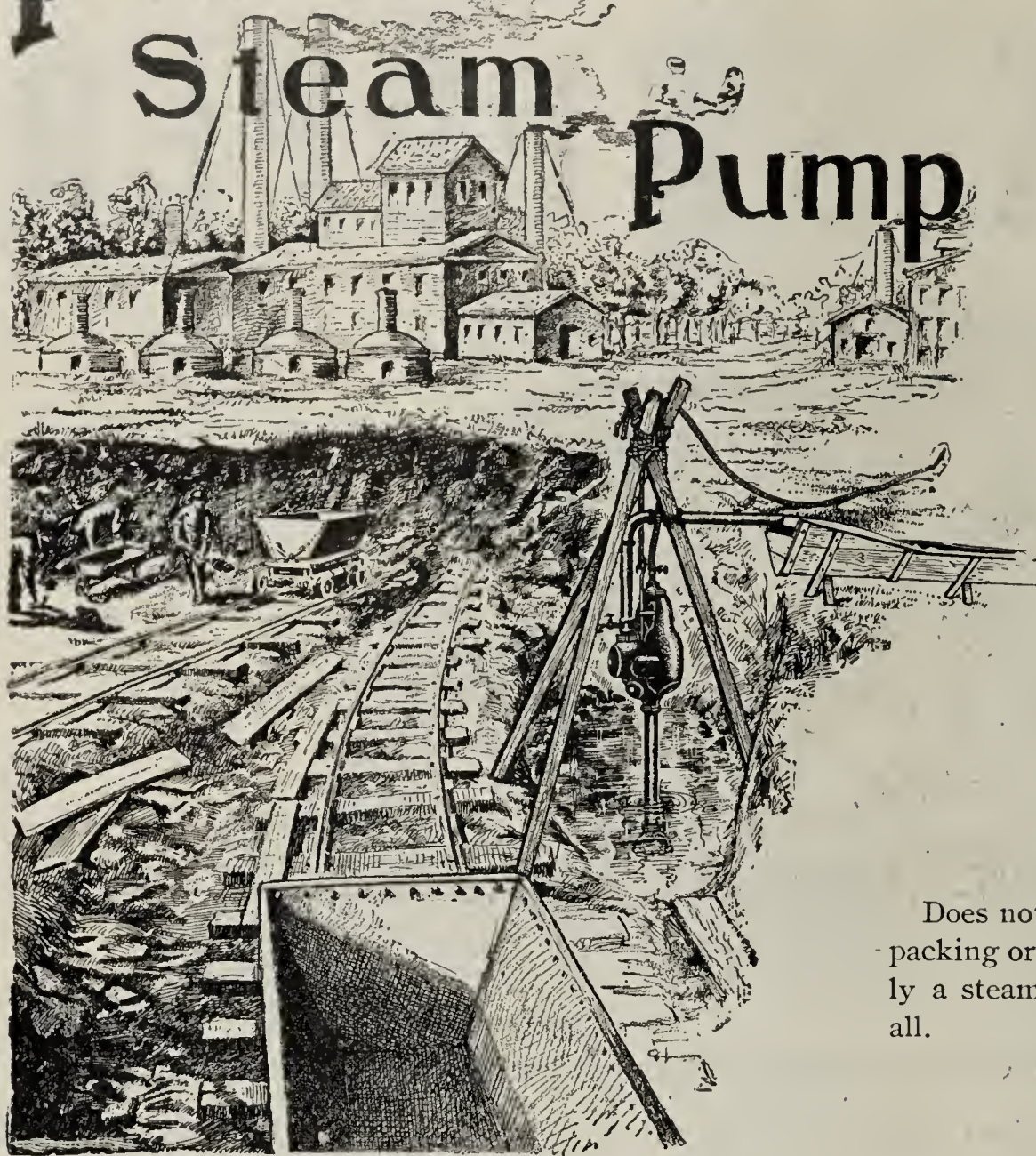
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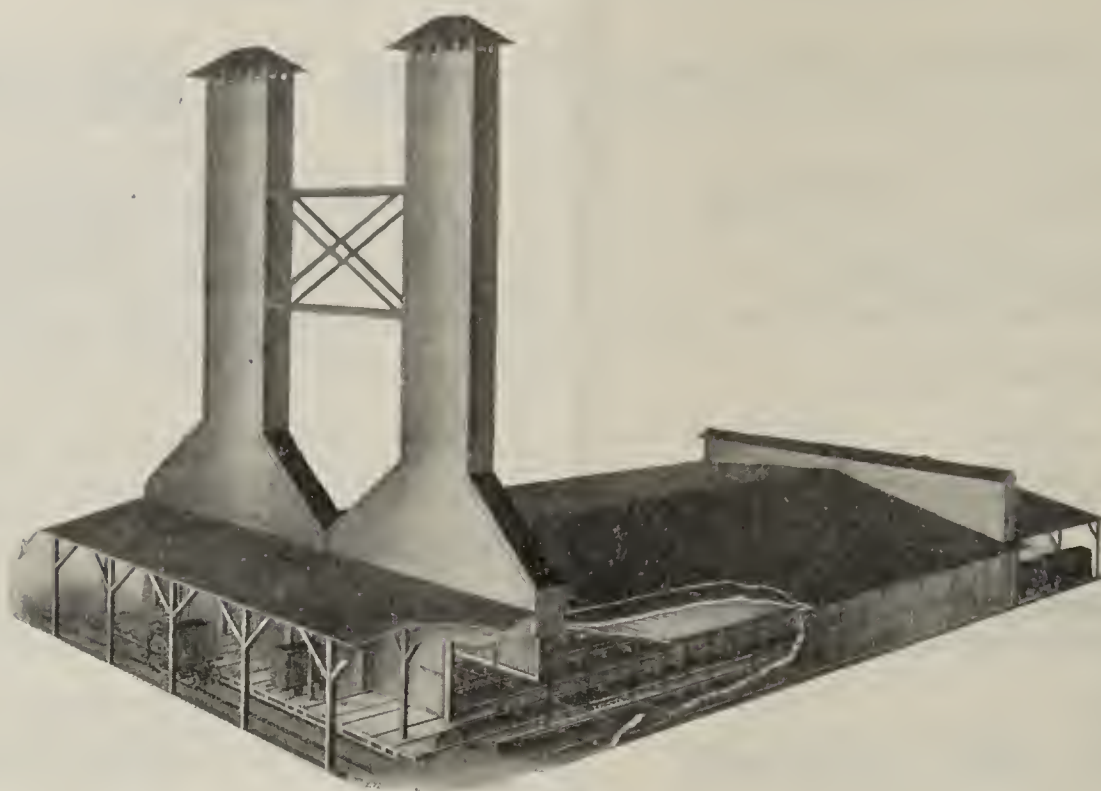
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THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LI.

INDIANAPOLIS, IND., MARCH, 1909.

No. 3.

Written for THE CLAY-WORKER.

BEAUTIFUL BRICK AND TERRA COTTA BUILDINGS IN BERLIN AND VICINITY.

ABOUT THE MIDDLE of the last century, A. Augustin, of Lauban, Silesia, furnished for the Silesia Mountain Railroad the front and face brick for all of their many passenger stations. The front brick were in the form of $\frac{1}{4}$ to $\frac{1}{2}$ hollow block, with faces of 12 to 6.5 centimeters.

tion of the leading architects of Berlin, and immediately all the public buildings of the state and city were built with this new brick.

The demand for the brick of Lauban was the direct cause of other fine front brick manufactories being established at Siegersdorf, Liegnitz, Ullersdorf, and many other places in Germany. Soon the red color alone would not satisfy the architects, and it was not long before there was a large demand for yellow, white, mottled brick, a leathered-colored brick (a red yellow), and many others. This demand for various colors in brick work turned the manufacturers' attention



Beautiful Apartment House at Schöneberg, Near Berlin, Cased With Glazed Front Brick in Different Colors.

This was the beginning of this size brick for facing purposes. A short time later, the City Hall at Berlin was built, designed by Architect Waesemann. In this structure red brick and terra cotta were employed in a most artistic style, the former being furnished by A. Augustin, while the latter by Ernst March Sons, of Charlottenburg. The beautiful red color of the front brick and terra cotta won the approba-

tion of the leading architects of Berlin, and immediately all the public buildings of the state and city were built with this new brick.

About this time the architects began to look for unusual colors in the building material. The first architects to employ the new products were Gropius & Schmieden, of Berlin. These architects built a number of fine brick residences in Berlin. Following the first work along this line,

Blankenstein, the City Architect of Berlin, built the famous Frederic Werder Gymnasium, on Dorotheen street. Other buildings of this type found today in Berlin are the two Post Offices on Oranienburger street. The City Hall at Wilmersdorf is another fine example of this type, the architect of which was Mr. Lindemann. The first story of the City Hall is built of red and brown glazed brick, while the second and third stories are for the most part of beautifully colored blue green terra cotta, with reliefs in red and yellow.

Another fine example of the superiority of burned clay as a beautiful building material is shown in the place of Mr. Pringsheim, on Wilhelm street, Berlin. In this building colored glazed terra cotta is used to striking advantage. The basement and first story are cased with sandstone, the walls of the second story is cased with glazed tiles, while the windows are in yellow terra cotta, glazed with green tints in reliefs. The main cornice of this building is built in colored terra cotta, the most beautiful part of which is the palemettes

the first built of this type being that of Architects Vonder Hude and Hennicke. A residence of this style of architecture is at Wilmersdorf, shown in one of the illustrations. The roofs are covered with glazed tile and make the house unusually attractive.

Most of the architectural effects employed by the architects of today in Berlin, as far as they use brick for facing purposes, are of the middle age, and especially the Gothic style. A fine example of the employment of the Gothic is in the building of the City Electric Works at Charlottenburg. The whole architecture of this structure, with its clean, partially dark green glazed brick, is very fine, and does not appear as uninviting as the average industrial factory. In contrast to this beautiful example is the Post Office, on Heilige Geist street, Berlin, in which the brick are hand-made and therefore very uneven of face with irregular edges and corners. These brick catch the dust and smoke, and soon have the appearance of being old and ugly. The Royal Test Office might also be sighted as an example of how unattrac-



Public Bath at Berlin, Built of Attractively Colored Glazed Terra Cotta.

which crown the whole. The architects for this building were Ebe & Bender, of Berlin.

At the end of the last century the Public Bath at Moabit was built by Architect Blankenstein, the work being under the management of the late Mr. Zekelie. This building is cased with yellow brick, while only the shells in the frieze of the main cornice are of glazed terra cotta.

After the craze for glazed brick, came the demand for enameled brick. Today in many buildings in Berlin and vicinity large quantities of enameled brick are being used. It is especially in the wall of the courts that the enameled brick are used mostly. These walls are cased with white, cream and other light-colored brick, while the outside of the buildings are cased with sandstone. An exception to this, however, is the apartment house at Schoneburg, the entire fronts of this building being cased with light ivory colored enameled brick. Several bands of the front and heads over the windows of the first story are green and brown.

There are many residences in Berlin cased with brick,

tive a building can be made by the use of the wrong kind of brick. Here the hand-made rough brick were also used, and, being regular dust traps, the building is, of course, anything but beautiful.

As I pointed out in the August number of *THE CLAY-WORKER*, the German architects now give the mortar finish the preference over all others, so that the new German buildings will soon be old, and will give the bad impression of being ruins instead of strong, substantial structures. It is to be hoped that this state will soon come to an end, and this fine building material will be put to its correct usage in facing our homes.

K. DUMMLER.

If the daily papers of the country would give as much space and prominence to advocating the use of brick and other clayware in fireproof structures as they do to heralding novel and untried ideas in the building line, they would not only improve their own reputation for reliability, but would be doing a greater service to their readers.



BEAUTIFUL BRICK AND TERRA COTTA BUILDINGS IN BERLIN AND VICINITY.

1. Wilmersdorf City Hall. 2. Municipal Electricity Works at Charlottenburg.
3. An Attractive Apartment House, Wilmersdorf. 4. Postoffice at Berlin.

Letters From a Young Clayworker to His Younger Brother.

The Use of the Draft Gauge—Letter No. 7.

CLAYBURN, IND.

DEAR JACK:

Now I anticipate that in thinking these things over and in weighing the disadvantages of the two methods referred to, you will hit on the plan of connecting the gauge with a pipe extending into the kiln chamber through the kiln wall, or perhaps through the door. One would say, on first thought, that a connection made at the door of the kiln would combine the good features and avoid the disadvantages of both the other places considered; the gauge would be above the drag of the bottom and yet would be steadier and more reliable than when depending on the conditions in one furnace alone for its reading.

So far as I can see, there is only one trouble with this last plan, and that is that there is no point or level in the kiln chamber that will show the same draft as that measured in the furnace. No matter where you measure the draft, through the kiln wall or through the kiln door, you will find it less than it is in the furnace. If you shift a cover and leave an opening through a crown hole to look down into the kiln, the hot gases rush out through the opening with great force. Naturally, if you were to attach a draft gauge at that point you would find that the liquid was pushed up in the tube instead of being pulled down. The draft seems to read backwards.

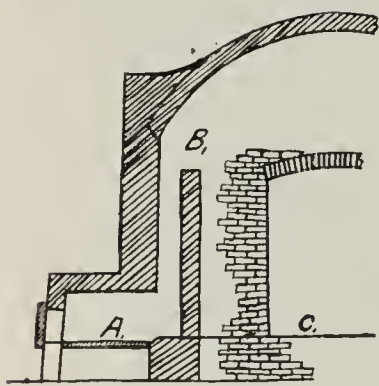


Figure-1.

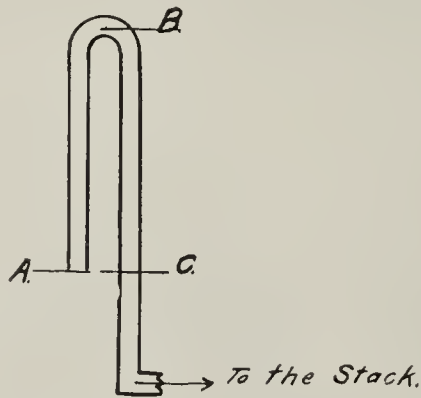


Figure-2.

The first time I tried a draft gauge on a kiln I made my connection by placing the open end of the tube in a trial hole through the kiln door, near the bottom, at about the level of the grates. The kiln was about through water smoking, as I remember it, and the stack seemed to be drawing quite a little. So I was very much surprised to find that, according to my gauge, I had less than no draft at the lower trial hole; the pressure at that point was outward instead of inward. You will find the same tendency in any kiln, particularly in the early part of the burn, before the stack gets to pulling very hard. If you take your gauge over to a hot kiln and try the lower trial hole, you will find a considerable pull, but when you try the upper trial hole you will find the pull very much weaker, possibly even showing a tendency to push out.

Naturally, one doesn't want to go by anything that is variable unless he can figure out what sort of a law it follows. Most of these things have some sort of a set of rules that they go by, and if it is possible to get acquainted with the rules, much more can be accomplished in dealing with the things themselves. Well, in puzzling over the behavior of the draft at different levels in the kiln door, I found that the explanation of this peculiar behavior cleared up some other things, and I may as well give you the whole batch while I am about it. You may have figured out the same things yourself, though probably in a somewhat different

way. Have you ever wondered what makes the draft start in the first place? Say you have a cold kiln and a cold stack. You light fires in the furnaces and in a short time you see the smoke coming out of the top of the stack. Consider, now, that the stack and all the flues are cold, possibly wet. What induces the first warm smoky air from the fires to travel down through the cold brick and cold bottom to get to the stack? It seems almost against nature.

Another matter that entered into the case was what burners call the "force of the fires," and the question of why kilns seem to burn better if the grates are considerably lower than the kiln bottom. This tendency is often explained by the fact that low grates bring the fires close to the bottom brick and favor the bottom by means of the heat which goes through the bag wall. That is undoubtedly true to some extent, but there is also something worth considering in the influence which the height of the grates has on the draft of the kiln.

Now in studying the different phases of the draft in a kiln, one is apt to become confused by the form of the kiln itself, and it is best to simplify the matter by considering a parallel case—the behavior of the same gases confined in an ordinary pipe. For example, in Fig. 2, let A, B and C correspond to the same letters in Fig. 1. Whatever we find true of the tube we can apply to the kiln. Another means of simplifying our problem is to consider the forces in the kiln itself as independent of the stack draft. Therefore, for our present purpose, let us assume that we know all about the stack draft and consider the "kiln draft" separately.

Assume the point D at the same level as the point A. Then, if the tube be filled on both sides from A to B and from B to D with hot gas, all at the same temperature, and hence all of the same weight, one side will balance the other. If, on the other hand, the tube be filled with hot gas from A to B and with colder gas from B to D, the gas in one side will be heavier than that on the other, and if an opening were made at D the gas would flow out at D, and the tube would suck at A. Just so the kiln, having hot gases in the bags and cold air in the chamber will start circulation, independent of the stack. Furthermore, this circulation will naturally be kept up for a while, for the gases become cooled as they pass down among the cold bricks in the kiln chamber, and thus we have a continuous performance; hot gases on one side and cold on the other, producing a draft within the kiln itself. This would keep up the action of the kiln slowly, to be sure, during the first part of the burn if there were no stack in connection. As a matter of fact, the stack being there and serving at first merely as a passage-way for the exit of the gases, gradually begins to take part in the work and becomes an important factor later in the burn.

If we place a draft gauge at D in the kiln early in the burn, before the stack begins to pull to any extent, we would expect to find it registering a tendency to push out at D. Later in the burn, when the bricks in the kiln chamber have become hotter, and there is not so much difference in temperature between the gases on the two sides of the tube or of the bag wall, if you like, the effect of the "kiln draft" will be weaker. By that time also the stack draft will have become stronger, and the gauge at D will begin to show a positive reading which will rapidly become greater. Now if a kiln has the grates where they should be, lower than the floor of the kiln, I don't think you can find a place to tap the kiln chamber, either through the door or through the wall, where you will get as high a gauge reading as in the furnace. At a given stage in the burning you can locate

by actual trial the proper level to get a reading, say one-half as great as that at the furnace. If that level would give you one-half the furnace reading all the time, you would be all right, but I'm afraid it won't do it. Try it out and see whether it comes near enough to it to be a good place to take the readings for your records. You may find that a level which gives exactly one-half the furnace reading after the kiln is red to the bottom gives a pretty close comparison during the later stages of the burn as well.

Not very long ago I was talking with a factory superintendent, whom I know to be a good brickmaker and a student of burning. He has kilns of several different types on the yard he is operating, and he finds it easiest to get the bottom in the kilns with the grates placed low—lower than the kiln floor. Well, as the kilns are narrow ones, I presume that the bottom gets a good deal of help from heat that comes through the bag walls. Naturally, the bottom courses get more benefit from being next to a hot furnace than they would from a cold ash pit. But this gray-haired student of kilns told me that the "force of the fires" from these low furnaces "drives the heat to the bottom." Without discussing the merits of this statement, I want to call attention to the fact that if, in Fig. 1, the grates were placed lower, we would have, in Fig. 2, the distance A-B increased. Also, the greater the length of tube A-B the greater the pressure exerted, and the greater the "kiln draft." As we have seen before, the "kiln draft" makes a pressure on the inside of the kiln, giving the gases a tendency to "kick out." The stack draft, on the other hand, tends to make a vacuum in the kiln, and to make it suck in at every crack. Now it seems to me that the greater the force which we may call the "force of the fires," and which works against the tendency of the stack to suck in cold air through the cracks in the kiln, the easier it will be to heat the kiln, and particularly the bottom. Think it over.

This same superintendent has a draft gauge of his own, depending for its action on the principles that I have been discussing. He has observed that, in the latter part of the burn when it is time to use the damper, if he opens a trial hole in the upper part of the kiln door the heat will puff out, whereas near the bottom of the door, air will rush in through an opening. Moreover, there is, at any stage, a height at which the kiln will neither puff out heat or draw in air. If the damper be changed to increase the stack pull, air will be drawn in through this opening; if the stack pull be cut down, heat will puff out through it. By observing this carefully in connection with the burning, my friend has determined for each kiln the height of this neutral point, which corresponds to the proper draft to carry during the latter part of the burn when the kiln is finishing. If, during this period, he opens a hole at a certain height in the door and finds that the heat pours out, he throws on more stack draft. If, on the other hand, a current of air is drawn in through the opening, he knows that the kiln has too much draft on and cuts it down accordingly. The height of the neutral point is not the same for all kilns, and has to be determined for different kilns independently. This method of gauging the draft without a gauge has its advantages, among which is its extreme simplicity. There is nothing to get out of order and no figures to speak of to deal with. Burners don't usually take kindly to figures, and where a method has to take its chances with the kiln firemen without much encouragement from other sources, a scheme like this is likely to last longer than an equipment of good draft gauges and an efficient record-keeping system. On the other hand, this method has its disadvantages as well, and whatever other difficulties may be found with it, there is the one that we are trying to get around; it does not give a direct comparison between different kilns. The proper neutral point for one sort of a kiln will not do for another.

As to the feasibility of measuring the draft at the door

with the gauge, I will repeat my earlier statement to the effect that theoretically the ratio of the draft at the furnace to the draft at a fixed height in the kiln door will change, and keep changing as the kiln gets hotter. How great the amount of change is can best be determined by actual trial. As I said before, you may not find it so great as to interfere with your purpose. But try it out. Do not content yourself with my opinion or your own. You can figure out something about it theoretically, but you will have several rather uncertain quantities in the equation, and you can not make any very accurate calculations. Now I don't mean to discourage you from figuring things out in theory. Your theoretical calculations and your practical measurements are a good check on each other, and, besides, when you go to the trouble of expressing a thing in definite quantities, in black and white, you force yourself to do some thinking and some analyzing that give you a better understanding of the forces with which you are dealing than you can get in any other way.

When you come to figuring out these draft problems, you will doubtless see that it will make a difference in your gauge reading if you change the height of the gauge itself above the point where the other end of the tube opens into the kiln chamber or the flue. If the gauge is placed several feet above the opening (say in the door) through which the tube is inserted, the gauge will give a lower reading than it would if placed at the same level as the opening. It is well to bear this in mind, as you might otherwise be thrown off the track in your comparisons.

Now I think you will find that there are some considerable possibilities in this one phase of your general problem of burning. I don't expect that you will follow them all out to the bitter end, but think it is well for you to take them all into consideration, and to be aware of the bearing which each factor in the operation has upon your undertakings and your results.

Wishing you a satisfactory experience in your investigations, I remain,

Sincerely yours,

SI ENTIFIC.

Written for THE CLAY-WORKER.

THE POTTER'S WHEEL!

WHILE READING Omar Khayyam's poem, "The Rubiyat," and his several metaphysical allusions to the potter and his molding of the clay, the thought came to me: How old is the art of pottery; when and by whom was the potter's wheel invented? The answer I had to make to myself was, No one can tell! That it and the spindle were evidently the first rotary mechanical devices of importance to assist man in bettering his condition, may stand without contradiction. Probably the whirling of a rounded stick of wood upon another, the ancient method of producing fire, may have led primitive man to appreciate the rotary motion for some purposes; for instance, to make drills of bone, flint, bronze and later of iron and steel. The twisting of fiber into strings or cords may have led to the invention of the spinning spindle. But what were the stepping stones to the invention of the potter's wheel? This is an abstruse problem to solve. The first principles of forming clay into shapes through the means of rotary motion, might have been discovered: While two boys were at play, one rotating a stick with a lump of plastic clay on the end of it. His companion grasping the revolving lump found, by running his thumbs into it, that it could be drawn upwards into the shape of a cup. This may have been the first inception of the wheel, after which the other steps followed.

That the potter's wheel preceded that of written history can hardly be doubted, since the excellently formed tablets of wellbaked clay with inscriptions, which antiquarians believe as much as 7,000 years old, have been found. St. Paul's reference in Romans ix and xxi, and Omar Khayyam speaking of the potter, are rather recent in comparison of their time, to the finding of ancient pottery and inscriptions referring

to the potter's wheel in the tombs of Thebes and places of earlier dates.

With true Oriental unprogressiveness in devising improvements, the potter's wheel is still used in the East in the same condition as when first invented—a short, light vertical shaft, pivoted in bearings, with a somewhat heavy circular disc on top. While one hand gives the rotary motion, the other hand acts upon the lump of clay thereon. It is truly wonderful with what skill, under these adverse circumstances, the workman shapes the most delicate pieces of the potter's art.

Whether the knowledge of the potter's wheel followed the introduction of the Indo-Germanic language into Central Europe, or was brought there later by the Huns and Tartars in their invasions, is not known. However, after it reached there, it was soon improved upon in using the foot for the propelling medium, which left both hands free to manipulate the clay with. How long ago this was done I am unable to ascertain.

I can well remember the first potter's wheel I saw, about fifty-eight years ago. I was then an apprentice in a machine shop on a mountain stream of the Black Forest, in Germany. the waters of said stream producing the power with which the shop was operated, giving me the means to turn up the parts for a wheel, as then in general use. This wheel was intended to turn the sockets onto clay pipes with 3½-inch orifices, 4 feet 6 inches long. I also helped to construct the screw press for making the pipes, the die and the core being made entirely of hard wood, the yoke only being of iron. The wheel was made in the following manner: A vertical shaft reaching to a step on the floor had the clay wheel on the top end, with a bearing directly under it. Above the pivoted lower end of the shaft and securely keyed to it, was a balance wheel serving two purposes, which will be shown further on to be the European improvement. This balance wheel was a solid disc of heavy, hard wood, between 3 and 4 feet in diameter, with a thickness of 3 inches. The operator (having a rest for his left foot) propelled this disk with the sole of his right foot on the upper surface, which required some experience and skill, so as not to joggle the body and the hands with it. The use of both hands was thus secured, the man sitting on a seat the proper height. Soon after assisting in the construction of these clay manipulating machines, in fact the next year, I came to America, where I found the vertical shaft on potter's wheels provided with cranks and treadles, while the balance wheels were of iron. Whether the adding of the crank and treadle originated here or in England, is not known to me. The application of this advantageous device for rotating the wheels was nearly as great an advance in the evolution of the potter's wheel as the lengthening of the spindle and the addition of the lower balance wheel. The next advance in the propulsion of the wheels was to apply water, steam and electric power. The plaster molds and down-pulls soon followed, which, with their exactness and speed, have revolutionized the potter's industry in America. With these appliances, unskilled labor can do more and better work than the best of hand-turners ever could.

To complete the subject of the potter's wheel, I append the succeeding lines of rhyme, which touch somewhat on the present state of affairs of the nation, under the title of:

A Metaphor of the Present!

The Divine Potter shapes with careful hands His clay
Which forms itself to His behest. So the chief potter may
Of humans form His clay, over which they gave him rule.
They picked to help him on—they thought—a potter's normal
school,
To act by His advice, which earnestly He gave;
But it, of coarsest grain, must always ill behave.
The messages of His would touch a tender spot,
As does the earnest truth to men—that It! are not!
So, instead of doing what the common clay required,
They to the kilns of wrath His messages soon fired.
The chief of potters and the clay, of which was picked the
normal school,
Both in the quality were deceived—the clay found them a
lot of fools!

F. E. FREY.

CLAY PRODUCTS OF THE UNITED STATES

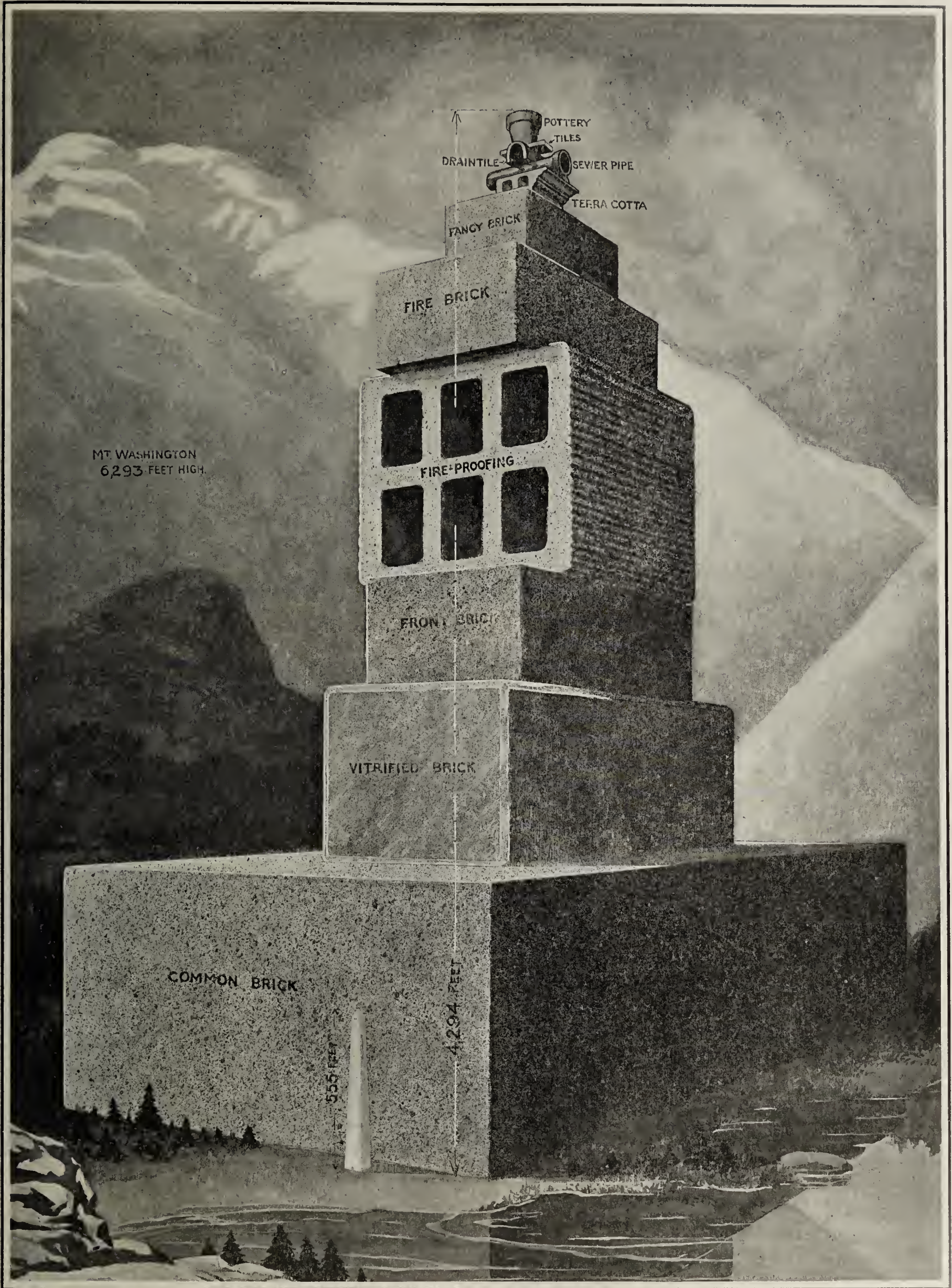
BRICKS HAVE been found as old as 4,000 B. C., so that their use is coeval with the birth of history. In the Middle Ages, with the rise of Gothic architecture the use of brick greatly declined. It was not until the reign of Queen Elizabeth that the manufacture again flourished in England, and it was not until 1625 that bricks began to be made of uniform size.

In this country brick were probably first burned in the colony of Virginia as early as 1612, says Charles E. Hall in an interesting Bulletin of the Bureau of the Census. In New England brick and tile making seems to have been followed as an independent calling about the year 1647. Though the product was of good quality the industry did not thrive, as money was scarce and timber plentiful, and it was not until after the Revolutionary War that home-made bricks came into general use. With increasing prosperity the desire and necessity for more substantial structures arose. The growth of the industry from year to year naturally provided a stimulus for the invention of machinery that would produce better brick, new shapes, and different sizes; and, in turn, these new inventions contributed to further the growth of the industry. The earliest record of a patent issued by the United States Patent Office for brick-making is dated May 15, 1800, and was for a brick and tile machine invented by G. Hadfield, residence not recorded. Other patents issued about that time were one to E. Miller, July 17, 1802, for a brick machine; one to N. and P. W. Miller, January 5, 1804, for a brick and tile machine; one to W. Hodgson, Richmond, Va., May 22, 1805, for an apparatus for making tile, brick, etc., and one to J. F. Gould, Newburyport, Mass., March 1, 1806, for a brick machine. The first patent granted for a brick kiln was issued to H. Read, of Kensington, Pa., June 17, 1840, and the first for a brick dryer to S. M. Parish, of Baldwinsville, N. Y., August 16, 1864.

Although much the same process for making brick and tile has been used for ages, the evolution of the industry through the use of improved methods and machinery has brought about a great change in the character of the product. It is a long stride from the use of hand pick and shovel to steam shovel in uncovering the clay bed; from the old-fashioned ring pit to the machine that grinds, tempers, and molds; from the use of a hand mold to the machine with a capacity of 100,000 bricks per day; from the open air system, or a weather beaten drying shed, to the utilization of artificial heat for drying; from the temporary to the patented continuous kilns; and from the poorly made product of years ago to the firm, straight-edged, and otherwise well finished product of today. Of the \$119,956,959 capital invested in this industry, the machinery, tools and implements represent \$33,295,324, or 27.8 per cent., an increase in five years of \$16,045,486, or 93 per cent.

Common Brick—Enormous quantities of common brick are manufactured in all sections of the country. Surface clays are generally used, and more attention is given to the volume than to the color and general qualities of the product, as the price is low and the brick used mostly in ordinary wall construction and foundation work.

Red Front Brick—In the production of red front brick great care is exercised in the selection of raw materials, and in the process of manufacture. The clay must be well tempered, the brick molded free from flaws or sand cracks, the method of drying be more complete than for common brick, and the repressing and subsequent drying, setting in kiln, and burning, skillfully and systematically managed. This additional attention necessarily increases the cost of production. Every state reported the manufacture of red front brick except Florida, Nevada, South Dakota, Vermont,



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Courtesy of Scientific American.

This vast pyramid, two-thirds as high as Mt. Washington, represents products from American clay beds in a single year. The Washington monument, 555 feet high, looks like a pigmy at its base.

Wyoming, and the Territory of Arizona. The State of Pennsylvania ranks first in value of product, New Jersey second.

Fancy and Ornamental Brick—Fancy colored and ornamental brick are primarily pressed brick. The different shades of color in the former are produced by the addition of artificial materials or by the manipulation of the kiln fires, while the distinguishing feature of ornamental bricks are the designs in relief or in intaglio upon the surface to be exposed.

Fire Brick—As the name implies, fire brick are used where intense heat must be withstood, as in cupolas, blast and blast furnaces, coke ovens, locomotive fire boxes, etc. The utility of the appliances just mentioned depends largely, if not altogether, on construction out of materials which will stand intense heat without fusing, cracking, or yielding in any way.

A new fire brick made from ashes has been produced by a Michigan firm. The ashes are united by a powerful binder, molded, and the product conveyed straight to the drying room. It is claimed that the brick are ready for laying five days after manufacture; that they have been tested in fire and water with satisfactory results, and, further, that the product is two-fifths lighter than terra cotta, and yet stands considerable crushing force.

Enameled Brick—These bricks are ornamental, and in addition to being used for external decoration in the construction of buildings, are extensively used for sanitary purposes, their glazed and vitreous surfaces rendering them waterproof and easy to clean. As the surface of the brick to be enameled must be smooth and free from sand, pressed and fire brick are most often used.

Hollow Building Tile and Blocks, and Fireproof Brick—On December 9, 1856, a patent was issued to M. and J. H. Buck and F. A. Cushman, of Lebanon, N. H., for a machine for pressing hollow building brick or building tile. This industry, though yet in its infancy, is rapidly growing in importance, as the product is essential to the construction of modern fireproof buildings.

Possibly nothing has contributed more to the demand for burnt clay products, and brought more clearly to the attention of the public their value as a fire retardant, than the recent great fires in Baltimore, Rochester and San Francisco. Without considering, however, these occasional catastrophes, it is estimated that the United States yearly sustains a fire loss of \$250,000,000, a sum almost double the combined value of all clay products manufactured in this country during the same time, and nearly three times the total value of all the brick, fireproofing, terra cotta, lumber, hollow building blocks or tile, and roofing, floor and encaustic tile. With such an enormous annual property loss, and with the thinning out of the forests of the country, it is reasonable to believe that a change in building methods is imminent, and that the new era of construction will be of immeasurable benefit to those engaged in the manufacture of burnt clay building materials.

It is claimed that the annual fire loss in this country dur-

ing the past five years amounted to about \$2.50 per capita, as against only 33 cents per capita in the larger European countries. This unsatisfactory showing for the United States has resulted in a growing demand for a fireproof brick that can be used in the construction of moderate-priced dwellings, and several large plants are now making a specialty of such an article.

Drain Tile—The manufacture of drain tile also dates back to early ages, and many instances of its general use by the ancients have been found. That it was used, probably in a crude form, by the early settlers of this country can not



The Clay Bank of the A. G. Kahn Brick Co.



A Glimpse of the Machinery Room.

be doubted, as patents were issued for its improved manufacture in the year 1800.

Pottery—It is recorded that a white ware was produced at a pottery erected in Burlington, N. J., in 1685 by the American agents of Dr. Daniel Coxe, of London. However, it is not likely that the ware made at this pottery was white, general opinion being that it was yellow and cream colored, as at that time no other ware was known except the por-

celain which came from China, and was known as "China ware." Ordinary household pottery and ornamental vases for flowers were made in West Whiteland, Chester County, Pa., as early as 1753; a pottery and glass works was in operation in Germantown, New Quincy, Mass., in 1760, and a pottery in South Carolina in 1765. Cream colored ware, both plain and decorated in blue, was made in Philadelphia in 1770.

It appears, however, that the potteries established before the Revolutionary War did not meet with marked success, and that this industry, like the manufacture of brick, did not assume commercial importance until after that war,

Written for THE CLAY-WORKER.

BRICKMAKING IN ALABAMA.

WHILE THE WRITER was on a tour through the southern states some time ago, he had the pleasure of visiting the plant of the A. G. Kahn Brick Company, of Selma, Ala., and it is my desire to tell the readers of the CLAY-WORKER something of what we saw while there, also we will give you an idea of what they are doing in the sunny south, and to do this it will be necessary for us to

furnish a few views of their plant, as well as the few words which go with it.

Arriving at Selma, we called up Mr. Kahn, president of the company, by telephone, and he at once sent his horse and buggy up to the hotel for us, and, after a very pleasant drive of about two miles, we arrived at the plant, and were piloted through the plant by Mr. Kahn.

Commencing at the clay bank, we followed the clay all the way through until the burned product was ready to load on board cars. At the clay bank we found they have a very fine quality of plastic clay, which varies in depth from 6 feet to 12 feet. They load their clay at present by means of a Thew steam shovel, which has proved very satisfactory, as they find that by this modern method of handling clay they reduce the cost of loading their raw material, enabling them to increase their capacity.

The clay is loaded at the bank into automatic dump cars, and is then conveyed to the machine house by the usual method of an incline running to the second floor of the building, where the clay is dumped into a large hopper, and from this hopper it passes through a disintegrator and is then conveyed to the pug mill by a 22-inch belt conveyor. After the clay passes through this 10-foot pug mill it drops into a 50,000 capacity machine, and from the machine it is run out in a long bar through the rotary automatic cutting table (side-cut), onto an off-carrier or separating belt, where it is then hacked onto double-deck dryer cars, each car holding 600 brick. The cars are then transferred to a National steam dryer (10-track), where they remain about 48 hours.

In heating their dryer they use the exhaust steam from their engine in the day time, and the live steam at night. After the brick leave the dryer they are transferred to four large clamp kilns, which hold three-fourths of a million brick each. About nine days are taken to burn these kilns, coal and coke being the fuel used in burning, and the brick, when burned, are a beautiful cherry red.

The machinery equipment consists of two 75 h. p. Atlas boilers and a 125 h. p. Atlas engine, hot and cold water pumps, one winding drum hoist, a large disintegrator belt conveyer, 10-foot pug mill, 50,000 capacity brick machine, automatic side-cut cutting table, and a long off-carrier belt.

They also have their own electric lighting plant, which lights their entire plant, office and clay bank, as it is Mr. Kahn's intention, if business keeps up like it is now, to run



A Carload of Brick Ready for Shipment.



The Blacksmith Shop.

when a period of new economic and industrial life began. About this time many enterprises were launched, including a number of potteries.

The accompanying engraving shows a graphical comparison of the magnitude of clay products for one year. The pyramid would be 4,294 feet high, and looms well up toward the summit of Mt. Washington.

The total value of the products of clay in the United States in 1907 was \$158,942,369.—Scientific American.



BRICKMAKING IN THE SUNNY SOUTH

1. A Group of Hardy Brickmakers. 2 Making Ready for Shipment. 3 and 4. Views of One of the Up-draft Kilns.

a part of the time at nights, in order to supply demand, should business warrant it.

This plant was installed in the winter and early spring of 1904, and has been running steady ever since. This plant, I am told, was constructed and the entire equipment furnished by the C. W. Raymond Company, of Dayton, except the dryer, which was furnished by the National Steam Dryer Company, of Indianapolis.

Their plant is nicely situated along side of the Southern Railroad, and their side track runs along side of their kilns, which makes the loading of their brick very easy, and it also brings their coal to the kilns.

We might also state that they make a great many repress brick for front or face brick work, and these are made on a double-die repress. Their daily capacity averages from 45,000 to 50,000 brick, and they employ about 30 men the year round. The common labor is all negro labor, and Mr. Kahn tells us that with the improved equipment which he has that he has very little, if any, trouble in securing help.

In going over the plant one can not help but be impressed

FIREPROOF BUILDINGS.

REINFORCED CONCRETE enthusiasts are prone to overdo the claims for that material when they assert, as most of them do, that in itself it is ideally or even practically fireproof. The American Architect, the leading architectural journal of the country, recently devoted an entire number to the exploitation of concrete construction and illustrating the best work done in that material, but it conservatively states editorially:

"... Finally, it must always be kept in mind that concrete, while a serviceable fireproofing mixture, is not itself fireproof, and that in certain positions it must be protected by other fireproofing, whose function it shall be to absorb into itself the inevitable disintegration due to impinging flame—or flame and water in alternation. . ."

Another writer in the same concrete number of that journal says:

"Carelessness, indifference, and irresponsibility seem to be the order of the day, and this is particularly so in the building trades. Where materials can be inspected after



General View of the A. G. Kahn Brick Company's Plant, Selma, Ala.

with the tidy condition in which they keep their plant, also the system which they use about everything.

They get about an average of \$6.00 per thousand, f. o. b. cars at factory. Mr. A. G. Kahn is president and general manager of the company and devotes his entire time to the welfare of the business, and is assisted by Mr. R. P. Stubbins in the office. Mr. R. G. Gangerwere is the assistant manager and superintendent.

After looking over the entire plant we again took refuge in the office, where we spent quite a little time with Mr. Kahn talking over the brick industry through the south in general. The trip to and through the plant was very pleasant, and we feel sure that any brickmaker visiting that part of Alabama will profit by stopping off at Selma and visiting Mr. Kahn. A very cordial welcome will be extended to every caller.

WILL S.

We would respectfully point out to those who are so deeply interested in forestry questions these days, that one of the best ways to aid in conserving forestry resources may be found by encouraging the use of more brick in building homes.

erection, as in brickwork, stonework, ironwork, etc., it is very hard to get even passably good results, but with a material that has to be taken on faith, like reinforced concrete, it requires a perpetually optimistic temperament to prevent undue anxiety from spoiling one's peace of mind. . . The fireproofing of concrete structures deserves as much study as the fireproofing of iron structures. The advocates of reinforced concrete construction do themselves no credit and do their material a great deal of harm by claiming that concrete is a fireproof material. The simplest tests which can be made by a school boy will prove that cement, after setting, can not resist fire without detriment, and the point of absolute structural disintegration is determined solely by the length of time it is kept in contact with fire. A few briquettes, a kitchen range and a bucket of water will prove this in a most practical and satisfying way, and remove any lingering doubt one may have on the subject. . . By protecting the structural parts of the (concrete) construction with this material (porous, terra cotta, fireproofing tile) it is possible to construct a building of great fire-resisting capacity at a cost considerably less than if structural steel, fireproofed with the same material (porous terra cotta blocks) were to be used. . ."



Declined Appointments.—Dr. Pukall, director of the Royal Prussian Ceramic School in Bunzlau, and Dr. Berdel, chemist at the Royal Ceramic School in Hoeher, have both declined the appointments offered them as teacher at the ceramic department of the University of Illinois.—Sprechsaal, No. 43, 1908.

Unsatisfactory Condition of German Brickyards.—A very pronounced falling off in business among the German brickyards has been noticed for 1908. Of forty-four corporations which have published their annual statements, representing an investment of 22.7 million marks, the amount of dividends for 1907 and 1908 amounted to 5.52 million marks. In 1906 and 1907 the amount was 3.26 million more, being a total of 8.78 million marks.—Tonwaren Fabrikant, No. 22, 1908.

Glazing on Unburnt Bricks.—To glaze unburnt brick, it is not a good policy to do so in dry condition. The brick will, in that condition, absorb too much and too readily the water which is used with the glaze, and the glaze will peel off before it is dry. The best method of glazing unburnt brick is to apply the glaze when brick are in leather hard condition, as the glaze will then dry uniform with the brick, and stick to the body. —Tonind. Z., No. 117, 1908.

First Congress of Ceramic Manufacturers.—In Austria exists at present only one organization which looks after the interest of the clayworker. It is especially devoted to the brickmaker, and the manufacturers of the finer class of clayware are not represented by any mutual combination. The congress of all Austrian clayworkers was held in August last in Prague, and proved to be a great success. The meeting lasted five days, and many valuable papers were read. There was held at the same time a small exposition of different manufacturers of Bohemia, and the clayworking industry was well represented.—Tonind. Z., No. 104, 1908.

Volatilization of Silica.—At the annual convention of the German Association of Refractory Clayware Manufacturers, Dr. Hirsch reported on the results of tests made for the association by the laboratory supported by this society. Because silica plays such an important part in the manufacture of fire clay products, the actions of silica were investigated in the laboratory. The tests were made in a small test kiln, which was heated by electric current, and the highest temperature reached was Cone 38. Of the eight materials tested, it was found that a fire clay burnt at Cone 35 lost 6.36 per cent. of silica, and that a high-grade kaolin lost 4.68 per cent. of the silica at Cone 38. All samples showed a loss in silica, and while in some it was not very great, the very fact that silica, which is supposed to be very fire-resisting, should volatilize at high heat, may have some important bearing on fire clay mixtures for high temperature work.—Deut. Topf. & Z. Z., No. 82, 1908.

Crushing Strength of Fire Brick.—Mr. E. Cramer, of the Refractory Clayware Manufacturers' Laboratory, has made tests regarding the connection between crushing strength and absorption of fire brick. Dr. Lurman reported some time ago that he found that there existed a ratio between the crushing strength and absorption of fire brick made of the same body and burnt at the same heat. In order to either prove or disprove these statements, Mr. Cramer conducted

tests for the association. The results obtained have shown that while a direct and accurate ratio does not exist between crushing strength and absorption, there is, however, some comparison between the two. In the discussion of this paper, there was a very animated debate regarding the advisability of continuing these experiments by the association. In order to continue this work, the association voted to spend 1,500 marks, and passed a resolution to have a committee of seven appointed to draw up the requirements for these tests.—Deut. Topf. & Z. Z., No. 84, 1908.

Clayworking Missionary Teachers.—In order to advance the qualifications among those clayworking establishments which can not afford to send their foremen to schools and universities, the idea has been suggested to appoint clayworking teachers, who could travel among the manufacturers and factories, teaching the principles of clayworking. In order to put this idea in operation, a meeting was recently held in Bunzlau, at which were present the Government officials of the district—the mayor of Bunzlau, Dr. Pukall, and the presidents of the different clayworking associations. The results of the meeting were that the district authorities should apply to the Secretary of Commerce, in order to pass such measures as would be necessary to have these teachers paid by the Government, and the appointments made accordingly.—Tonind. Z. Z., No. 127, 1908.

(Would it not be feasible for the National Brick Manufacturers' Association to endeavor to have State Legislatures direct the State universities which have clayworking schools to adopt the same principles?—Editor Foreign Scrapings).

The Draft of Continuous Kilns.—A continuous kiln with sixteen chambers, each measuring 16½ feet long, 9 feet wide, and 8 feet high, has a stack which is 100 feet high, with 2½ feet diameter on top. The draft on this kiln is poor, the burning is very slow, and the burning cost \$1.20 per 1,000 brick. The flue in this kiln is about 260 feet. In order to burn properly, there should be fifteen rows of brick in front of the fire, fifteen rows under the fire, and about twenty rows for cooling and emptying. This gives together about 210 feet of flues through which the gases must pass before entering the chimney. A chimney having now only 100 feet height is not sufficient to carry off all the gases. Proper calculations will give that a stack of about 140 feet high, with a diameter on top of 3 feet, will be necessary to give this kiln proper draft. It is evident that the kiln flues in general are too small and should be changed accordingly. If the kiln is in fair shape, the cost of repairing and changing the stack will not be too great, but if the kiln is old, it would be advisable to tear the kiln down, and build one of proper dimensions right from the start.—Deut. Topf. & Z. Z., No. 73, 1908.

Segger Cones 022 to 7.—There has been some difference in obtaining a uniform melting pot in the lower Segger Cones 022 to 011. In the old cones the mixture consisted of lead with aluminum, silica boron combination. In experiments conducted by Dr. M. Simonis in the testing station of the Royal Prussian Porcelain Manufactory, it was found that lead-free mixtures would give better fusion results for the lower series of the cones. In the old cones the difference in temperature between Cone 011 and 010 was 115 degrees Centigrade, while in the new cones the difference is only 20 degrees. The cones are made of a leadless frit having the following composition:

0.5 Na ₂ O	SiO ₂	Borax	191 parts
0.25 CaO	B ₂ O ₃	Marble	25 parts
0.25 MgO		Magnesite	28.75 parts
		Flint	60 parts

After the frit is well ground, the cone mixtures are made by adding small parts of kaolin. In order to distinguish the old from the new cones, the new cones are marked with "a." Thus 012a is the new cone.

The trouble with cones from 010 to 4 which contained oxide of iron, on account of which the fusion points were sometimes different, were also subjected to investigation. The results are that iron-free cones are now made, which

will be more reliable than before. New cones are now being manufactured by the Royal Prussian Porcelain Factory, and the chemical laboratory of the Tonindustrie Zeitung supplies the demand. The cones of this new series are also marked with "a" from Cone 010 to Cone 7.—Tonind. Z. Z., No. 119, 1908.

Do Sand-Lime Brick Have Weather-Resisting Qualities?—The investigations which were made by the Royal Prussian Testing Station of the Gross-Lichterfelde and of Copenhagen, of sand-lime brick as regards their ability to resist the severe action of the weather, have not given identical results. According to an explanation of Dr. Garythe, director of the Prussian Testing Station, the difference in the results is due to the method employed in testing. In the test made by the Prussian station, the water-soaked brick were put in a large, open box, while in the Copenhagen test the brick were put in a closed box. In both cases the boxes were surrounded by frost-producing agencies, however, with this difference, that by the open box the frost was only applied to the side and bottom parts, while in the enclosed box it was entirely surrounded by frost. In the first test the water of the surface on the brick had a chance to evaporate, and, therefore, the amount of water to be frozen was materially lessened. In the Copenhagen test, all the water which the sand-lime brick absorbed was frozen, and the difference of results can be attributed to this difference. The question arises, which of the two methods closely resembles nature. The general opinion is that the second test is the one which would give the same results as would be obtained under ordinary circumstances. Actual test of sand-lime brick in use has proven that the second test and its results are more to be depended upon than the first test.—Deut. Topf. & Z. Z., No. 84, 1908. Written for THE CLAYWORKER.

BUTTON-HOLE TALKS.

Looking Backward.

THE POTTERY MAN, the man that makes jugs, churns, and stoneware jars of various sizes, shapes, and colors, had been reading the papers and part of the time chafing and talking shop with his neighbor who makes flower pots, between the lines, but finally he read something that seemed to start him thinking, for he stopped reading and he stopped talking, put his feet up on his desk and gazed out the window for fully five minutes without speaking.

By and by the flower pot man called him back to earth and asked him what had taken him off into a trance.

"It is funny," said the pottery man, "but I struck something here in the last place you would think of looking for a news item about clay products that has put me to thinking and looking backward to the time when most of the containers for everything were made of clay."

"I was just reading a report of a meeting of box manufacturers in which a talk was made by one of the Forest Service men who, in pointing out the limitations of the supply of stumpage, said that we might eventually have to make a partial return, at least, to the primitive material for many containers—pottery."

"Now, who would think of finding any connection between wooden packages and pottery? That's what started me to looking backward to see if I can find the connection. I am not very long on ancient pottery nor on ancient history, but I can recall that fact that there was a time when all liquids and probably all food stuff was kept in pottery. Maybe it was something of this kind he had in mind, jugs and earthen ware vessels for holding liquors such as whiskey, wines, oils, etc. It is more likely to be steel tanks for the oils. As to whiskeys and wines, there is more of it being put in jugs now than the ancients ever kept that way, which is due to the increase in consumption rather than the exclusive use of stoneware for this purpose."

"It is both possible and probable that if the Government would let the whiskey people use chemicals to color and flavor their whiskey that in the course of time when barrels get a little more expensive there will be a greater demand

for jugs and even lead us into developing a special trade in large jugs to take the place of barrels in storage. Maybe when we get a little further along in producing flavors chemically that are only obtained now through the use of certain woods there may be more turning to pottery anyway for whiskey, wine and beer; that is, pottery and glass."

"That," said the flower pot man, "sounds to me more like you are looking forward and contemplating the possible spreading out into new fields with your business in the future. It don't sound like looking backward."

"That's where you are mistaken," the pottery man replied. "There is another item that has set me to thinking and carried me back to the old days in search for data on the use of clay products for boxes or other kinds of retainers than the well known types of today. There is an item about cigar boxes that says the country uses about 160 million boxes of cigars a year. These boxes are made of lumber, preferably of Spanish cedar, and are destroyed as soon as emptied because of a ruling of the revenue department which forbids their being reused again for cigars or tobacco. The same ruling applies to plug tobacco boxes."

"Well, what in the world has that got to do with pottery?" the flower pot man inquired.

"Oh, nothing, and yet somehow clay products and tobacco products will associate themselves in my mind. There are things called humidors, big ones, little ones, and various designs calling for a porous substance that will retain for quite awhile and give off gradually moisture to keep the cigars from getting too dry. In this work clay products are used sometimes in the forms of a porous brick flooring for the larger kinds of humidor storage; sometimes in the way of enamel ware cases for individual use. What I have been wondering about is that if the Forest Service for the sake of preventing waste in lumber should prevail upon the revenue department to amend its ruling and collect its revenue without the necessity of destroying the packages that some special cigar boxes or cases might not be made out of porous clay ware so that each box would practically be its own humidor; there wouldn't have to be so many of them because they would be too heavy to ship back and forth, but every dealer could have his full quota and have his cigars sent to him in a bulk from which they could be transferred to the clayware cases."

At this the flower pot man became thoughtful himself. After spending a few minutes at the task of thinking he said: "That's a pretty far-fetched idea, yet I can understand how it all set you to thinking and to looking backward for information. Of course, there is a bare possibility in it, too, but it is too far-fetched in my opinion to need immediate attention."

"Well," said the pottery man, "may-be so, but here's one I can give you that is not so far-fetched and one that should make you and others making your kind of ware set up and take notice. I told you that I can't help but associate tobacco and clay products. Well, now I have got here on my desk what is to my mind an ideal thing in a tobacco jar. Yet, if you will look at it and examine it closely you will find that it is nothing in the world but a cheap porous product belonging particularly to your flower pot class. I bought it at a department store one day for 35 cents. Now the point to it, and one that you should take notice of, is that there are other and more elaborate tobacco jars—jars that cost from \$1.00 to \$5.00, that when you really come down to it are not so suitable for this purpose and are not so much in harmony with smoking tobacco as a substance as this cheap porous jar that can be made and sold for a nominal price."

After the flower pot man had examined the tobacco jar in question for a while, which was nothing but a straight red clay jar with a top and knob to match cheaply made and porous, practically like a flower pot except that it had a different shape and had some gilding and dragon heads for ornamentation. After these things had been taken note of the pottery man said: "What you fellows that make flower pots need to do is to wake up and take note of these things for along about Christmas time lots of people buy for lots of other people such things as tobacco jars. They pay ridiculous prices and get something really not half so adaptable to the purpose as you should be able to furnish at practically flower pot prices. Now put that in your pipe and smoke it and go home and see if you can't get busy."

C. O. L.

Written for THE CLAY-WORKER.

THE CLAY PRODUCTS LABORATORIES OF THE TECHNOLOGIC BRANCH, U. S. GEOLOGICAL SURVEY, PITTSBURG, PA.

THE ESTABLISHMENT of the Clay Products Laboratories at Pittsburg was one of the most important events of the past year in the clayworking world. The United States Government spends over forty million dollars (\$40,000,000) annually for the various materials used in governmental construction work, and was, therefore, much in need of these laboratories at Pittsburg, wherein all the



Building No. 10, in Which Clay Products Laboratories are Located.

building products made from clay used by the Federal Government can be thoroughly tested and definite standards determined.

The importance to the clay industries of these laboratories is fully appreciated by the average manufacturer, as thorough tests will be made which will prove absolutely that clay products are the finest and safest building materials in the world. Aside from the standardization of the different building materials, numerous problems will be worked out that will be most helpful to the clayworkers, some of which are: What shall constitute the minimum crushing strength of a good common brick? Relations between porosity and crushing strength, Relation between porosity and resistance to freezing, Relation between permeability and resistance to freezing, Relation between density and resistance to sudden heating, Crushing strength of fire brick at high temperatures, Heat conductivity of burnt clay wares, Can the present rattler test for paving brick be improved, Strength of hollow tile walls, arches and columns, Strength of terra cotta, various shapes, etc., etc.

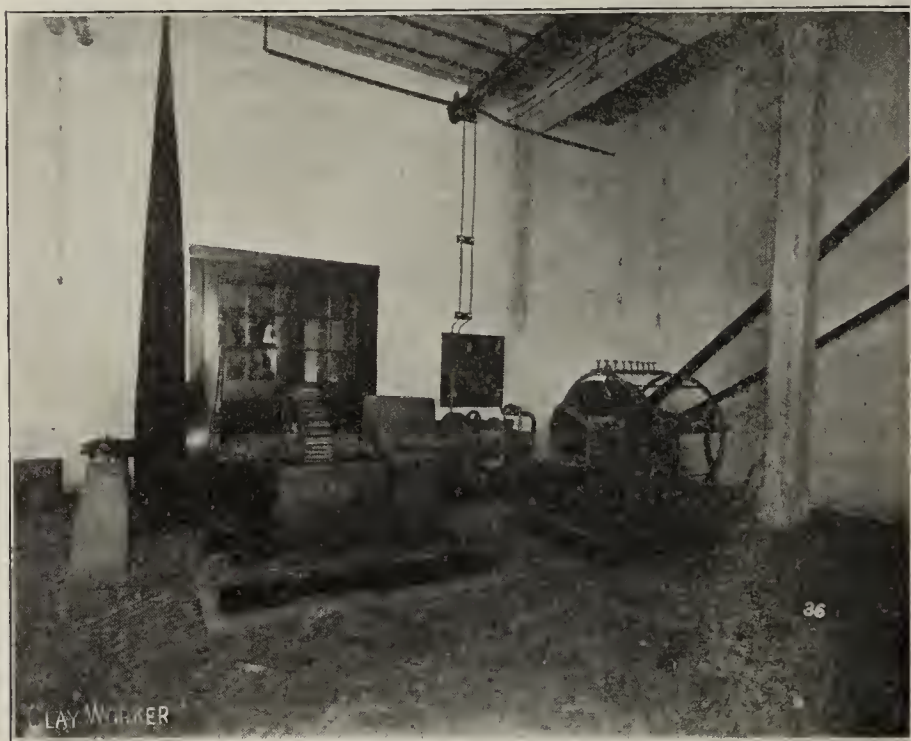
So great is the interest in this work that we are pleased to publish an illustrated article on the Pittsburg Clay Laboratories.

The Clay Products Section occupies the east end of Building No. 10, on the old Arsenal grounds, and rooms have been allotted for this work on both the first and second floors. In addition, a brick structure, 16x30 feet, provided with a 60-foot iron stack, has been erected for the housing of the kilns and furnaces necessary for the work.

On the first floor of Building No. 10, adjoining the cement and concrete section, is a storage room for the storing of raw materials and products to be tested. Adjoining this room and connecting with it by means of wide doors is the grinding room, containing a 5-foot wet pan with 2,000-pound rollers, to be used for both dry and wet grinding. Later

a heavy dry pan is to be installed. By means of these machines, even the hardest material can be easily disintegrated and prepared. In this room also a jaw crusher for reducing smaller amounts of very hard material is set up, as well as an iron ball mill, 30x16 inches, for fine grinding. These machines are belted to a line shaft along the wall across the building. Ample sink drainage is provided for the flushing and cleaning of the wet pan on changing from one clay to another.

The large room following is intended for the operation of all molding and shaping machines representing the usual commercial processes. At present there are set up an auger machine with a rotary, universal brick and tile cutter, and a set of brick and special dies, one hand repress for paving brick, and one hand screw press for dry pressing. For special tests in which pressure is an important factor, it is intended to fit up one of the crushing test machines of the cement section with the necessary dies, thus enabling the pressing to be carried on under known pressures. The brick machine is operated from the main shaft crossing the building in this room, which is driven from a 50 h. p. motor. It is pos-



Machine Room of the Clay Products Laboratories.

sible thus to study the power consumption under different loads and with different clays, as well as with varying degrees of water contents in the clay. As the needs of the work demand it, other types of machines are to be installed.

Outside of the building, in a lean-to, a double chamber rattler, according to the specifications of the National Brick Manufacturers' Association, has been set up for the testing of paving brick.

Crushing, transverse and other tests of clay products are made on the testing machines of the cement and concrete laboratories.

In the smaller room adjoining the machine laboratory two small wet grinding ball mills, of two and four jars respectively, are placed in position, as well as a 9-leaf laboratory filterpress.

The remaining room on the first floor is devoted to the drying of clays and clay wares. The equipment consists of a large sheet iron drying oven of special construction, which permits of close regulation of the temperature. It is heated by gas burners, and is used for the preliminary heat treatment of raw clays in connection with the study of the drying problems of certain raw materials. It is intended to work with temperatures as high as 250 degrees, C.

Another drying closet, heated by steam coils, intended for the drying of various clay products, has been designed with special reference to the exact regulation of the tem-

perature, humidity, and velocity of the air flowing through it. Both of the dryers connect by means of flues with an iron stack on the outside of the building, provided with a suction fan, which is driven by means of a belt from an electric motor.

On the second floor there are located the chemical, physical and research laboratories, dealing with the precise manipulations of the tests and investigations.

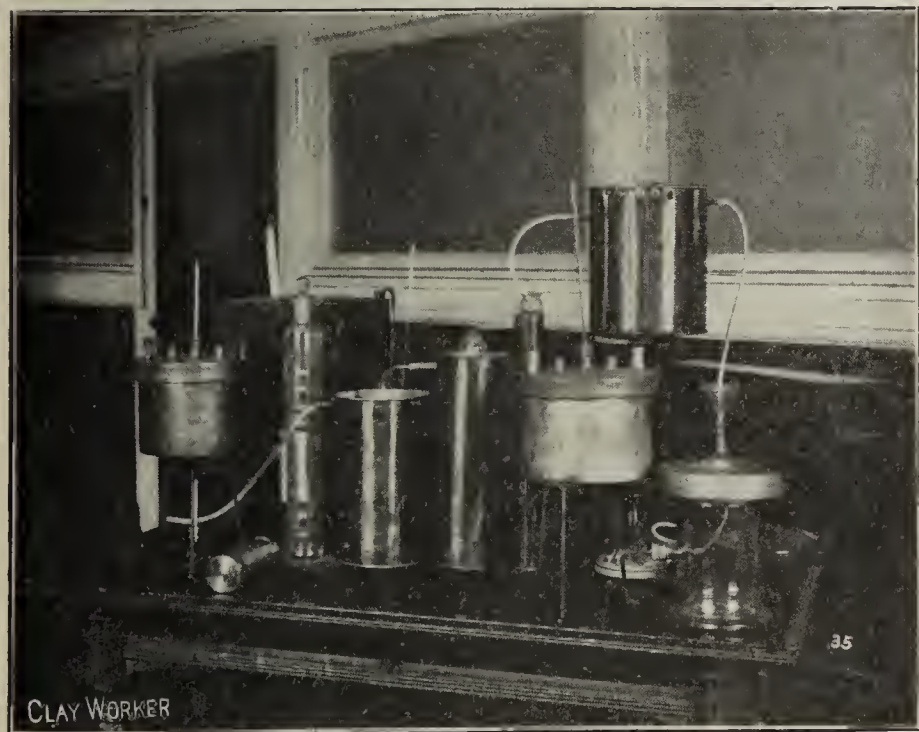
The chemical laboratory is fully equipped with the necessary apparatus for carrying on special chemical research in silicate chemistry, including electrical resistance furnaces, shaking devices, etc. It is not intended to do routine work in this laboratory. Adjoining this laboratory the office is located, followed by the physical laboratory devoted to the study of the structure of raw materials. For this purpose, Nobel and Schoene elutriators have been installed, together with viscosimeters of the flow and the Conlomb type, sieves, voluminometers, colorimeters, vernier shrinkage gauges, micrometers, microscope, and the necessary balances.

The opposite room, across the hall, is devoted to the study of the physical properties of the burnt clay products involving the determination of the specific gravity, absorption, porosity, permeability, hardness, translucency, etc., all the necessary apparatus being provided.

The two remaining rooms are intended for research work, in which special apparatus adapted to the particular investigation may be set up.

All of the rooms are piped for water, gas, compressed air and steam, and wired for light and power.

In the kiln house there is located a test kiln adapted for



Some of the Physical Testing Apparatus.

solid fuel and gas, which is of the down-draft type, with an available burning space of about 8 cubic feet. For heavier ware and the study of the fire behavior of clay products under conditions approaching those of practice a round down-draft kiln, 6 feet in diameter inside, is to be built. A flue about 13 feet above the floor level and supported by iron beams, parallel to the long side of the structure, conducts the gases of the kilns to the stack, which is symmetrically located with reference to the kiln house. Natural gas is to be the principal fuel. In addition to these kilns, there is provided a small muffle furnace, fired with petroleum, for the determination of melting points, and an electric carbon resistance furnace with an aluminum muffle for high temperature work. For crucible fusion work, a gas-fired pot furnace is installed.

Along the north wall bins are provided for the storage of fuel, clay, sand and other kiln supplies. Two floor drainage sinks are arranged, and electric current, steam, water and compressed air are provided.

Written for THE CLAY-WORKER.

SANITARY PIPE-MAKING.

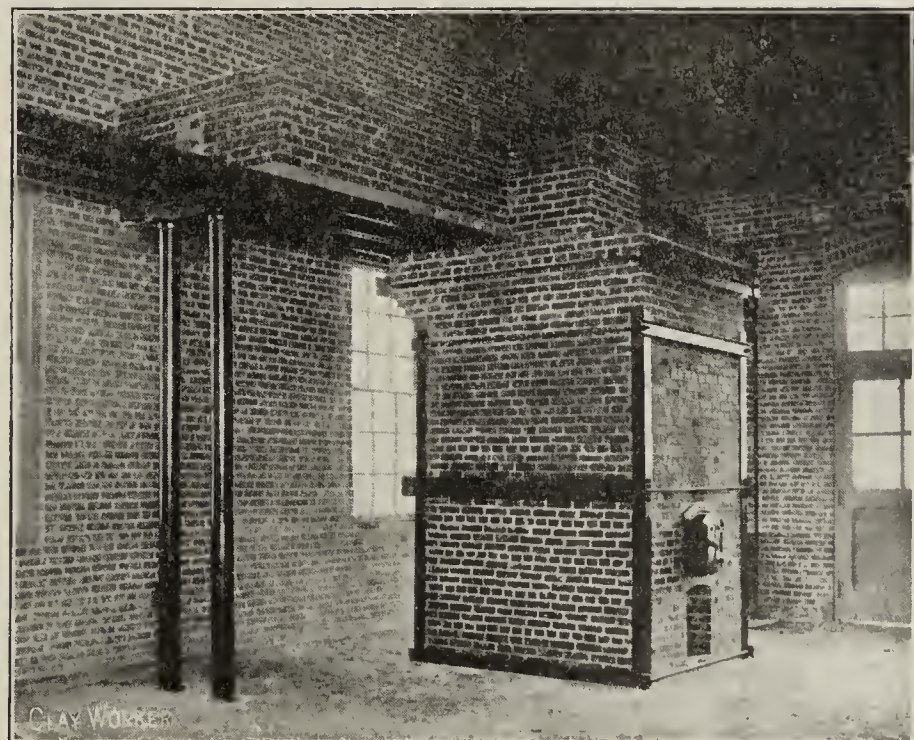
BY H. W. HARDY.



HAVING BEEN ASKED to write a letter on the manufacture of sanitary ware, such as pipes, gullies, syphons, and all kinds of odd work, I will give your readers an idea of how it should be made to get the best results, at the least cost in labor and expense. The way I am going to write you on is the best in my opinion. Of course, there will be a great many that will not hold with my ideas, but I can assure the readers of THE AMERICAN CLAYWORKER that this is the best in my opinion; and I should be able to give an opinion on this class of goods, as I have had a life-long experience in the clay trade in all its branches, including all the stages of making, setting, and burning. I also have a thorough knowledge of all kinds of kilns to burn same in, such as a brick in red, buff, blue, brown, white, and, in fact, any color needed for the building trade, also terra cotta.

Now, regarding the process of the best way of making sanitary ware. The clay is the first thing needed. It should be a buff burning clay, such as a strong bastard fire clay, that will stand from 2,400° to 2,500° Fahr. to vitrify it and to keep straight, with a shrinkage of not more than nine-eighths of an inch to the foot. The following is a good mixture from which to make sanitary pipes: Two-thirds bastard fire clay and one-third red clay, but this mixture does not make as good a colored pipe as the fire clay by itself.

The finest sanitary ware made, and that for which there is the most call, is the stoneware, salt-glazed. This pipe is a very light salt-glaze, and it is done in the burning. Of course you need to have a burner of first-class experience for this class of goods, for in making a good pipe the burning is the main thing—in fact, it is the whole thing. In all classes of goods made by clay, it does not matter how good



One of the Laboratory Test Kilns.

the ware is made, if the burner does not do his part well it will be no good. Therefore, it means spoiling the work of every other department of the trade.

The clay should be ground through a dry pan and screened through a fine screen, then go up in elevators or buckets to the mixer, or tempering mill, to be mixed and tempered. The clay wants to be well tempered and stiff tempered, so there will be no danger of the pipe going out of shape. My

idea of the best machine is the screw machine. I give you my practical reason for this that the screw machine tempers the clay a second time, and it makes the clay solid before it comes out of the mouth of the machine made into a pipe, takes all the air out of the clay, and keeps the pipes from blistering. It also takes all the lamination out of clay, giving the pipe a solid, smooth face.

Now when pipe is made you need a cutting machine, worked by hand, to cut the pipe at the bottom end. The pipe should be made 2 inches longer than needed. Then you cut the 2 inches off by means of this machine with an oil knife with a steel point, and with a suction to it, so that barrel contains oil; so when cutting you push the lever at the end and get oil between the cut, and by leaving the 2 inches under the pipe until dry it prevents the bottom of the pipe from cracking. By this process you get pipes of the best class at the least expense, as the ring under the pipe will allow the pipe to creep, therefore doing away with cracked pipes when pipes are set. The waste clay underneath the pipe makes better odd work, as it is so much more plastic and finer than when ground over again, that you get better odd work at less expense. The clay being finer, your plaster molds will not wear away one-half as fast as if the clay was coarse, and it gives odd work a much better appearance and finish.

The best sheds to dry the ware in are the steam sheds, covered with iron plates, sheds to be laid out in sections, so that the steam can be put on steady and increased as the ware gets dryer. There is another advantage in having the sheds laid out in sections; you can keep each section cold until the pipes are on and each section is full, then steam can be put on just to suit the ware, and these sheds get the pipes out much quicker, and they keep much straighter than is the case with other sheds, and there is practically no waste.

Now, about the kilns to burn them in. The best kilns are the round kilns, 21 feet wide inside, 6 feet to spring of arch, with 7 feet rise on arch. These kilns are down-draft, with a hollow bottom covered solid all over the floor, making a solid face to set on. The fire holes should be 20 inches by 24 inches outside the kiln, and the inside should be 20 inches by 31 inches, thereby giving rise to fire hole arch from outside to inside of kiln, 7 inches. This prevents the fire from burning the fire holes away, and does away with the expense of repairs. What I mean by keeping the fire holes from burning away, is that these fire holes will last three or four years without any repairs. The baggings should be 20 inches by 18 inches; this lets all the fire out of the fire hole as fast as the fuel makes it, and that is what is needed. In burning a good pipe there should be thirteen fire holes. By giving the 7-inch rise to the fire hole it gives the fire a better chance to travel over pipe to the center without damaging the pipes set close to bagging.

Now, in setting, the pipes must be dry, as steam coming from the pipes not set dry very often does more damage than people think. If there is iron in the clay it very often softens it to such an extent as to make it nearly impossible for the fireman to keep it from coming out on the pipe in large black blisters; and blisters of iron don't give the pipe a very good appearance, and often makes the pipes seconds or waste when they ought to be the best. Pipes should only be set three deep, as overweighting often causes pipes to twist out of shape and crack on the bottom course. Of course, the odd work can be set all over the pipes on top.

The wickets and top holes in the kiln should be daubed and the kiln closed tight, so that the fire will begin right from the start to do its work. The fire should be small when put on the grate, gently rising, so as to bring the kiln on full force in twenty-four hours, but must not be hurried, as the pipes will bump if fired too quick until thoroughly hot; when red hot the fire can be increased until the kiln is on at its fullest fire. The kiln should not be fired again until the fire is well-burnt off, so that there is no blaze or green fire on the grates. Now cleaning should not take place

oftener than once every twelve hours, and not that often if fuel is good and will stand it. This gives time between every fire for fire to penetrate through the goods before it needs cleaning.

Salt-Glazing the Ware.

Now you want small rings of 3-inch or 4-inch pipes 2 inches deep put on top of the pipe as trials, so the fireman can draw them to see how his kiln is getting along. When trials are beginning to vitrify, say when the kiln has got 2,100° Fahr., the first dose of salt should be given, then the kiln should be fired three times quickly, and then another trial drawn to see if the salt has taken, which it will have done if the body has gotten ready to take it. You can put another dose on, which means a good shovelful, in each hole on a bright fire, letting same stand five minutes before another trial piece is drawn. Now, if the body of the pipe is well vitrified, it will glaze well with two doses of salt. When the salt is on, the pipes want from three to four fires to soak them and give the salt time to burn well on them. When the kiln is finished, allow time for the fire to clear on the grates, so that there will be no danger of green fire when dampered. The damper wants to fit quite tight. When dampering see to this, as bad dampers and not having dampers tight often cause pipes to air chink. The grates should be level. This will save a great expense in bars for grates.

Now, I think I have given my American brothers a good deal to study over, as by using such a kiln as I have mentioned is a great saving in many ways. It can be burnt with rough slack with best results and with less quantity than the ordinary perforated bottom, and with better results. Of course, I know that this letter will be criticised, but anyone wishing to have a "go" at me over it will be welcomed, as I can verify all that is written in this letter.

Now regarding cutting machines. I don't suppose they are in use in America. By these machines you can cut the pipe in right lengths and worm the bottom end at the same time and do all the fitting. They save a great deal of time and labor. The machines run on three wheels, so that they can be taken anywhere you want to use them, and as soon as the pipe come out of the machine you put it down on the floor. The ring-finished pipes go right from the pipe machine to the cutting machines, and are finished right away.

Next month I will give all the readers of THE CLAY-WORKER a letter on dry colors, how to make different colored facing brick of inferior clays, that will stand any weathers and keep their colors, also the making of stoneware and earthenware.

I hope the above letter will be of some benefit and instruction to my American brothers, for I am a well-wisher to the clay trade in all its branches.

REVIVING A LOST POTTERY ART.

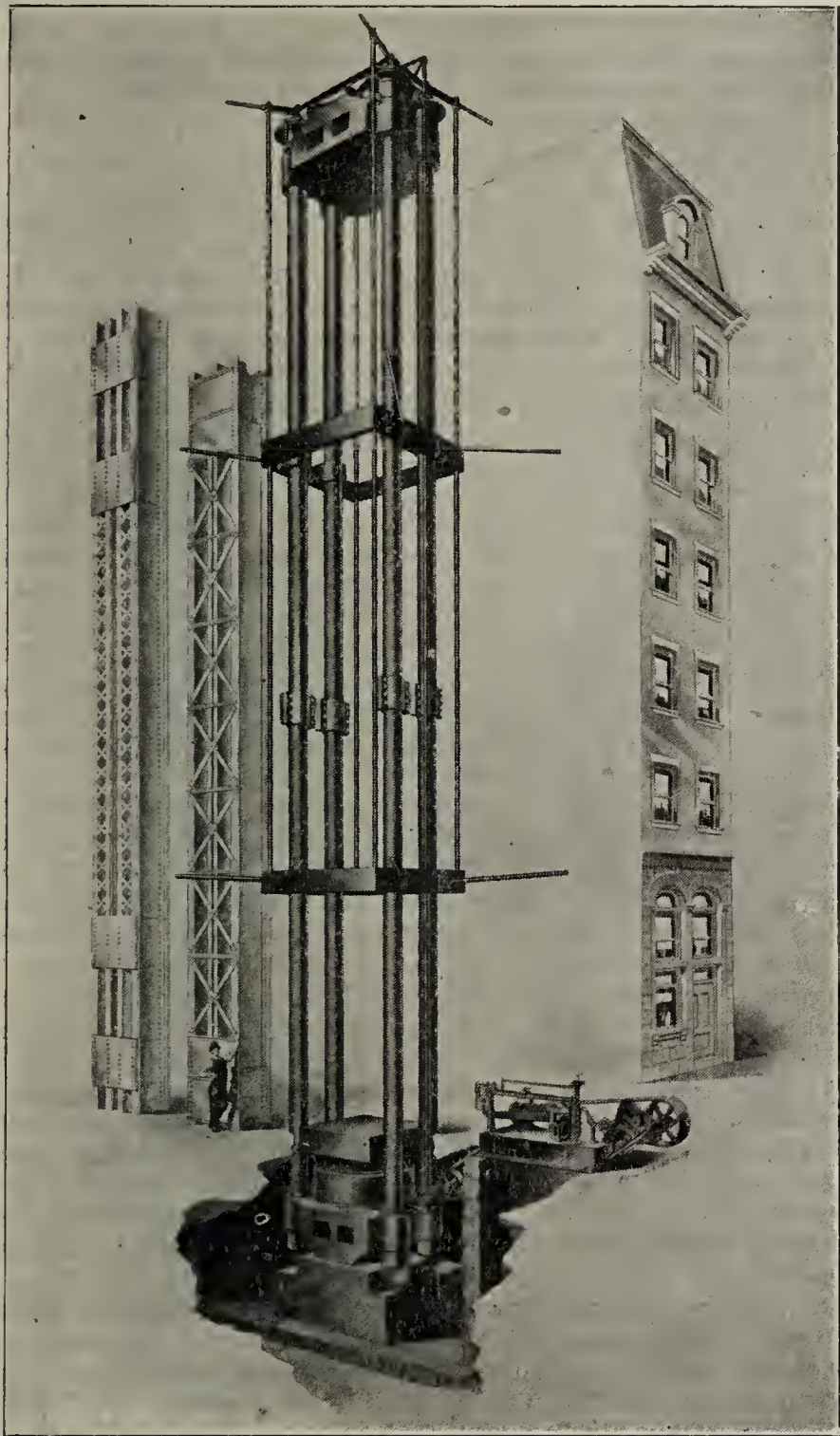
Among the recent Consular reports is one from Consul Ed. B. Walker, of Burslem, inclosing a clipping from the London correspondent of the Staffordshire (Eng.) Sentinel, which indicates that there has been discovered either the lost art of glazing pottery practiced by the Romans, or some new process that is practically the same. The clipping in question says:

"For a long time potters have made efforts to discover the method by which the Romans imparted that beautiful velvety lustre to what is known as the 'terra sigillata' ware, and it is now claimed that Mr. Karl Fischer, of the Art Pottery, Sulzbach, Oberpfalz, Bavaria, has discovered, if not the identical Roman process itself, yet something which gives practically the same rich and lasting effect. It is nothing more or less than the application of engobe in a liquid state to pottery in a 'biscuit' condition. The engobe sinks into the clay, and is then polished, just in the way that boots are polished with patent blackening. The discovery is regarded as very simple. The new glaze termed 'terra sigillata' can be made in a variety of colors, and it resists any degree of temperature. It has been exposed to snow and heat without losing its lustre. Any coloring matter may be used. An advantage of the engobe is that varying degrees of polish are obtainable."

A MAMMOTH TEN MILLION POUND HYDRAULIC COMPRESSION TESTING MACHINE FOR THE STRUCTURAL MATERIAL TESTING LABORATORIES OF THE UNITED STATES GEOLOGICAL SURVEY.

BY RICHARD L. HUMPHREY, ENGINEER IN CHARGE.

There is being constructed for the Structural Materials Testing Laboratories, United States Geological Survey, by Tinius Olsen & Co., Philadelphia, Pa., a vertical compression testing machine of 10,000,000 pounds capacity. This machine,



The 10,000,000-Pound Testing Machine.

having a gross weight of over 200 tons, and an extreme height above foundation of about 80 feet, is the largest ever constructed.

The machine was primarily acquired for the purpose of testing large blocks of stone, made necessary by the study of the building stones of the country, as requested by the supervising architect. Inasmuch as it was deemed desirable to study the effect of flaws and defects of the various kinds in large blocks of natural stone, a machine of this capacity was determined upon. In order to care for a further request of the supervising architect, for data relative to the strength

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of structural columns of brick and concrete, as well as of structural steel, the original clearance between heads was increased from 25 to 65 feet. Already the need for this machine in the investigation of built-up structures is established through the urgent requests for its early completion.

Some idea of its size may be obtained from the accompanying illustration, in which has been sketched one of the cords of the Quebec Bridge, which collapsed, and also a larger cord, which was used in the Blackwell's Island Bridge. It is readily apparent that this machine is capable of testing built-up structures of even greater size than those referred to.

The following brief description has been prepared because of the interest which has been manifested, and in response to the frequent requests which have been made for information concerning the machine.

The machine is a large hydraulic press, with one adjustable head, and a weighing system for recording the loads developed in it by means of the triple plunger pump. It has a maximum clearance between heads of sixty-five (65) feet; the clearance between the screws is a trifle over six (6) feet, and the heads are six (6) feet square.

The machine consists of a base containing the main cylinder with a sectional area of 2,000 square inches, upon which rests the lower platform or head, which is provided with a ball and socket bearing. The upper head is adjustable over four vertical screws (13½ inches in diameter and 72 feet 2 inches long), by means of gearing operating four nuts with ball bearings upon which the head rests. The shafting operating this mechanism is connected with a variable speed motor, which operates the triple plunger pump which supplies the pressure to the main cylinder.

The weighing device consists of a set of standard "Olsen" levers, upon which is weighed 1-80 of the total load on the main cylinder. This reduction is effected through the medium of a piston and diaphragm. The main cylinder has a diameter of 50 inches, and the smaller a diameter of 59-16 inches. The weighing beam is balanced by an automatically operated poise weight, and is provided with a device for applying successive counterweights of 1,000,000 pounds each. Each division on the dial is equivalent to 100 pound loads; the smaller sub-divisions are possible by means of an additional needle beam.

The power is applied by means of a 15 h. p., 220-volt variable speed motor, operating a triple plunger pump. The gearing operating the upper head is driven by the same motor.

The extreme length of the main screws necessitates splicing, which is accomplished as follows:

In the center of the screws at the splice is a 3-inch threaded pin for the purpose of centering the upper and lower screws; this splice is strengthened by means of split sleeve nuts, which facilitates the removal of the sleeve nuts whenever it is necessary to lower the upper head; after the head has passed the splice the sleeve nuts are replaced.

In order to maintain a constant load, a needle valve has been provided, which will allow, when the pump is operated at its lowest speed, a sufficient quantity of the oil to flow into the main cylinder to equalize whatever leakage there may be. The main cylinder has a vertical movement of 24 inches.

The speed of the machine for purposes of adjustment, using the gearing attached to the upper head, is 10 inches per minute. The speed for applying loads, controlled by the variable speed motor driving the pump, varies from the minimum of at least 1-60 of an inch per minute to a maximum of at least one-half inch per minute.

The contract provides that the machine shall have an accuracy of at least one-third of 1 per cent. for any load over 100,000 pounds up to the capacity of the machine.

Some idea of the size of the machine may be obtained from a statement of the weight of its principal parts. The castings for the base and the top head weigh approximately 50,000 pounds each. Each main screw will weigh over 40,000 pounds, the lower platform weighing about 25,000 pounds, and the main cylinder 16,000 pounds. The top of the machine will be about 70 feet above the top of the floor, and the concrete foundation upon which the machine rests will be about 8 feet below the floor line.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM CLEVELAND.



BUILDING SEASON is opening up here in fine shape. Although the frost isn't out of the ground yet, a number of big jobs have been started, and workmen will be added to those already employed just as rapidly as the operations will permit. This promises to be a great year for the brick and terra cotta business here, practically all of the big jobs calling for its use.

Several big projects which are entirely new have been announced within the month. William Brown, of Newcastle, Pa., ex-Lieutenant Governor of Pennsylvania, has leased 150 feet on Euclid avenue, opposite East Twelfth street. His lease calls for the erection of a building to cost at least \$200,000. Brown plans a five-story fireproof mercantile structure. Two old brick residences will be razed to make way for the new building, which will be modern in every respect. The site was purchased on a valuation of \$750,000, and a handsome structure will be built.

Work is in progress on the foundations of the new twelve-story building for the Brotherhood of Locomotive Engineers, which is to cost \$1,000,000. Architects Knox & Elliott are preparing to let the contracts for the glazed tile, brick and other materials needed for the building. It will be rushed along to completion as rapidly as possible.

A seven-story office building, to be known as the Universe building, is to be erected on Huron road, near the Huron Road Hospital. D. Mason Hosford, engineer, in the Caxton building, has prepared plans and will let contracts in a short time. It will be a fireproof building with walls of brick.

Foundations are about completed for the new Bailey ten-story annex on Ontario street. Concreting for footings has been in progress for the past month, and was prosecuted in the cold weather by using salamanders. A red pressed brick will be used for the front of the store front.

Secretary E. A. Roberts, of the Builders' Exchange, believes that the recent cut in steel prices will benefit the building industry considerably during the coming season. "It is a fact," Mr. Roberts says, "that figures are being taken on a number of good-sized projects which have been waiting for bargain-priced materials."

The Builders' Exchange is preparing to install a number of its exhibits in the Industrial Exposition, to be held here June 7-19. The exposition is being enthusiastically boomed by the builders, who see in it a fine chance to advertise their wares. Those exhibits removed from the exchange will be replaced by like exhibits, as many visitors from other cities are expected. The Cleveland Hydraulic Press Brick Company is one of the big brick concerns here which will make a display of its products.

Many towns in the vicinity of Cleveland are preparing for extensive building and paving operations this season. One of these is the town of Lima, which will expend \$1,000,000 during the year. The sum of \$250,000 goes toward the construction of the new Lima Hospital, for the care of the insane; \$100,000 for a new interurban depot; \$260,000 in new brick street paving; \$22,000 for sewer work, and the balance in miscellaneous building already announced.

Cleveland aims to spend about \$3,000 this spring on the installation of a tile manufacturing plant at the County Farm and Workhouse. There is an excellent clay deposit to provide the necessary material. Later it is planned to manufacture paving brick, using prison labor for that purpose.

Cleveland is to have a branch of the Ohio Builders' Supply Association. The object of the branch will be to promote the interests of the industry generally, to investigate the workings of the Valentine anti-trust law, and to improve the existing lien laws of Ohio. Bert J. Graham, of

the Ohio Brick Company, of Cleveland, has been re-elected secretary of the state organization, and W. A. Fay, manager of the Masons' Supply Company, also of Cleveland, who retired as president, is now a member of the executive committee.

The bricklayers' union of Cleveland has offered the Boston union financial aid in the latter's effort to carry the case now pending before the Massachusetts Supreme Court to the United States Supreme Court. The Massachusetts courts decided that a union had no right to fine one of its members who refused to strike, and enjoined the Boston bricklayers from taking such action. The unions, naturally, are bitterly fighting this action.

Attorney Carlos Chapman, promotor of the new Murray Brick Company, reports that work will proceed shortly on the erection of the company's plant in Newburg, where seventy acres of fine shale land is controlled. A very modern plant with the latest mechanical devices is planned.

Several rather important changes have been made in the staff of the Cleveland Hydraulic Press Brick Company during the month. A. J. Kline, formerly of Baltimore, who has been city selling agent, has resigned to enter the real estate business. John McKay, who covered Ohio and Virginia territory for the same company, has also severed his connection with the company to go into the heating and ventilating business. Their successors will be announced shortly.

The Cleveland Builders' Supply Company report a very active call for brick. The concern has become selling agents Company, of Columbus, Ohio, also the Bolivar brick, made by the Bolivar Terra Cotta and Brick Company, of Bolivar, Pa. Another brick to be carried will be the glazed brick manufactured by the Hocking Valley Fire Clay Company, of Nelsonville, Ohio. Among the good jobs filled during the month were two orders of 45,000 each for the new Brooks and Kilfoyle residences, of which Frank B. Meade is the architect. Both are in the Wade Park allotment. The Cleveland Builders' Supply Company has also recently become the Cleveland selling agents for the Bay State brick and cement coating, manufactured by the Wadsworth-Hoeland Co., of Boston.

Edward L. Frantz, the hustling young brick dealer, with offices and display rooms on the top floor of the Garfield building, reports a good spring business. He says he believes there will be a busy season of building, but does not look for great activity in many other lines. Mr. Frantz has closed an order and is delivering 250,000 Kittanning brick for the new church for St. John Cantius congregation, on Professor avenue. An order for 50,000 "Bull Dog" (Maga-dore, Pa.) brick has been closed for an apartment building for Mrs. Alma Green, on East 115th street, another for 25,000 pressed brick for a Commercial road store and apartment, and 40,000 for two store and apartment buildings on East 105th st. Mr. Frantz also reports that he is finishing deliveries on a 3,000,000 brick order for the foundations and interior walls of the new Mahoning Court House at Youngstown.

Bids were opened March 11 for paving sixty-eight Cleveland streets. They average 39 per cent. below the estimates of the engineers. The following were the low bidders:

Standard Paving Company, fifteen streets, \$95,870.20; Northern Ohio Paving and Construction Company, twenty-three streets, \$71,819.37; M. E. Kavanaugh, eleven streets, \$29,347.63; Cleveland Trinidad Paving Company, four streets, \$14,330.50; Helm & Roehl, six streets, \$10,383.28; G. B. Herring & Son, two streets, \$10,779.04; Enterprise Paving and Construction Company, two streets, \$6,719.30; Roehl Bros., two streets, \$3,482.54; Gould & Maybach, two streets, \$2,926.24. and Baldwin Bros., one street, \$1,396.52. BUCKEYE.

THE BATTLE OF BOTTLES.

The temperance movement which has been steadily spreading over this country for the past few years is being classed as the Battle of the Bottles. It is evident, too, that quite a lot of the bottles are being broken, or a least disappearing from commerce, and if the movement keeps up at the present gait makers of "drink cure" nostrums are apt to have to go out of the business.



DEEPER DRAINAGE.

WE JUDGE THAT the benefits to be derived from deep drainage, compared with shallow drainage, in the run of a decade of years under a like good treatment of the soil, to be about double that of shallow drainage. That is, shallow drainage is beneficial in relieving the surface of the soil of an excess of water, and the crop will be increased in an ordinary season fully 25 per cent.; the deeper under-drainage (3 or 4 feet) will increase the crop yield, when compared with similar soil not underdrained, fully 50 per cent., provided that each crop is well tilled alike.

We admit that the digging for the shallow drains can be done for half or less than half the cost of the deep under-drains; but the added benefits from the deeper drainage makes it in the run of years the better investment of labor and money. In close retentive clay soils the third foot in depth will usually cost as much to dig as the 2 feet above it, and the fourth foot in depth will cost ordinarily as much as the 2½ feet above it. But the deeper drains when done, and done well, will increase the crop yield so much and give such promise of deep and lasting fertility, with so much better soil conditions, we would not think of making such an important improvement without employing the better method of doing the work if the outlet could be had for the greater depth. However, we admit that it is better to under-drain at a shallow depth (2 or 2½ feet) than not to under-drain at all where drainage is needed. Where shallow drainage is the best that can be done, we say, go on and lay a greater number of drains; the improvement will pay a big per cent.

WHAT TO DO.

The trouble with many farmers who have been trying to farm wet land is that they are short of the money necessary to make the improvement of soil conditions by tile-draining their land. Some have been wise enough to sell a part of their holdings of unprofitable property, so as to be able to begin the work of tile-draining their land. It is a work that can be done a little at a time. First of all, provide a well-considered plan for the work—a plan embracing all that will need to be done to complete the entire drainage of a given area of land. Always begin at the outlet and progress with the work as conditions will allow until the undertaking is well done. Many have followed this plan until they completed the work without any extraordinary expenditure of money at any time; depending largely upon the profits accruing from the work already done. First, one field is tile-drained and put to profitable crop production, then another field is treated in like manner, and so on until all the fields are tile-drained; and, in addition, the wet pasture lands have been included in the plan outlined by some who have tried to do thorough work.

BEGIN RIGHT.

We know by experience and observation that the man who was correctly informed as to the best methods of tile-draining his land and began right, annually extends the work, and the results of his labor and the investment of his money is more and more satisfactory; while the man who did not want any theory in his is ever afterwards complaining that his drains do not work as well as they ought, or blames somebody because he has to do a part of his

work over, by taking up his tile first laid and putting in larger ones with more care.

From the experience of the past, the exactness with which a scheme for tiling a district of land can be worked out makes the work no longer an uncertainty, but a matter of prime importance, both as to the success and economy of the undertaking.

EIGHTY MILLION ACRES—THEN MORE.

In an argument for making drainage a national issue, it is stated that more than 80,000,000 acres of the best agricultural land in the United States are unproductive because they need drainage. Besides, there are millions of acres more that could be made to almost double their production if they were better drained.

EXTENDING THE WORK.

In passing through the country it is gratifying to note the fact that farmers are extending the work of tile-draining their land. The parallel lines of tile stretched across the fields indicate more thorough work than in years past. Tile manufacturers tell us that there is an increased demand for larger tile than formerly, which further indicates that some, at least, are replacing small tile, laid years ago, that proved to be too small with larger sizes, which is especially true of main drains. How much better it would have been if they had been well informed as to the need of providing more fully for extending the work in the future. The benefits resulting from that which was perfectly done has served, however, to point the way to better work, which, though expensive in the waste of labor, is, nevertheless, a valuable lesson, learned from experience. But it is important that we should learn how to do the best work in advance of beginning the undertaking. So it is; there is need of "line upon line and precept upon precept," here a little and there a little, to educate up to better work in land drainage.

CHEAP OR HIGH-PRICED LANDS.

It costs much the same to cultivate land, whether it is worth \$5.00, \$10.00, \$25.00 or \$100 per acre. If we can by any means at a reasonable cost increase the yield of our cheap land, the per cent. of profit is much greater than on more expensive land. It may be that some cheap lands are hardly worth the cultivation on account of the poor yield of crops. It may be that these lands if tile-drained would increase the crop yield 40 or 50 per cent.; that is, if the yield of corn before being tile-drained was thirty bushels per acre, and the yield, after being underdrained, is only forty bushels per acre and the price of corn 50 cents per bushel, there is an increased profit of \$5.00 per acre, with less labor in breaking the land and making it ready to plant and less labor in cultivation. For it is a fact that land that needs to be underdrained is much easier to break and make fine for planting and sowing seed after it has been tile-drained. So marked is the change in the character of the soil, that many have said that there is a saving of 50 per cent. of the labor required before tile-draining the land.

A correspondent says: "My neighbor has a field of twenty acres that he has cultivated twelve years. He tells me that he has planted it mostly in corn, has had three fair crops and three failures. Taking the whole time, his average has not been more than twenty bushels per acre. Another neighbor, whose land lays but a short distance away, and is of the same nature, has partially tile-drained his land, and he tells me that he has made an average of forty bushels per acre in the same time as mentioned above, or has grown 7,200 bushels of corn more than his neighbor in the twelve years. Or, to estimate the corn as worth 50 cents per bushel, he has a gain of \$3,600 over that of his neighbor. If such a gain can be had from partial drainage, much more can be reasonably expected from thorough work in tile-draining land. The above lands are called cheap lands, \$25.00 to \$30.00 per acre. The cost of tile-draining them fairly well would amount to about \$10.00 per acre, which would almost double the value of the land, lessen the labor of preparing the land for setting the crops, and also lessen the labor in the cultivation of the crops."

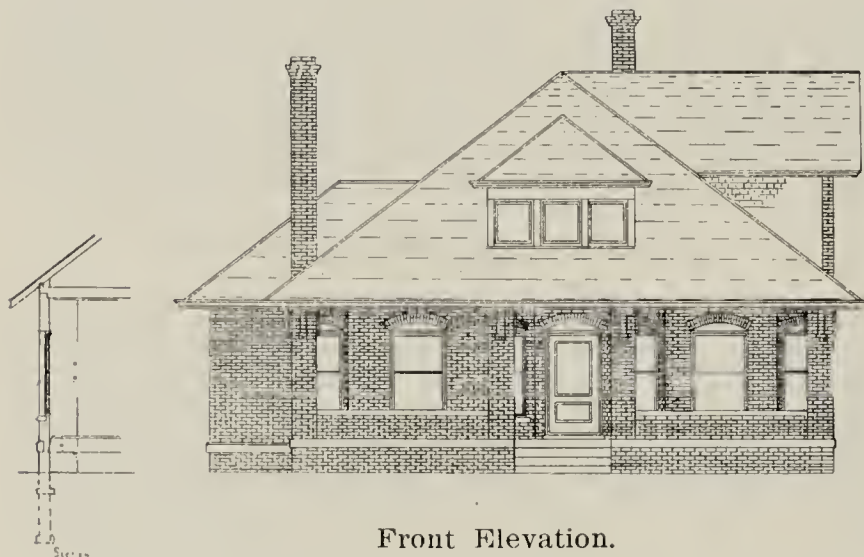
Written for THE CLAY-WORKER.

AN ATTRACTIVE MODERATE PRICE BRICK BUNGALOW.



THE FACT THAT CLAY products are the best building materials in the world is a well-established truth, so it is little wonder that a large number of the buildings and residences being erected to-day are of clay brick, terra cotta and tile. In a brick house we find the highest degree of sanitation, economy and comfort, repairs are uncommon, painting is unnecessary, and that it is absolutely fireproof, cool in summer and warm in winter, if rightly constructed, leaves little reason why burned clay should not predominate. Furthermore, there is no other building material which affords more opportunities for beautiful, artistic treatment. The idea that a brick house is a luxury and beyond the reach of the average citizen is a mistaken one. To be sure, it is slightly higher in first cost than frame, but with the added beauty and long life, what more satisfactory residence would one care to own?

It is our pleasure to present herewith plans and specifications of a beautiful brick bungalow designed by Mr. Charles L. Talford, of the Winona Technical Institute. The dimensions are 45 by 58. In the drawing of these plans, the chief aim was the convenient arrangement of rooms and the con-



Front Elevation.

struction of a substantial house at low cost. The exterior walls are designed to be built of brick.

There are six rooms on the ground floor, not counting a 7x10 bathroom and a good-sized pantry. The front porch runs the entire width of the house and is 10 feet wide. The front door opens into a hall, dividing the living room from the parlor, and runs back, allowing entrance to two bedrooms, the bath and the kitchen, and stairway, which leads to two bedrooms upstairs. There is also a large floored attic, which is well ventilated and lighted.

In both the parlor and living room there are commodious bay windows. The parlor is a room 13x15 feet and the living room is 17 feet 5 inches by 17 feet, with a colonade opening to hall and a double sliding door into dining-room. In the center of one side of this room is a fireplace built of rustic brick, over which is a heavy oak shelf. Adjoining the living-room is a 14-foot 9-inch by 17-foot dining room, which has beamed ceiling and plate rails on walls. There are two bedrooms on this floor, each 12x15 feet, each having a closet and two windows, especially located for the light and ventilating purposes. A convenient bathroom is advantageously located with regard to access from either bedroom. The walls and finish of the bathroom are white enamel. At the rear of the house is a kitchen 13x15 feet. There is a large closet and pantry opening into the kitchen. A door opens from the kitchen out onto a latticed porch.

All the finish in the main part of the house is in dark golden oak, while all that of kitchen and bedrooms is yellow pine, stained to match the oak. The house will be heated by a furnace and lighted by electric lights to all rooms.

A detailed estimate of the cost of the materials and labor used in the construction of this house is as follows:

Excavating, 137 cu. yds. at 40c per cu. yd.....	\$ 54.80
Cement work—	
48 cu. ft. (steps), at 40c per cu. ft.....	\$ 19.20
603 sq. ft. (floor), at 6c per sq. ft.....	36.18
422 sq. ft. (porch), at 15c per sq. ft.....	63.30
	118.68
Brick work, 61½ M., at \$12 per M.....	738.00
Stone work	85.00
Lumber	507.70
Mill work	450.00
Carpentry work	350.00
Plastering, 905 sq. yds., at 25c per sq. yd.....	226.25
Painting	175.00
Hardware	75.00
Plumbing	200.00
Heating	100.00
Tin and galvanized iron.....	75.00
Lighting, 30 lights, at \$2 per light.....	60.00
	\$3,215.43

After taking into consideration that a frame house built along the same lines would be only a trifle cheaper than if



Side Elevation.

built of brick, but would need to be repaired and repainted every two years or so, and then it would not have such lasting qualities as the house constructed of brick, it is plain to be seen that this is a moderate price brick house. Any one desiring copies of these plans and specifications should write Mr. O. C. Pierson, director of the bricklaying department, Winona Technical Institute, Indianapolis, Ind.

Northwestern Notes.

The Rapid City (S. Dak.) Brick and Tile Works have purchased additional machinery for the plant.

O. St. Germain has sold a half interest in his brickyard at Havre, Mont., to Aug. Coullard, of St. Paul.

The Alberta Clay Products Company, of St. Paul, has filed articles of incorporation with a capitalization of \$500,000. M. E. Newell, of Fort Dodge, Iowa, heads the list of incorporators.

The Schroeder Brick Company has sold its brick plant at Blekeley, Minn., to S. Kahn.

A brick plant will be opened at Elbow Lake, Minn., by Wm. Simon.

The Barron (Wis.) Red Pressed Brick Company has incorporated. Capital, \$10,000. E. A. Rockman and others.

A new brick and tile plant will be established at West Concord, Minn.

T. WIN.

Written for THE CLAY-WORKER.

TWIN CITIES AND THE NORTHWEST.



TWO MONTHS of the new year have passed, and the building trades can begin to form an estimate of what the season has in store for them. While the building season in this section can hardly be said to have started in earnest before the first of April, yet there has been a sufficient preparation to make possible a forecast as to what the future has in store. While there has been nothing which could be considered as a rush, nevertheless the outlook is considered very promising in all lines of construction work, and it is fair to assume that the work done during 1909 will considerably exceed that of the previous year. The general price situation promises to be much better, and manufacturers can look forward to a

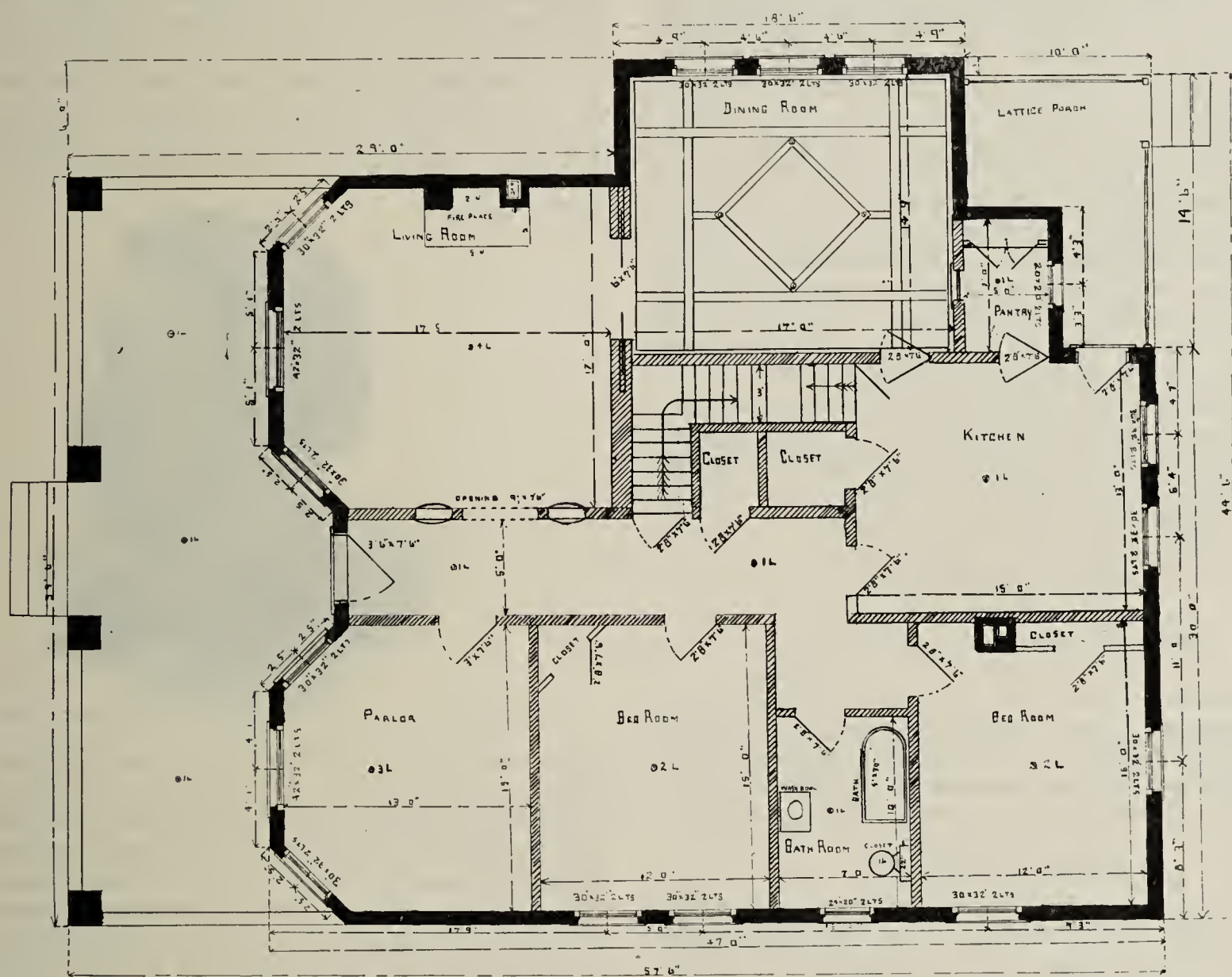
a maintenance of present conditions can not result in other than a very satisfactory season.

The annual meeting of the Northwestern Clay Association was held in Minneapolis in February, with a fair attendance from Minnesota and Wisconsin. The association adopted a resolution protesting against the use of brick made at the Minneapolis Workhouse upon schools and other public buildings. Plans for organized publicity were discussed and the committee authorized to push the matter. Officers were elected as follows: Geo. W. Higgins, of Minneapolis, president; P. Riedele, of Chaska, and J. W. L. Corning, of St. Paul, vice-presidents; R. P. Morton, of Bricton, secretary, and L. A. Boyce, of Minneapolis, treasurer.

Minneapolis building permits for January were \$377,840, an increase of 67 per cent. over the corresponding month of 1908.

The Minneapolis Builders' Exchange has added a cafe for the use of its members in its club rooms in the Warner block.

The Chamber of Commerce has decided to erect a ten-story addition to its building on Fourth street, South. It will be 54x65 feet, with pressed brick and terra cotta front,



First Floor Plan of Brick Bungalow.

better rate of profits upon their products. The recent money stringency is still too fresh in the minds of the people to make possible the somewhat unnatural rush that was characteristic of the years 1906 and 1907, but building will be carried on in a more sane manner, so to speak, without being materially held back, as was the case last season.

While prices promise to be much improved in nearly all lines, it is fair to assume that brick will show the most substantial gain. The past two years have been anything but encouraging to the manufacturer, and prices have steadily declined, but the general trend is now upward, and there is an excellent indication that business will be active and the demand sufficient to absorb the supply. Last year the building totals were held up by the large amount of residence building, but this year heavy construction work promises to again come into its own, and quite a number of plans have already been announced of such substantial character that

and will cost about \$200,000. Long, Lamoreaux & Long are the architects.

Congress has appropriated \$150,000 to be expended during the present season upon the proposed \$1,000,000 Post Office.

St. Paul building permits for January show a 44 per cent. increase over those for January, 1908, the total being \$285,576 this year.

Architects have been selected to prepare plans for the three proposed high schools, and they are now at work on the plans.

Owing to the crowded condition of the Ramsey County Court House, the Court House Commission contemplates the erection of a new fireproof office building, and has asked the Legislature to authorize a bond issue of \$250,000.

An Evangelical hospital is to be erected at St. Paul the present season at a cost of \$100,000. Rev. J. M. Baitinger is in charge of the arrangements.

T. WIN.

THE IOWA BRICK AND TILE ASSOCIATION.

REPORT OF TWENTY-SEVENTH ANNUAL CONVENTION OF THE IOWA BRICK AND TILE ASSOCIATION.

Held at Mason City, Iowa, January 13 and 14, 1909.

THE CONVENTION at Mason City was a success in every detail. The delegates began to arrive early Monday evening, and spent Tuesday visiting the famous clay plants of this great tile center. By Wednesday noon the fact was known that the record-breaking attendance of the 1908 convention had been exceeded; the complete registration showed a total of 154, beating the former record by fourteen.

The Hotel Wilson was convention headquarters, while the sessions were held in the convention hall at the Court House. It was a most enthusiastic convention; every session was well attended, many late comers being unable to get seats. The delegates enjoyed the reading of several excellent papers, and entered into the discussions which followed with much enthusiasm; especially was this so of the discussion on organization and the question of proper methods of promoting the clay drain tile interests of Iowa.

The fore part of Wednesday morning was given over to registration and the usual renewing of old friendships and the forming of new acquaintances. The hall was crowded when the convention proper was called to order at 10:30 by President Smith, of Mason City, Iowa.

FIRST SESSION.

Wednesday Morning, 10:30 O'Clock.

The President: The first I see on our program is a welcome address by Mayor McConlogue, who is not a brick-maker, but they tell me he can handle bricks, and no doubt can entertain you in that direction. I have the pleasure, gentlemen, of introducing to you Mayor McConlogue, of our city.

Address of Welcome.

Mayor McConlogue: Gentlemen of the Brick and Tile Convention—I want to tell a little story on myself, because your President has introduced me with the title of "Major," and I don't like to be reduced from the ranks. For a good many years they called me "Colonel," but at the present time they call me "Major." When I was in Saratoga Springs I was introduced by my Iowa friends as Colonel, and I always felt from the way they cut my title it was sometimes a trifle embarrassing. One day there happened to be a gentleman in the crowd from Texas, an old fellow, and he said to me, "By the way, where did you get the title of Colonel?" I just looked at him for a moment, and then said, "My Gosh, man, read your country's history." (Laughter.)

It is indeed a source of great pleasure to me, as a citizen of this city, to welcome you here to our flourishing city. I might detain you for several minutes telling you of the beauties and grandeur of our city, what has been done for it by God Himself, how He deposited at our door step riches of stone deposits, and just to the left and east of that the

fine grade of sand necessary for building and for the development of the cement and brick industries. But these facts are known undoubtedly to you. You are engaged in the enterprises that produce from the earth things and matters that are necessary for the material bringing up of the country. I wish especially to call your attention to our city and to our people, because I do believe that Mason City, without an exception, stands in the van with her young, progressive industries, and with as fine a class of people as ever came together within the confines of any commonwealth. Forty years ago, as a barefoot boy, I came to this place. I have watched the growth and development. The people then were broad and liberal-minded, and they have always continued to keep pace with the times. Today it is still the same. What more can one expect from a community



Mayor J. H. McConlogue, Mason City, Iowa.

which was built up so splendidly and so rapidly as we have?

I can say to you that a growing city of 12,000 inhabitants is sure to have troubles of its own. You know there are pitfalls here and there in a city of that nature. Mason City, I firmly believe, however, is freer from those than any other town that I have ever had knowledge of. Yet it is a city with great railroads gathering in from all sides, and such a city you might well expect would gather here classes of people that would not be of the best for the community. But Mason City is free from all that. Our railroad men take a pride in their city. Our railroad men on all the lines are here acquiring homes and improving them. It is the same in all our other business enterprises. This is one thing that makes us progress. The men who work and toil on our railroads and in our factories are endeavoring to build up our city, and build homes and make this place a model in that particular.

I shall not turn over to you the keys of the city, because I am not personally acquainted with all of you. (Laughter.) I do not know what you would do with them. But I do assure you that you will find a welcome here with our people, and that they are anxious to have you go away with impressions such as I have outlined. Our churches and schools and libraries are conducted in a broad and liberal and business-like way, which we are proud of as one of

the signs of the times. Our people are not against anything that is legitimate and proper in the way of developing industries, and they are not against corporations. They realize that in this age things move rapidly, and that it takes concentration of capital to move such enterprises. Corporations with capital amounting to \$2,000,000 find here encouragement, because the people realize that it is absolutely necessary and indispensable in this business way to concentrate business, as good policy demands them to be carried on. You will find that we have here developed the industries that you are interested in to a wonderful extent in the last ten years. You will perhaps visit our factories and see what has been done in the way of utilizing the products in the earth for the good of the country at large. Iowa's lands are becoming valuable, and it is most essential that all of it be made to give the best returns possible. This is best accomplished, as you know, by tiling our wet lands and draining the soil, and to this end the enterprises that you are interested in have a great future. Again, gentlemen, I bid you welcome—one thousand welcomes to our city. Come to our homes and enjoy the hospitality you will find here, and when you return to your own homes I trust that you will have fully realized the promises of the Mayor and citizens of Mason City. (Applause.)

The President: We have on our program, "A Response for the Association," by O. C. Pixley, of Des Moines.

Response to Mayor's Address of Welcome.

Mr. Pixley: Mr. President and Gentlemen of the Convention—When I was told that I would be called upon to



President C. L. Smith, Mason City, Iowa.

fill this place on the program, I was willing to acknowledge this morning that I did not know what to say. Charles Rawson agreed to meet me this morning and tell me what to say, and how to say it, but he skipped out and left me. It was the same with Judge Stevens. He told me to say that Mason City would be open to us for a few days at least, and called attention to the fact that the Mayor might not have enough confidence in us to turn the town over to us. The Judge said it would make no difference whatever I might say, and I should go ahead and talk just as I pleased.

I want to warn the convention that although we do not know the kind Major personally, we will do our best not to stop to wonder whether he will turn the keys over to us, and then after the convention is over he will know better how we should have been treated. I want to assure the people of Mason City that it gives us great pleasure to visit with them. We have come to your city to hold our twenty-seventh annual convention. The association, coming here as it does, comes prepared for entertainment and instruction. It is the first time I have personally been in Mason City, and, consequently, I do not know the city as well as others, but those who do know it assure me that there is no lack of the grand spirit of good fellowship.

In the years gone past it was comparatively easy in school and college for us to study and learn, but now, as business men, we can not study and learn as we did here-

tofore. Our future knowledge must come through the school of personal experience and object lessons.

We are very fortunate in being able to come to Mason City. There is no other city in the United States or in the whole world that can present us with the same advantages. Technical papers and discussions should be listened to attentively, but it is also very important to get out and see the manufacturing plants. That will be the object lesson from which we can learn.

I wish to assure your honorable Mayor that we fully appreciate the courtesies you have extended to us. (Applause.)

President Smith then read his annual address, as follows:

PRESIDENT'S ANNUAL ADDRESS.

Gentlemen of the Association and Fellow Craftsmen:

To me it is a pleasure to see so many of you present, and I feel from the becoming smiles and the earnest expressions on your faces you have come for a good time, and will aid us in making this one of the most profitable meetings to the craft of any in the history of the Association.

Another season of bountiful harvest has been gathered in. With the prevailing high prices for the farmers' products, it betokens in a measure a period of good times for the farmers of this country. This, with the settled financial conditions, is moving our railroads and other large corporations in a period of activity little thought of six months ago.

It is indeed pleasing to see the resumption of building operations and the placing of heavy orders for structural material. One year ago when we met, conditions were quite different; the financial horizon was almost obscure and all securities depressed on account of money going, as it does at such times, out of circulation to the vaults and shylocks of our money centers, to wait a more inviting time to return at a little higher rate of interest than before.

Notwithstanding, Iowa farmers in the past decade have been unusually prosperous, land values having doubled and tripled in many instances, and the price of their products was never higher, with the abundant harvests, making the farmers the most prosperous of any class.

With these as our clients, we, as manufacturers, should be prosperous, too, but are we as a class? How many of you can look out upon your well-built shops and realize the same ratio of gain as has come to the farmer in the past ten years?

I fancy there are but few. Now, why does this condition exist? When you make brick that are as enduring as time to rebuild the beautiful homes and cities of this grand country, and you that make tile to reclaim the wet land, out of which your clients realize 25 to 100 per cent. annually on the investment, and the improvement so different from any other in farm operations. You build a house, barn or granary and the moment it is under construction and as long as it lasts it is a risk to fire, lightning and tornadoes, and unless built of good brick is subject to quick corrosion, while a good drainage system will endure all time to come, unless molested by an earthquake like that of Italy, and even then as the sea recedes it would aid in removing stagnation and save its cost in quick lime to preserve sanitation, and then continue to save and perpetuate dividends we often hear of; but they never mature for the clayworker. They are usually a year or so in advance.

Now there is not a business in this land producing, in my judgment, a commodity that is so satisfactory to the consumer, but we as manufacturers fail in a measure to realize our share of a just profit. Often we are ourselves to blame, working antiquated methods, and need to produce more positively. This requires the very best equipment, manned by the best men you can have at your command. You all know where the best machinery is made to work your respective clays, without having to pass through the expensive experimental stage that so often produces failure with the novice, and baffles the patience of the men grown gray in the work.

One other suggestion I would make along these lines is a closer organization from an educational and financial standpoint, to bring about the most economical results.

We as clayworkers are progressive. Contrast, if you please, the modern plants of this city with one of Iowa's pioneer plants established in 1882, twenty-seven years ago. The machinery equipment consisted of one Penfield plunger machine, with three horses as the motive power, producing about 3,000 feet of 4-inch tile per day out of the prairie loess clays, and burning them in one 18-foot down-draft kiln. You will see in passing through the well-equipped plants of this city, single machines producing in a single column 34,000 to 40,000 4-inch tile in a day of ten hours, or its equivalent of other sizes. This marvelous result has been brought about by close communication with one another, and a constant pressing demand on the clay machinery men for machinery of higher efficiency.

You may think when you have passed through the plants that it is the slippery nature of the clay that merits all this. We know we have good clay in abundance, but let me tell you it requires more careful work to prepare our clays from the bank to the machine than any clay I have ever worked, and I feel you will agree with me if you will take the time to study the situation carefully. To bring about the desired result of a greater finance for our corporation, it would seem we have talent at our command to place this association on a higher plane, and no doubt our most worthy Secretary will, in due time, present to you the results of his deliberations on this subject.

The association, you will see by McHose, has had its ups and downs, from the time of its origination to the present time. Its first inspiration was tile drainage and the manufacture of clay products with machinery. It ran along smoothly through the 80's, or when the dry seasons set in. About that time the paving brick became the burning question of the hour. This for a time gave it new life, but we continued to meet year after year, until interest began to lag to such a degree that we failed to interest our fellow craftsmen sufficiently to attend our meetings, even those who were residents of the cities in which we were holding our meetings. A change was made in the plan of the organization, and we have been successful in maintaining an interest up to this time. Yet, I believe there is a chance to reach out broader and higher.

We have the new drainage laws that in some instances need alteration, and many other matters which require expenditure of money. We could with profit have valuable literature sent at least to each of the members of the Boards of County Supervisors, calling their attention to the superior merits of well-burned tile over all other material for drainage purposes. (Applause.)

The President then called upon Mr. McHose, of Boone, for the next number on the program.

J. B. McHose: Fellow Clayworkers—I am sorry for the little hitch in the President's paper. I imagine when you hear my paper you will suspect that he had access to my paper, but not long enough to learn all the facts in it. I didn't get in until 3:00 o'clock this morning, and how he managed to get hold of my paper in the time intervening, is a mystery to me.

The President: I used to know you.

Mr. McHose: I do not claim a patent upon my paper,



President-elect J. L. Stevens, Boone, Iowa.

and hope any old members who can do so will correct me, that we may have an accurate history of our association.

OUR HISTORY.

BY J. B. MCHOSE, BOONE, IOWA.

Mr. President and Gentlemen of the Convention:

You doubtless very much desire to learn of our early history, and I feel certain that you will have a still stronger desire when I tell you that it is impossible for me to give it. Probably the most pointed reason why you should have the paper on the subject lies in the fact that we have no records of such history, or nearly none.

When I undertook this work at the request of our Secretary, while I knew our own records were missing, I did not doubt that it could be reconstructed from the old files of the *Drainage Journal*, to which I hoped to get access, but this, for the most part, I have been unable to do.

In due course I applied to our esteemed friend and foremost worker in the literary field of clayworking, and especially along the lines of tiling and tile making, Mr. J. J. W. Billingsley, for aid from the files of the old *Drainage Journal*, well knowing that as publisher he must have preserved the files that would certainly furnish all of much consequence to our early history; but at that time Mr. Billingsley was away engaged in other fields, and when he found time to answer it was to say that with the sale of the journal to Mr. C. C. Elliott, also went the old files. It was then too late to locate Mr. Elliott and the files to be able to make any use of them in this paper. However, Mr. Billingsley found me a few odd copies, from one of which he sent me considerable matter of interest concerning our first meeting.

Naturally, the first question that suggests itself is the date of our first meeting, and right here we meet conflicting data. Our announcement says that this is our twenty-ninth annual convention, while last year it was given as the twenty-seventh, having

grown two years old in one. However, from a number of programs I find that the date given this year is consistent with most of the programs for years. In the oldest that I have, containing both the date and the annual meeting, it is given as the sixteenth—the year of 1895. This would make our first meeting in 1881, but I believe that both and all are in error, that we were organized in 1883, and that this is our twenty-seventh annual meeting, and I refer you to F. A. Stephenson, who is, so far as I am able to discover, the only charter member that is with us now, and who has probably attended more meetings of the association than any other member. This first meeting was held rather informally in the fall at the State Fair Grounds, by the gathering together of a number of clayworkers by Mr. Billingsley, of whom Mr. Stephenson was one. The list of members of the next meeting, in 1884, as given me by Mr. Billingsley, tends to show that the date given by Mr. Stephenson is correct, as you may note in the list of members by their appearance or disappearance from the record.

The President was C. J. Merrill, and members as follows: Mills & Corton, Polk City; R. R. Thompson, Maxwell; Ottumwa Tile Company, Tiffin Brick and Tile Company, I. C. Nichols, C. A. Barnes, I. J. Chamberlain, West Liberty; H. D. Fitch, Lockridge & Beaty, Nevada; Carter & Brother, Marengo; Panora Tile Company, B. Ketchum, Bonapart; Wm. Keith, Tipton; W. C. Shepard, Boone; R. M. Kerns & Co., Adel; N. R. Hook & Co., Fremont; Pierce & Ried, Kossuth; Montecello Tile Works, Indianola Brick and Tile Company, A. C. Bishop, Indianola; J. J. Cook, Columbus Junction; C. J. Ciddings, Kelley; C. J. Merrill and Des Moines Brick and Tile Company, Des Moines; L. W. Porter, Carlisle; West Union Tile Company, Robert Eton, Scranton; J. T. Rood & Co., Clifford; Fisk Brothers, Pella; J. I. Messenger, Fairfield; Lowler Brothers, South English; Jefferson Brick and Tile Company, C. S. Chambers, B. F. Cue, Des Moines; L. E. Chamberlain, Tiffin; J. J. W. Billingsley, Indianapolis; Nolen & Madden, Rushville, Ind.; John Dawson, Colfax, Ind.; E. P. Smith, Muncie, Ind.; Eli Marvin, Frankfort, Ind.; J. W. Penfield, Willoughby, Ohio; Wm. Hammerschmidt, Lombard, Ill., and Nathan Ciles, Peoria, Ill.

Papers were presented to the convention from C. F. Clarkson, J. S. Ganghan, D. W. Porter and Prof. S. A. Knapp, of the Agricultural College. The new officers elected were: J. S. Ganghan, Winterset, President; A. C. Bishop, Indianola, Vice-President; B. F. Cue, Des Moines, Secretary, and Benjamin Ketchum, Bonapart, Treasurer.

As you will notice, but few of the firms or individuals here mentioned are in business today. So far as I know, our Treasurer, Mr. F. A. Stephenson, is the only one that has continued to this time. If there are others I would be glad to have their names, and I would be glad to have any other suggestions or corrections to incorporate in this paper, as I am mindful of its shortcomings.

The oldest program that I have in my possession bears the date of 1887. Its President was T. H. Whiting, of Clermont, and G. S. Chambers was Secretary. Papers were presented by C. F. Clarkson, J. J. W. Billingsley, John Scott, Nevada; E. D. Shreve, Bucyrus, Ohio; N. I. Chamberlain, president of the State College, and R. M. Kerns. The subjects were all upon tile and drainage. It may be noted in passing that the conventions during this period were almost wholly dominated by the drain tile interests, and it was this idea that drew most of the members together. The brick interests were hardly of consequence to be noted. The whole tile-making and tile-using business was new. The occupation had been taken up largely by a class of men without any previous experience in the clay field, attracted, doubtless, by the colossal fortunes since acquired by all our brethren in the business. They were anxious to get pointers in the simplest manipulations of tilemaking and burning. The temptations to enter the business were great, and anyone who discovered a peculiar looking earth upon his land was quite sure that his fortune was made, if he but entered the tile business, and shortly after making the start he started to the convention to have someone tell him what was the matter. However, educating the public in the advantages of tile draining was one of the important objects of the association. Eventually, either the demand for tile or the profits in their making had not met their expectations, so brickmaking was taken up at least as a side line. At this time the sizes of tile usually ranged from 2 to 5 inches, and 6-inch was regarded as a large tile. If larger were really made they were regarded rather as curiosities, and too expensive for farm drainage. Even the boldest of us then would not have dared to predict the common use of tile running from 15 to 36 inches. It was common at this time to make tile in each half-inch from 2 to 5. It was due to Mr. Billingsley more than any other that our association was formed, and to him that it kept on its legs at times when it seemed decidedly wobbly. We notice his name, usually with a paper, at nearly all meetings up to this time, and for years after. For the present vast importance of the drainage interest, both in use and manufacture, we owe more to Mr. J. J. W. Billingsley than any other man in America. All the state associations in the West either owe their origin to or a very large measure of the good they have accomplished to him. It may be said that someone else might have done the work, but it certainly can be said that no other did do the work. Someone has been eulogized for making two blades of grass grow where but one grew before. What shall we say of a man, the direct result of whose work has been to make millions of acres of bounteous crops grow where nothing grew before? If he were here today to see the forest of tall chimneys standing around this city, making it the greatest tile producing point in the world, we could say: "This is some of your work, but by far the greater part lies buried beneath the fertile soil all over the great West."

The writer made his first appearance at the association in 1891, having recently moved his factory bodily from Illinois to his present location. He commenced to make tile in 1882, when he had added tile to the brick business. The association that year was found in the State House, where for many years all its meetings were held. J. V. Boling was President. At this time I became acquainted with our able President, Mr. C. L. Smith, who then and for many years was its Secretary. It would be entirely within bounds to say that no one in our association has done more real hard work for us than C. L. Smith. At that meeting there were papers by Mr. Merrill, Hon. E. T. Haines, E. M. Pike, Robert Goodwin, Wm. Kettel, and, as usual, Mr. Billingsley. Three of these articles were upon brick, mostly paving. Tilemaking in Iowa had taken a distinct trend toward shale, as a better material, and it was natural that shale or paving brick should follow.

The earlier name of the association was the Iowa Tile and Drainage Association, but that year, 1891, we notice that it was Brick, Tile and Drainage, showing in addition to the program, that we were fully alive to the brick industry. Just how long before the word brick occurred I can not say for want of data, but in 1887 we note that it was not in the title, nor was it a subject for the papers. Later, in 1896, in adopting a new constitution, the word drainage was dropped, hence our present name. This also marks a distinct advance in this, that it was no longer thought of prime importance to so pointedly urge the benefits of drainage, it having now become so much better understood.

For some seventeen years the convention met regularly in the capital city. Then it was thought advisable to rotate the place of meeting, and in 1899 the meeting was held in Sioux City, which, so far as I am advised, was the first move from the capital. Since then we have met in most of the larger cities of the state, except those in the extreme east, with, I think, much benefit to the craft.

It had been my purpose to include a list of our officers from the first, but I find so many blanks which I am unable to fill that I forego the attempt. A history should include some reference to our work, but the main work and benefit comes to the membership from its acquaintance with each other, the heart to heart talks, and the papers with their discussion. This is so obvious that I will not elaborate upon them.

At least two subjects of importance aside from these matters have been before us. One of them, a course of ceramics in the Iowa State College, has met with some success. We have secured a law establishing the course, but as yet have not secured an adequate appropriation to put it squarely on its feet. I hope that this will soon be accomplished, even at the present session of the legislature.

A vast improvement in the drainage laws has taken place since this association took up the matter a few years ago, and no small part of the success is due to the work and agitation set in motion by us.

I suppose that most of the members attending this meeting have noticed on their way here the miles of large ditches, both tiled and open, that are either constructed or being constructed. This has been made possible only by the legislation fathered by this association. All north central Iowa, to say nothing of other parts of the state, is being or is to be traversed by these great drains, costing millions upon millions of dollars. Just two days ago Governor Garst issued his proclamation, announcing the adoption of a constitutional amendment which seems to have removed the last serious obstacle to practical drainage laws.

I would like to mention the names of many members that have, in season and out of season, contributed to make this association the power for good that it is, but if I did, it would be only to miss many that ought not be missed.

In conclusion, I can say that the twenty-seven years of our work have been productive of great good, not to ourselves alone, but to the great commonwealth in which we live. A marked advance has been made by the state as a result of our work. The state is the better for our having lived and labored, though the betterment is more to the public than to us. What nobler tribute could be given us? Long live the Iowa Brick and Tile Association. (Applause.)

The President: I would like to call upon our Treasurer, Mr. Stephenson, to give an account of the first meeting informally called in Des Moines.

Mr. Stephenson: The first meeting was held at the State Fair at Des Moines, in 1883. I had on exhibition an old tile machine set up there and making tile. Mr. Billingsley came to me and said, "We want to form an association in Iowa." There we formed the first association that I have any recollection of. Lew Thorn was also there with a machine. C. J. Merrill, the Des Moines man, was also there. He was in the tile business for fifty years in Des Moines. He is the originator of the Iowa Pipe and Tile Company, and was the first president. He came to me one day in the factory and said, "We are going to lay off tomorrow, because it is my fiftieth anniversary in the clay business." I think that the next meeting is the one that Mr. McHose talked about. The old man is still living in good health, and I am glad to bring that word to the association.

The President: As we contemplate having this revision of the constitution and by-laws of the association, I will

appoint the following committee, so that they can keep on their guard: Judge Stevens, Chas. Rawson, O. T. Denison, J. A. Wilson, and C. A. Marshall.

I also appoint as a Committee on Resolutions: W. H. Brecht, D. F. Morrey, and J. B. McHose.

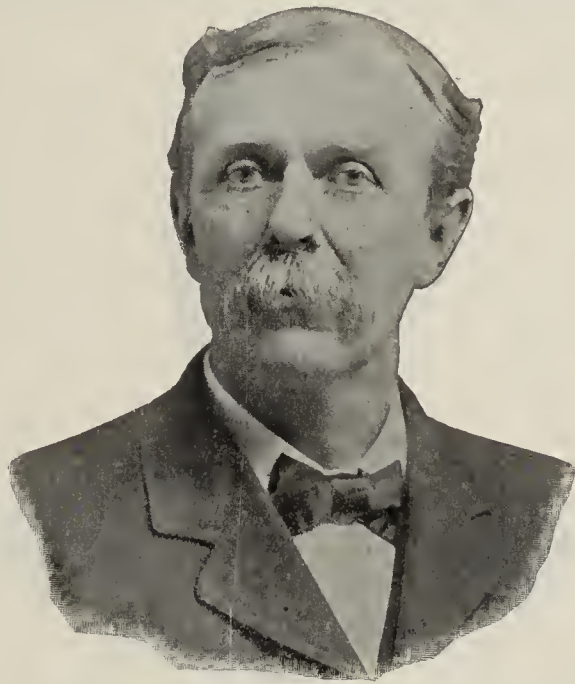
Convention adjourned.

SECOND SESSION.

Wednesday Afternoon, 3:30 O'Clock.

The President: Mr. G. A. Wrightman is not with us, so our program will be changed a little, and we will call upon the committee on the submission of amendments to the by-laws.

Judge Stevens: Your committee had knowledge of our appointment just before our dinner. We did not miss our dinner, and the committee has not got much to report, but your Secretary, Mr. Platt, submitted to the committee a draft of a proposed constitution which they have considered for a brief time, and there are only perhaps two or three changes. But one of them particularly is a very important one, and we thought best to present it to your consideration in that we expected it to be acted upon, not that you would regard this as a report agreed upon by the committee, but simply for your consideration, and you can discuss it at some



J. B. McHose, Boone, Iowa.

later time and thus inform your committee of your wishes regarding it.

PROPOSED AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

ARTICLE I.

Unchanged.

ARTICLE II.

The object of this association shall be to promote, in every way possible, the best interests of those engaged in the clay and clay products business within the State of Iowa; to establish friendly relations between the clay products manufacturers of the state and with those of adjoining states; to raise money by assessments, dues and otherwise for the various needs of the association, and to create committees or boards for the purpose of expending the funds so raised in the investigation of the comparative merits of other materials or articles of manufacture which may offer themselves from time to time, as competitors in the field against clay products, and to make such information gained public, in so far as may be deemed expedient or advisable; to circulate information through the various mediums of advertising which is calculated to stimulate the demand for clay products, and to do any and all things which may seem advisable to promote the sale and use of clay products, particularly within the State of Iowa.

ARTICLE III.

MEMBERSHIP.

There are to be two classes of membership, known as "members" and "associate members."

The first class, or members, shall be made up of firms or individuals engaged in the manufacture of clay products or clay mining, and located within the State of Iowa.

The second class, or associate members, shall be made up of firms or individuals indirectly interested in the clay products business, and of manufacturers of clay products located outside the State of Iowa.

Sec. 2. Membership fee shall be \$2.00 in both classes.

Sec. 3. Firms or individuals of the first class shall pay annual dues of \$2.00, payable in advance, on January 1st of each year. Members or associate members not paying their dues within sixty days from January 1st each year may be dropped from the rolls, and be required to pay membership fee before being again enrolled.

Sec. 4. Associate members shall pay annual dues of \$1.00.

Sec. 5. Registration at annual convention. Each firm in good standing may register one name at the annual convention, and may register as many additional names as desired, under the one membership, by paying \$1.00.

ARTICLE IV.

This association shall have a President, a First Vice-President, and a Vice-President from each sub-district, a Treasurer, and a Secretary.

Sec. 2. These officers shall be elected at the general annual convention, and may be placed in nomination by a committee selected by the chair, or may be nominated in convention from the floor. In case of there being more than one nominee, election must be by ballot, and the nominee receiving the greatest number of votes shall be elected.

DUTIES OF OFFICERS.

Sec. 3. It shall be the duty of the President to preside at the annual meetings of the association, and at the special meetings of members.

It shall be the duty of the Vice-President to preside at the meetings of the association in the absence of the President.



Secretary C. B. Platt, Van Meter, Iowa.

It shall be the duty of the Treasurer to receive all moneys from the hands of the Secretary, and to pay them out on the order of the association in convention, or on the order of the President, countersigned by the Secretary, and to make a just and accurate account of the same at the general annual convention.

It shall be the duty of the sub-district Vice-President to endeavor to obtain for the association a full membership within his district; to call meetings of the members within his district, and to preside at same, and to appoint a secretary for such meetings and have the minutes of such meetings filed with the Secretary of the association.

It shall be the duty of the Secretary to arrange the program for the general annual convention of the association; to keep a record of such meetings and the meetings of the members; to receive moneys paid into the association, keep an accurate account of the same, and pay them over to the Treasurer or as directed by the Executive Committee in the payment of current accounts throughout the year; conduct all necessary correspondence, and do such other business as the association shall direct.

Sec. 4. The President, First Vice-President and Treasurer shall be selected from members of the association. The Secretary may or may not be a member of the association.

ARTICLE V.

MEETINGS.

There shall be a general annual convention of the association, held at a convenient place, which may be named by the Executive Committee, or by the association in convention.

Sec. 2. There shall be a meeting of the members each year, at a time or place designated by the Executive Committee. In case this meeting is not called to take place preceding or following the regular annual convention, thirty days' notice must be given members. The President may call special meetings of the members at any time, giving at least ten days' notice thereof.

ARTICLE VI.

EXECUTIVE COMMITTEE.

It shall consist of four members, and shall be the President, First Vice-President, Treasurer and Secretary of the association.

Sec. 2. It shall be the duty of the Executive Committee to carry on the work of the association, by taking action on questions arising during the time between general conventions, and to perform such other duties which may be assigned to them.

Sec. 3. Three members of the committee shall constitute a quorum, and in case of a mail vote on any question, resulting in an equal division of opinion, the First Sub-District Vice-President shall be called on to vote.

ARTICLE VII.

This constitution may be altered or amended by a two-thirds vote of the members present at any annual meeting of the association.

I have no doubt that there are a good many of the membership who have not had the matter under consideration, while older members have discussed these features more at length, and there is probably a difference of opinion in regard to some of the matters.

General Discussion.

President Smith: You hear the report of the committee. What will you do with it, gentlemen? I would like to hear from Mr. J. B. McHose.

Mr. J. B. McHose: I do not believe I am prepared to pass an opinion upon this matter. It is a matter certainly of much importance, and I have given it no investigation. I realize that it has some beneficial objects in view, and if they are obtained might result in some good, but in my opinion is inchoate, and I don't know just now what to say, and hope to hear from other members of the association. I believe that no member of the association has given more thought to this matter than our Secretary, and I would like to hear from him in regard to it.

Secretary Platt: The idea in offering these proposed amendments is to provide this association with power; that is to say, it is necessary that we be provided with funds to carry on the necessary work of association, that the association may result in good to all its members in other ways than calling the craft together once a year to listen to papers prepared on subjects of manufacture, and to have a good time.

Two classes of membership are proposed, simply because as the division indicates, the two classes are not directly interested along the same line in the spending of the funds of the association. It is therefore proposed that there be two divisions and that the dues be entirely different in amount, and that the dues collected from the manufacturing members, through assessment on a tonnage basis, be spent only on the vote of the manufacturing members.

We are all aware that the stock of drain tile now on hand in Iowa is much larger than it has been before in the history of the trade; that brickmakers have become tile-makers, and that the demand has not been as carefully promoted as the supply has been rapidly increased. It is not necessary to remark that such a condition tends toward an undesirable end, both for the producer and the consumer.

It can not be denied that there has been, and is, much need for careful consideration of the problems which confront the clay trade, and this consideration must be given, not only at our conventions, but throughout the year. I would call your attention to the fact that the drain tile interests have been confronted with a competitor, recently infused with much activity—the cement drain tile. This organization was not prepared to take up the question, consequently it had to be taken up by the individual concerns, and they have, at great expense to a few, carried on investigations of the cement proposition, which we know will result in forcing the cement tile people to make their article right, and at a cost which will enable the clay people to compete.

There yet remains much to be done in this line, and the individuals are still actively engaged in the investigation. The next proposition is placing this information before the consumer and the public.

It will be seen that a large amount of money is needed in handling this question alone. There is the further consideration of the demand, which, while admitted to be quite unfilled at present, and likely to remain so for years to

come, needs promotion through a campaign of education, that our rapidly increasing output may be provided for without disturbing influences in the market, which influences tend toward a lowering of quality standards and work harm all around to the producer and consumer alike.

We have here some correspondence from Mr. Fitzpatrick, a prominent architect of Washington, D. C., in which he speaks of the necessity for the clay interests to look after the matter of publicity, hoping to gain thereby through a demand for fireproof structures built of the only really fireproof material—burned clay—which would surely follow a campaign of education. Mention is made of the immense loss annually to this country in particular, through the burning of buildings of various kinds throughout the land.

The organizations have much to accomplish, much work to do to convince the public that it is cheaper and vastly more satisfactory to build well than to build carelessly and of combustible materials.

Such work can only be carried on through organization, or it will be haphazard work and very expensive work for a few.

Mr. Wrightman, secretary of the Iowa Manufacturers' Association, has prepared a paper for us on the subject of organization. It is to be much regretted that Mr. Wrightman had to attend a traffic association meeting at Mobile, Ala., and as his attendance was required today, he can not be with us. Mr. Wrightman is a very bright man, and has given these questions a great deal of attention and thought. He has been connected with manufacturing associations for a number of years and was previously engaged in the freight tariff business, and as his paper comes next on the program the paper may as well be read now.

ORGANIZATION.

BY G. A. WRIGHTMAN, DES MOINES, IOWA.

Mr. President and Gentlemen of the Convention:

When two or more men have the same interest in something, they will gain if they get together and stick together in working for that interest. This is organization. The truism is as old and as obvious as "two and two are four," yet the greatest losses in all human history have been suffered by men when they have failed to realize and act upon that simple truth; and the greatest progress of the world has been made when men have put it into action. It is as slippery as other great truths which men grasp and lose, and have grasped and lost all down through the ages. Two thousand five hundred years ago, a philosopher tried to make it easier to hold by telling this tale: He said there was a farmer once that had a bunch of big, brawny sons, who were scrapping all the time among themselves and getting poorer and poorer. The old man had warned them time and again, but, of course, they kept right on. One day he called them in, stood them up in a row, and handed them a lot of sticks that he had firmly tied together into a straight bundle. He asked them to break it for him. They tugged at it, every one of them, with all his might, but couldn't feaze it. "Huh," says the old man. He took out his jack knife, ripped the cords, and broke the sticks one at a time with his fingers.

It is supposed the hunch went all right with the boys. It has opened the eyes of millions since. Imperial Rome bore that bundle of sticks aloft before her armies into battle to inspire united action.

Organization. Union. Those of us who think or hope or aspire or work or fear alike, to focus our separate rays of strength into a power to move, and to bend that power upon our object—that is organization. If the true history of the world could be written, it would show that the mass of men have never moved a step from darkness towards light, excepting when they have at some place and some time been hurt so deep that cohesion has set in among them, and they have laid hold of this vast force—organization—hurled back their enemies, and hurled themselves forward. Organization is the one ever-ready, ever-present, irresistible power at the command of the people for progress and defense. Organization has ever been and is today the one thing dreaded by usurpers and betrayers and deceivers of the people. When they see the people in earnest, reaching for that big stick, they shriek like Davy Crockett's treed coon: "Don't shoot; I'll come down."

The last fifteen or twenty years have seen a vast amount of commercial and industrial organization all over the United States. Every one of our thousands of trades and occupations has its local, state or national association, and some of them have all three. Some even add the supreme world union. Besides this, a business house belongs to permanent commercial associations, credit associations, traffic associations, and generally one or more temporary unions, formed to accomplish some specific purpose. Oh, we are getting organized in this country, finally. There are over 5,000 commercial and industrial associations now in the United States. Some people tell me we are organized too much, but I don't believe it. Organizations are too hard to carry on

to be superfluous. Necessity and usefulness are their very breath and blood; they can't live five minutes without them. In these last few years they have formed rather suddenly. It is like some liquid chemical which will stand for days without a sign of crystallization, when, all at once, a sudden start or jar will send it flying into crystals.

What was the sudden jar that has crystalized the United States? Competition! Fifty years ago the hungry maw of the expanding country took everything the scattering shops could turn out, regardless. The man that made anything then was like the fellow that lives in the country and can let his chickens run—never has to think about them. Today he is a town fellow, and his neighbors make him yard them.

When competition got out her knife and began paring at our margins, got out her scissors and began snipping at our territory, we saw that if we wanted to keep in the game we had to save a lot of things we had all along been throwing away, cut down some expenses we formerly didn't mind; that we must stand upon some rights we had not thought worth defending, make some things we had not thought worth while. The manufacturer that has lived through into the present has done all these things, and it has taken a new order of brains to do them.

We had not gone far into them before we found several classes of big questions in which all firms in the same line have the same interest. We had known all along they were full of meat, but they were too big to be tackled single-handed. The time came, though, when we had to have that meat—it was rank waste and bad management to get along without it. So we organized and went after it. These questions are, principally, legislative matters, encroachment of other interests, and internal regulation and promotion.

Now take legislation. Abraham Lincoln once referred to an experiment he heard of to train monkeys to pick cotton. He said it was found that monkeys could be trained to pick cotton, all



Treasurer F. A. Stephenson, Mason City, Iowa.

right, but it would take three "niggers" to watch each monkey. One hundred and thirty-two years of self-government have taught us that the men we send to our capitals can legislate, all right, but we have only lately realized that they need to be watched. They are all right, and good fellows at home, and seem to know just what is wanted of them in the committees on public welfare which meet down in Washington and Des Moines. But when they get down at the capital, certain affable strangers induce them to take a hand and sit into the great game called "politics," a game which is very entertaining and well calculated to keep their minds off of public business.

Two important items of public business are: To facilitate and protect occupation and industry where necessary and wise. To prevent one person or group of persons from preying upon others.

But these are harder work than mixing in the fascinating sport of politics, so they have only gotten attention in spots, mostly by cranky members who had no taste for the game, anyway, and then the people haven't seemed to care much until lately. Now they are realizing individually and in groups that it is entirely possible for their business to be set up or thrown down, promoted or starved by the wording of an innocent-looking law. Hence, nothing is more important to a business man than the record his representative makes in Congress or the State Assembly.

The citizens of this country have neglected their public duty in this regard for a hundred years. They have been blind in the eye that looks toward government. They have committed the stragetic blunder of permitting the enemy to entrench within easy range without giving battle.

As the population has grown the relative political weight of the individual has sunk, until today he is practically a political nonentity. He feels that political wrongs are up to him to suffer, not to correct; the politician encourages him in this feeling. With the people's chosen representatives notoriously derelict in their duties, to say no worse, and the people themselves powerless en mass for political progress, we must necessarily fall behind more or less among the nations, and we have suffered England,

Germany, France, and even Japan, to surpass us in many administrative matters of proper national concern and of vast importance to the people as a whole.

In this state of affairs some remedy was bound to develop—if we are not a moribund nation. Its development was retarded, undoubtedly, by the fact that we hoped the press, as a true reflector of public opinion, might fill the gap. Now we know that the press, being a private enterprise, can never fulfill that hope; and we recognize in organization of the citizens into aggressive groups this grand old remedy—and the new one.

Certain wrong ideas of government have become firmly fixed and grounded. Among them is this, that a legislator once duly elected, must not be interfered with; this is an eyelash from that ancient serpent, "The king can do no wrong." Another is that the winners at the game of high finance can practice injustice and be immune from punishment—the privileged "classes" in the new world.

These have dug their trenches deep and raised their breast-work high in plain view of the citizen, while said citizen has quietly dwindled into insignificance.

The politician struts about the capitol; "He will," and "He won't." He has wires to pull, he has political fences to keep up, he has a Roland to trade for an Oliver, he must obstruct, oppose, filibuster, he must look out for "the party." What has all this rot got to do with the public good? A politician is a representative that does not represent. When we choose a legislator we must see that he legislates. We must not only lead our horse to water—we must see that he drinks, or get another horse.

Then, the "interests," iron, the packers, the railroads, lumber, the express companies, oil—all have their trustees in all legislative bodies, but especially in the United States Senate, that narrow neck through which all national legislation must pass—if it don't get stuck. Not a legislative measure for the American people has been passed for a generation until these worthies have made sure it would benefit, or at least not injure, their owners.



O. T. Denison, Mason City, Iowa.

interests. The Senate is an ideal place for this kind of ownership—it has few changes and is hard for the people to get at.

The shame of all this is that it is all open and above board, undenied, undisputed, public, universally known and acknowledged. I am not telling you anything new. If American citizens did not know the rottenness of their legislative conditions, it might be said "If they knew it they would correct it." But no, we know; we consent to it, we know the cost of our shame, too, and we endure it, hence we ourselves are guilty of it unless, in fact, we are willing to confess our utter hopelessness and powerlessness before our evils.

Up to the time of going to press I had heard no such confessions; every man, woman and child in the United States is convinced, whether logically or not, that there is mother wit enough in this country to save the country in every strait. Why, look at the Civil War, how grandly we came through it! Yes, and how weakly, blindly, madly, criminally we blundered into it with our "politics!" Our untrammelled politics which we have allowed, more than once, to lead us to the verge of disaster. Organizations of the business men of the country are taking the joy out of that beautiful game.

I attended a fire once with two parties. When we got there, one of us jumped up and down on the sidewalk and yelled, "Oh, why don't somebody do something?" Another looked on calmly with his hands in his pockets, called No. 1 a "calamity howler," and remarked, "Oh, these things have to happen; it will come out all right; it might be the best thing that ever happened to the fellow." You see he was an "optimist;" the house didn't belong to him. No. 3 threw off his coat, organized the innocent bystanders into gangs of pumpers, bucket carriers, water throwers, family savers and furniture savers, saved the family and nearly everything, and put out the fire.

No. 2 belongs to an awful big party. The country can go hang before he will get excited; that is, unless he has to pay the bill—then he usually joins the party of No. 1 and goes to jumping up and down.

The third man of this trio is a type of a small minority of this community, state and nation—of every calling, community, state and nation of this and of every age—the few men who see clearly through men and events, who perceive, understand and act—the "remnant" of the people spoken of by Isaiah, the prophet, which was to regenerate and restore Israel—the few in Athens whose lot Plato bewailed, the "salt of the earth" called by the Son of Man. They are realizers and organizers.

If you want to know who are the salt of the United States today, go to the heads, the nuclei, around which our 5,000 and more organized associations are formed and revolve, from which they take their light and inspiration and through whom they act. You will find that every one of these organizations exists because some one clear seeing man in a craft, a calling, or a community has one day cried out to his fellows, "Here is a benefit that belongs to us, yet we are not enjoying it because no one of us is big enough to get it single-handed. Let us organize and go after it." Or, "Here is a wrong we endure because each of us is too weak to fight alone; let us make common cause."

Legislation is not the only concern of this new age of commercial and industrial organizations, nor the principal one. There are many other needs which would call them back today, were they suddenly to disband. If you are farmers, your market and your methods concern you vastly; you are powerless individually before the vast problems. Your market is a series of organized monopolies, formed to hold prices down at the time when you must sell. You must organize. If you are merchants, your supply, your transportation, your credits, are great general problems which it is rank waste for each to try to tug at alone. You must organize. If you are manufacturers, your material, your power, your transportation, your labor, your market, your methods, your credits, your insurance, your tariff protection, the promotion and consumption of your goods all present problems of common interest.

In many of these things the individual has no chance to watch his interests. You have not the time to winnow all the doings of legislatures, trusts, labor unions and railroads to find now and then the grain that interests you. You hear of a few of their doings, but generally too late to do much good; yet if your business is at all extensive you can not ignore them. You must organize.

Now, one man in charge of an association of 500 members can do all this better than 500, and at less than 1-500 of the expense. More than that, he can often tell the 500 what to do in the matter and put machinery in motion that will do five hundred times as much good as any one member could do acting alone.

In some cases the sources of your needs and in other cases competing products are controlled by powerful interests closely organized into practical monopolies, fiercely aggressive and strangers to justice. Will you take what they allow you and give thanks, or will you stand up for your own. If you have not backbone enough to resist injustice you are too mild to live long in modern industry; if you have the spirit of resistance, you are too small individually. You must organize.

And that is not all. Fraternity broadens a man; isolation narrows. In a multitude of counselors there is wisdom. When you mix with other men in your line you put yourself in the way to benefit by their experience in exchange for giving them the benefit of yours. That's a pretty good trade—five hundred for one. You focus their wisdom upon your plant; this has meant the difference between success and failure to many a man.

Get out of the stale air of your own cramped corner once, fill up on the pure, clear mountain atmosphere of fellowship and public spirit, and you will be too big ever to go back.

Association work broadens men. Narrow minded men never succeed very far in anything; they hold their business down to their own littleness. Every man should not only join all the associations he naturally belongs to, but he should, for his own sake, do some work in them. If he can't do anything else, let him thrash around in them. Ask questions. "If not, why not?" Anything on earth is better than dead silence and inaction. He will soon find his place and his work in the association. Your neighbor can punch a bag or saw wood until the crack of doom, and it will never put an ounce of meat on your biceps; but he'll get it. You've got to put on the gloves or get a buck-saw yourself, if you want muscle. It's the same way with some of the benefits of associational work. Don't expect everyone else to do something for you. Kick off the comforts of your lethargy at 6:00 a. m., jump out with your feet on the bare floor and go to it. You will be amazed how many pounds you will gain in business weight right away, and you will cultivate a fine contempt for the man who is not awake to the demands of the day and age. The leaders of all these associations are wide awake.

The moral of all this is that organizations and associations are right and not wrong, are an economy not an expense, are cold business necessities not charitable institutions. They are the greatest development of the age, the very means of progress. Every man that consults his own best interests will seek out and identify himself with every association to which he naturally belongs, and not make the association spend money and valuable time seeking him. He should do this for two principal reasons.

First, for his own individual good, as I have shown; second, for the public good. A man that has no public spirit stands in his own light—is not fit to live in a republic.

There are two distinguishing things about commercial and industrial associations. They are invariably started by the most progressive, broad-minded, public-spirited men in the particular

trade or community. This alone should secure the support of every eligible person. There is nothing in life so rare and generally so costly as the service of those who can see clear and far and right, with an eye single to the truth; yet in these associations that kind of service is offered, practically free, for the good of each—to the incalculable benefit of the nation, and too often goes a-begging among men who have not yet quickened their business into steps with the times.

Second, these associations are always formed to carry on some good cause, and usually one that has called long and loud for volunteers. You can't imagine an organization of business men openly banded together to do wrong.

The work of an association is the sum of the work of all the members. Too often this means the generous work of a few wide-awake members and the passive approval of the rest.

The time is here when every business man ought to know and understand the serious work and meaning of the associations to which he belongs, or should belong, and give them the time they require, the same as he attends to any other live proposition.

Although I have spoken of organizations only as affecting industrial and commercial welfare, it will not be amiss to mention in closing the far wider scope of usefulness of this idea of organizations in modern society. The worst abuses and greatest wrongs of this age are those that the law can not reach, though they are recognized and bewailed by all. They flaunt their reeking garments in the faces of the people and walk immune through our capitol. What the individual citizen can not do and what the official representatives of all may not do, can be done by groups of citizens having a common tie, organized into firm aggressive associations. They can arouse and direct public opinion—the forerunner of law.

In the past whenever a nation has risen into the intellectual height called civilization, its history has had two main divisions—its rise and its fall—always the fall. It lasted as long as the good in its people could cohere and sustain it—then it fell and the people traveled back to first principles to begin over again, losing all but an iota of what was gained by the uplift.

It is my firm conviction that this nation is sustained in its progress and preserved from decay by its industrial and commercial organization, the enlarged citizens of the republic. (Applause.)

General Discussion.

Chas. Rawson: We ought to have an organization with money enough, like the cement people. We do a lot of talking, but don't get much done. The time is coming when we must go after business. If our Secretary had money enough paid to him he could look after our interests much better. We don't care about prices if our competitors make good wares, but we can't compete with poor ware. Neither can the small manufacturer compete with the large manufacturer.

J. B. McHose: Why should we not hear from Mason City on this great subject of organization? Mason City is well prepared to speak to us, and I call upon the President to give us some thoughts.

President Smith: I could say very little at this time. Mr. Denison could give you more important information on the subject than I could.

Mr. Denison: I don't believe I care to say much without having time to think the matter over more.

Secretary Platt: Some member has complained that our articles are too much by engineering talent, and that it would be desirable to hear more from the practical workers on the difficulties met with in manufacture, such as burning and drying. This would be a good time to bring up any questions that any may have and to discuss them.

W. D. Simons: I was the one who made the complaint in regard to the speakers on the program. I was well pleased with the paper from Des Moines on "Organization." I have been a union man for many years. I am glad to belong to this organization, because I feel like I am at home here. This is a great organization for society, and it lives for a purpose. We have a purpose to do good and we have met here today for a purpose, and that is, I hope, to help one another. If any of us are having trouble and someone else can help him, it will be a grand thing. I was pleased in the fall when the Des Moines papers said fifteen different collieries had given bids for the coal that was consumed in Des Moines this winter. Everyone of them had exactly the same price for supplying Des Moines with coal for the city use. (Applause and laughter.) Can we not stick together like that? No! We don't live with a purpose in our heart to do good by each other. We are not here for ourselves, I hope, in this society, but if we want to do each other good, then the society will do some good. What I am saying in regard to the sale of our products covers hundreds of different classes. I just come away from home

once in a while, and then I come to see what other people are doing. I find at my door plenty of brothers in this association. Farmers come to me for my prices, and then they go to another firm for their prices. I give them my prices and they say to me, "I can do better than that over at the other place." I hate to let them go. Do we hold the prices up? I pay more for everything that I use today than I ever did in my life before, and I know this is because of the trade organization. All I have to say is "Stick to your prices!" (Applause.)

Mr. Brecht was called for, and said: I shall be glad to tell you of the work of our organization of paving brick men. We have one and it is working out splendidly. Our only purpose is to promote the use of brick for paving streets, as against any other paving material. Our constitution provides an assessment of so much per square yard of material furnished, and the company with the large capacity never complains because it pays into the treasury more than the company with the small capacity. All of us live up to the agreement faithfully. We never discuss prices. However, the prices are good and have been so for the past number of years. This organization was not made effective until about two years ago. It was started in the East, among the paving brick manufacturers there, and spread out to the West, and as it stands now, I think that fully 80 per cent. of the manufacturers of paving brick throughout the United States are members of this organization. Even in Texas and Kansas, and, in fact, all over the United States. We have a national board which is composed of a chairman from each district. Some states are organized by themselves, and here in Iowa we have what we call the Iowa Northwestern territory. We have the Wisconsin and Minnesota territory. Illinois has its own organization. However, as I said before, each one of these separate boards is represented on the national board by a member. The national board's meetings are open to all members of the association. The fund which we have created is no small one, and the money is spent very judiciously. Territories in which we find competition keen are furnished with a worker. He is not a promoter or a lobbyist. He is a gentleman and lays down facts as they are, and explains to the municipalities and taxpayers the advantages of brick for paving. (Applause.)

One point more. I stated that we did not discuss the question of prices, but that the prices have remained as good or better than they were before this organization was affected. This is brought about by the fact that through this organization we have made the demand so much greater. The demand has increased a greater percentage than the output all over the country, and for that reason our prices are just as good or better than ever before.

C. A. Reaver: There is no question about the demand in Iowa for drain tile. They will use all we can make. I move that the President appoint a Vice-President in each district to meet in Des Moines with the committee named in the resolution by Judge Stevens, with the idea of discussing the matter of the sale of drain tile.

Motion was seconded by J. Berwald.

H. Garner: As an amendment, I think the brick men ought to be included in the motion.

J. B. McHose: I wish to change the motion by moving that it be laid on the table until the matter of by-laws is settled. It is practically taking up this question before the committee has disposed of it. So I move that the matter be laid on the table until the by-laws question is settled.

Motion seconded by C. F. Zobel.

I. J. Covey: It seems to me that the association is in just the right humor to take up this matter of organization and settle it. I would suggest that we go on and take up this matter of reorganization now.

J. B. McHose: I would like to hear from Mr. Denison on this subject.

L. W. Denison: I just came into the room and haven't had a chance to hear the discussion yet. I am totally ignorant of what has been said, so don't care to express an opinion.

F. J. Matteson: I can't say much except along the line of paving brick. I was present when we formed our association, and we were in about the same condition as the tile people are now. One thing which was especially impressed

upon us by our attorney was that the question of price must be kept out entirely. We could simply get together and create a demand, and naturally a better feeling would prevail. We are spending our money by getting up a book showing the laws on paving as they now stand. Very few city attorneys are well informed on them. By going together the expense is slight, and it aids the city attorneys to keep things straight. Another great thing is a publicity bureau. We have a central office and get out literature on paving, comparing the different materials. This is sent out broadcast over the country, and this literature is sent to every individual property owner where paving is to be done. It is a very small amount per thousand that each plant has to put up, but the results are wonderful. Three years ago we were cutting each other's throats, but now we can't make brick enough to meet the demand. This is true all over—East, South and West. (Applause.)

W. D. Simons: I wonder if the men at Des Moines had a vision, or did they have a talk about the price for their brick. (Laughter.)

President Smith was called for, who said: Gentlemen, this is a question which I have given but little thought. It seems to me that as a manufacturer in coming in contact with other classes of business men we certainly are and have been working rather cheap. You take the farmer today. He is getting 50 cents a bushel for his corn, \$6.00 to \$10.00 for his hay, \$5.00 to \$6.00 for his oats, and 30 cents a pound for his butter, and on all products that he has to sell he is perhaps getting three times as high, or nearly so, as he was ten or fifteen years ago. The consumer has got to pay the advanced price. Our laboring men are the consumers of these commodities, and we have got to pay in place of \$1.10 and up to \$1.50, which was the maximum wage paid in the plants of Iowa ten or fifteen years ago, all the way from \$1.25 to \$2.00 for the same labor, and the men are more independent than was the case at that time. I do not believe that we make within 10 per cent. as much out of our labor that we did ten or fifteen years ago on the lower wage scale. All these things are costing the manufacturer more money. But we are selling our drain tile today in northern Iowa, shipping our coal from southern Iowa, for much less money than southern Iowa sells its drain tile, though they have the coal and the clay coming out of the same hole; and there is a vast territory contiguous to Mason City and these other towns that have plants that are consuming a large quantity of drain tile, and at prices at what the manufacturer is willing to sell them at. It looks to me as if we could put more money and care in the manufacture of better tile and maintain reasonable prices, and in the end we would have more money and it would be more satisfactory to the manufacturer. A plant or mine is not like a farm. A hundred and sixty acres ten years ago was worth \$8,000, and today is worth \$10,000 to \$20,000, which is a very nice advance in values, even if the farmer but makes a living. But with the brick and tile plant there is from 10 to 25 per cent. deterioration in value every year, and after the country is supplied with drain tile the experience in Illinois, Indiana and Ohio is that these plants are of but little value, and all the manufacturer can do is to pull up and move. It looks to me like that if we could organize and distribute literature to create everywhere a demand, I believe the farmer would understand the drainage question better on its merits, and we would have an even greater demand than we could supply at the present time at even advanced prices. It is much the easier matter to lower prices than to raise prices. If once they are lowered, to get them back takes considerable argument to convince the consumer that the price should be higher. I have not given this reorganization question its proper thought, but it certainly looks as if we could better our conditions if we didn't pay any particular attention to the price and created more demand. We want such a demand for our goods that the price will go up naturally, and we can readily produce better products. (Applause.)

Mr. Brecht moved to adjourn till 8:30 Thursday morning. Seconded and carried.

The Banquet.

At 6:30 sharp Wednesday evening, the delegates sat down to a most enjoyable banquet, served in the Odd Fellows' Hall by the Rebekah Lodge. The tables were tastily decorated with carnations and ferns. Judge J. L. Stevens, of Boone, Iowa, acted as toastmaster. The toast list included responses by Prof. S. W. Beyer, of Ames, Iowa; Hon. J. H. McConlogue, Mayor of Mason City; James E. Randall, of Indianapolis, Ind.; J. A. Wilson, of Dows, Iowa; Charles Burridge, of Tecumseh, Mich.; J. B. McHose, of Boone, Iowa; C. W. Lansing, of Chicago, Ill.; G. G. Wheat, of Emmettsburg, Iowa; H. Smith, of Omaha, Neb.; C. M. Carter, of Mexico, Mo., and O. T. Denison, of Mason City, Iowa.

THIRD SESSION.

Thursday Morning, 10:30 O'Clock.

President Smith being detained at home by sickness, and the Vice-President having left town, Judge Stevens was elected Temporary Chairman.

Judge Stevens: I wish to thank the convention for the honor they have shown me. Let us get right down to business, so we can get through before most of us must leave. The first number to which we will listen is by Mr. Paul Beer, of Des Moines.

Mr. Beer: Mr. President and gentlemen of the convention—I do not believe that the thought of a disinterested and common engineer should carry greater weight than the opinion of a contractor. I have chosen as the subject matter of this paper, the text of F. T. Spalding's "Roads and Pavements." Mr. Spalding is an instructor in civil engineering in Cornell University. His book was given to the public in 1895, and since that time more or less progression in the subject has taken place, so this is not a strict reproduction of that text.

PAVEMENTS—THEIR OBJECT AND DESIRABILITY.

BY PAUL BEER, DES MOINES, IOWA.

Mr. President and Gentlemen of the Convention:

The primary object of a road or street is to provide a way for travel, and the transportation of materials and produce from one place to another. The facility with which traffic may be conducted between two objective points over any given road, depends upon the resistance offered to the passing of vehicles by the road surface or the grades, and also by the freedom of movement allowed—which is dependent on its width and form.

In order that a road may offer the least resistance to traffic, it should have as hard and smooth a surface as possible, at the same time affording a good foothold for horses, and should be so located or laid out as to give the least possible gradients.

The expediency of any proposed road construction or improvement depends upon its desirability as affecting the comfort, convenience, and health of residents of the locality in which it is proposed to build it, and also upon its economic value, which is largely determined by its cost and durability, as well as upon the facility it gives for the conduct of traffic. The problems of the highway engineer in designing works of this character involves the consideration of all these elements, and their proper adjustment, to give the best results.

The "road surfaces" most commonly employed are:

(a) Streets of cities and towns: Sheet asphalt, asphalt block, vitrified brick, creosoted wood block, stone block.

(b) Suburban streets, parks and private drives, where the nature of the subsoil will permit it, and important country roads: Macadam, tar macadam, petrolithic, gravel, vitrified brick.

(c) Ordinary country roads: Earth or gravel.

The desirability of a road surface depends both upon its fitness for the service required of it and upon its durability in use. The problem of country road improvement consists ordinarily in providing the hardest and most durable surface consistent with an economical expenditure of available funds; the object being to lighten the cost of transportation by reducing the resistance to traction, and to render travel easy and comfortable. Other factors, however, are of much importance in the design of improvements to city streets.

The comfort, both of those using the street and of the occupants of adjoining property, will be largely affected by the freedom of the surface from noise and dust. The safety of the pavement in use, its effect upon the health of residents of the locality, and its economic value must in each case be considered.

Adjusting to the best advantage these various elements is a matter which can be accomplished only by the exercise of good judgment. Local conditions and necessities must always be considered—such as the difficulties of drainage, the availability of various materials, the nature of the traffic to be carried, and the needs of the business or property interests of the neighborhood. Thus, for the heavy hauling of a large city, durability and re-

sistance to wear may be the paramount consideration; for the business district, quiet may be very important; in residential districts, the elements of comfort and healthfulness may properly be considered as of greater force than the purely economical ones, while in all cases the necessary limitations of first cost will largely determine what may or may not be done.

ECONOMIC VALUE.

The chief factors to be considered in the proper determination of the economic value of any proposed street improvement, are:

First—Cost of construction.

Second—Cost of maintenance and repairs.

Third—Cost of conducting transportation.

Fourth—Effect upon land values or business interests.

The cash cost of a pavement is quite tangible and easily estimated. The advantages of a pavement can not be directly estimated, and these advantages are often overlooked. It should not be assumed, however, that they have no financial value, nor should it be assumed that that pavement which may be constructed and maintained for the least money is necessarily the most economical to use.

THE COST OF MAINTENANCE AND REPAIRS

includes an estimate of the average cost of keeping the pavement in good condition over a term of years, taking into account the necessity of renewing the surface at the expiration of the life of the pavement, the cost of cleaning and sprinkling, and such minor repairs as may be necessary from time to time to maintain a uniformly good surface.

The cost of maintenance of each kind of pavement varies widely in different localities, according to the character of the construction and workmanship, and no general rules can be laid down as to the relative costs. All road surfaces will require maintenance, the same as any other class of engineering construction subject to wear in use; as a rule, the cost of maintenance will be less according as the care used in keeping the surface always clean and in good condition is greater.

THE COST OF TRANSPORTATION

is affected by the nature and condition of the road over which traffic must pass, both because the resistance to traction offered by the surface determines the load that may be hauled over it, and because the relative roughness or smoothness of the surface determines the limit of speed or traction, and the amount of wear upon horses, harness and vehicles.

That portion of the traffic which is confined to the hauling of maximum loads will be directly affected by differences in tractive resistances, the number of loads necessary to move the traffic being approximately proportional to the resistance. For light traffic the greater speed incident to a smooth surface and easy grades will be of value as a time-saver, although the saving may be difficult to state in dollars and cents. The effect of a smooth surface is very appreciable in the cost of wear and tear upon horses, vehicles and harness. The value of this item has been variously estimated at from 1 to 10 cents per mile traveled.

Earth roads in good condition, and creosoted wood block pavements when dry, seem the most favorable to horses, while asphalt and brick pavements are considered most advantageous as to general wear. On earth roads in poor condition the wear is very severe, and on stone block pavements it is estimated that the wear is three or four times as great as on asphalt or brick. The value of the saving of this wear and tear is difficult to ascertain, but it is no doubt sufficient to make it an important item in the cost of highway transportation.

LAND VALUES.

The effect of street improvements upon the value of adjacent property is dependent upon the nature of the uses to which the property may be put. The value of comfort, convenience, safety and healthfulness to a community, as affected by the condition of its streets, can not readily be stated in figures; but all these items have a money value, both in their effect upon the general life and business of the community, and in the attraction presented by them to outside business enterprises or home-seekers.

HYGENIC CONSIDERATIONS.

The effect of a pavement upon the health of residents in its locality is dependent upon the tendency of the materials composing it to decay, its permeability and its freedom from noise and dust. The permeability of a street surface is important because of the tendency of surface water and refuse matter to penetrate and saturate it, and thus cause it to become dangerous to health. A continuous sheet pavement is the most desirable in this respect, and a block pavement with open joints the least so. If the material of which the pavement is composed be permeable, it may gradually become saturated with street refuse, even though the joints be made tight, and when it begins to decay may of itself become most obnoxious to health.

The chief objection raised to the use of wood block pavement is its permeability, for while the joints may be made practically tight and impervious, the wood itself will, in the course of three or four years, begin to lose its preservative oils, and it then becomes a receptacle for all the dirt and filth which falls upon it. The objection to a stone block pavement is that its joints can not be made tight, and it is furthermore very difficult to keep clean, either by sweeping or flushing. Macadam pavement is also permeable, and, therefore, objectionable for use in city streets.

The noise made by traffic upon a pavement is important, not only because of its effect upon the comfort of the people using

it, or living adjacent to it, but also because to it are frequently attributed many nervous disorders to which people in some cities are subject.

Stone block pavements are the most objectionable in this respect, causing a continual roar, due both to the rumbling of wheels over them and the blows of the horses' feet upon them. Upon asphalt the only noise is that due to the horses' feet, giving a sharp clicking sound. Upon wood the horses produce no appreciable sound, but the wheels of the vehicle give a dull rumble, generally considered the least objectionable of any of the noises made by the more common pavements. A brick surface gives a combination of the sounds of wood and asphalt, the clicking being much less sharp than on asphalt, and the rumble less noticeable than on wood. On any block pavement the noise is lessened in proportion as the foundation is made firm and the joints close and well cemented.

The giving off of dust by a pavement under the action of traffic is also objectionable on the score of health, as well as comfort. All pavements produce more or less dust, the amount depending more upon the method of construction and the care used in forming the surface and filling the joints, than upon the material of the pavements. For the most part, however, the presence or lack of dust is dependent rather upon the maintenance, cleaning, sprinkling and flushing of a pavement than upon its nature. The dirt on the surface of a hard pavement is usually carried there from the outside, and is not due to the pavement itself.

Earth and broken stone roads wear rapidly and make dust freely in dry weather, requiring frequent sprinkling and cleaning to keep the road clear. On this account they are objectionable for use in towns under any considerable traffic.

SAFETY.

Another very important consideration in the construction of a pavement is its safety. The safety of a street surface depends



W. H. Brecht, Des Moines, Iowa.

upon the foothold afforded by it under normal conditions to horses, and also upon the degree of slipperiness that it may take, both in wet weather and under the influence of ice and snow in winter.

The relative safety of the various pavements used in city streets is a matter upon which there is considerable difference of opinion among authorities. Local conditions affect the pavement in this regard to an important degree. Relative dampness or dryness of climate, shade from buildings, cleanliness of the streets, and the prevalence of snow and ice in winter, are all important factors for safety. It is conceded that a dry earth road in good condition gives the best and surest foothold with broken stone, and gravel roads nearly as good, but the relative dryness or wetness of an earth road is entirely dependent upon the whims and fancies of nature, and the earth road is therefore a very uncertain quantity with which to deal.

Observations made by Capt. Green in several American cities on granite block, creosoted wood block and asphalt pavements show that asphalt under all conditions is the safest, while creosoted wood block is the most dangerous. Wood block paving is very safe when dry, but exceedingly treacherous when wet, and positively dangerous in cold weather. Granite block paving is unsafe under all conditions. Asphalt paving is safe when dry, and less dangerous than either of the other two pavements when wet. All hard pavements are slippery when muddy, and cleanliness is therefore a necessary condition to safety.

Under a light fall of snow both wood and asphalt become slippery, and in freezing weather wood becomes slippery through the freezing of the moisture retained by it.

No statistics were submitted by Capt. Greene as to the safety of brick pavements, but it is conceded by the best authorities to be the most satisfactory of all paving materials, so far as safety is concerned, both in dry and wet weather.

It may be remarked in connection herewith that the likelihood of a horse falling upon any pavement depends very largely upon the training of the animal, and whether or not he be accustomed to the particular surface in question.

DURABILITY OF VARIOUS SURFACES.

The qualities which especially affect the durability of a pavement may be partially enumerated as follows:

- (1) The hardness and toughness of the material composing the surface, upon which depends the resistance of the surface to the abrading action of horses' feet and vehicles passing over it.
- (2) The firmness of the foundation, which serves to distribute the loads over the roadbed, and keep the surface uniform.
- (3) The drainage of the roadbed, which can only properly sustain the loads which come upon it when it is dry.
- (4) The permeability of the surface, which should form a watertight covering to serve in keeping the foundation and roadbed dry.
- (5) The resistance of the materials of the pavement to the disintegrating influences of the atmosphere, and to the action of the weather.

The relative importance of these various factors in any particular case depends largely upon the nature and extent of the traffic which is to pass over the pavement.

Granite block, when laid upon a firm, unyielding foundation, gives the hardest and most durable surface of any of the common pavements. This is especially true where the surface is subjected to the impact of very heavy loads.

Asphalt and brick rank next to stone, and when well constructed are satisfactory under any but the very heaviest traffic. The relative durability under heavy traffic of brick and asphalt is a matter of doubt, both materials being subject to considerable variations in quality, and showing varying results in different localities, due both to differences in quality of material and to differences in the methods of construction.

Wood is less durable and is suitable only for comparatively light traffic, unless its other advantages are considered worth the high cost of maintenance under heavy traffic, as has been the case in London, where wood has been largely used under traffic which has required its renewal every four or five years.

Broken stone macadam, under which head is also included petiolithic and bitulithic pavements, wears rapidly under moderately heavy traffic, and should be used only on suburban side streets, country roads, parks, and private drives—roads used principally for light driving. Even so, the maintenance cost of macadam is always very high, even under the most favorable conditions.

In considering the durability of a pavement, it might be well to add here that while cleanliness is especially important, so far as wood, asphalt or broken stone is concerned; vitrified brick or stone surfaces are not at all injured by neglect. It might also be well to add that the wear of a pavement also depends largely upon the smoothness of its surface, the impact to which the material is subjected is produced by irregularities, from which it follows that the most durable material does not necessarily give the greatest resistance to wear. This is especially true of the stone block street under medium heavy traffic, it being ascertained by observations that under like conditions of traffic, a vitrified brick street will have the greater life.

The major portion of the foregoing is from "Roads and Pavements," by Mr. Fred P. Spalding, M. A. S. C. E., assistant professor of civil engineering in Cornell University.

SUMMATION.

We have now considered the desirability of pavements, their object, and the different kinds from which it is possible to make a choice. The question now arises: What character of street surface is most suitable for cities and towns having a population of less than 100,000?

Stone blocks are to be avoided as a paving material, except for the heaviest traffic of our very large cities. There is little or no stone block paving in Iowa west of the Mississippi River towns, except at Council Bluffs, and because of the incessant noise and the wear and tear on horses and vehicles and the unsightly appearance of the one stone block street in that city, it is soon to be resurfaced with asphalt.

A macadam street is quite out of the question in this Iowa country, owing to the soft, spongy condition of the soil. Moreover, the soil has a clay base and consequently is very unstable in wet weather. Even were the soil of such a nature as to permit the construction of macadam streets, there is no hard, durable material within the borders of the state with which to build a first-class macadam pavement. In the eastern states, where the ground is sandy, with a rock or slate foundation, and where good, hard material may be easily and cheaply obtained for its proper construction, a macadam road serves most excellently; but even in the eastern states, under the best of conditions, the maintenance cost of macadam roads is very high, as it is found that the automobile, which has come with us to stay, cuts into the road very badly.

Our choice, therefore, resolves itself between one of the three following permanent pavements:

- (1) Creosoted wood block.
- (2) Asphalt.
- (3) Vitrified brick.

During the past three or four years creosoted wood block paving has been very strongly promoted in various parts of the United States. Many of the creosoted block streets which have been built have given eminent satisfaction, while many others have proved themselves absolutely worthless. The most satisfactory wood block streets are those constructed of "Long Leaf Yellow Pine," with a twenty-pound creosote treatment per cubic foot, the street itself being built in accordance with the best known methods of construction. Such a street will cost in the neighborhood of \$5.00 per square yard and upward. Creosote block streets which have proved unsatisfactory are those where hemlock, tamarack and Norway pine are used as a material. These woods are

very soft and light in comparison with "Long Leaf Yellow Pine," and are far more resistant to the creosote treatment.

There are, therefore, the following objections to creosoted block as a paving material:

- (1) Its high first cost.
- (2) Its uncertain life.
- (3) Its menace to health, due to early decay.
- (4) Its danger to man and beast when wet or freezing.

Asphalt is a very satisfactory pavement, many authorities considering it the most satisfactory of all pavements for those cities large enough to maintain a municipal asphalt plant; it would probably not be satisfactory for small towns. While it is true that it is a comparatively easy matter to repair an asphalt street, it is also true that if you do not have the means for making repairs you would probably find it an unsatisfactory pavement.

BRICK STREETS.

A vitrified brick pavement is the cheapest of all pavements, and the most satisfactory, everything considered. It is durable, easy of traction, sanitary, clean and safe. Its first cost will depend on the foundation used, the character of the filler and workmanship. A vitrified brick pavement for a light traffic street, constructed in accordance with the No. 1 specifications as adopted and recommended by the National Paving Brick Manufacturers' Association, should last from fifty to seventy-five years, without the necessity of repair or replacement, provided the street be not torn up for service pipes, sewers, etc. A fair comparison of the first cost per yard of the three most satisfactory pavements follows:

Creosoted wood block—\$3.00 to \$5.50 per square yard.

Asphalt—\$2.00 to \$2.40 per square yard.

Vitrified brick—\$1.86 to \$2.20 per square yard.

(Applause.)

President Stevens: Owing to the number of papers that we have still to present, and to the fact that this is the last day of the convention, I am not inclined to call for discussion after the readings until we have disposed of all necessary business. Even such a valuable paper as has just been given will therefore be left for discussion until later.

President Stevens: Mr. A. E. Lof will now read us a paper on "The Economy of Electric Drives."

THE ECONOMY OF ELECTRIC DRIVE AS APPLIED TO BRICK AND TILE PRODUCTION.

BY E. A. LOF, CHICAGO, ILL.

Mr. President and Gentlemen of the Convention:

The question of the advisability of electric drive in brick and tile factories may, at the present time, be regarded as decided in the affirmative. There are a great many points that affect the character of power distribution, and in addition to the saving in cost of supplying power to the productive machinery, all these other factors should be given due consideration. The satisfactory and economical handling of raw and finished material, reliability of service and the preventing of injury to individuals must also be looked out for. Future expansions of the plant should be made possible without undue rearranging the original equipment.

The electrical distribution of power so fully meets the requirements of brick factories that it has become recognized as pre-eminent for use in large, as well as in smaller plants.

In making a choice between the various means for power distribution, a manufacturer should naturally bear in mind the effect that the various arrangements may have on the several elements that enter into the manufacturing cost. Manufacturing requirements demand the earning of dividends, and this in turn necessitates that the product shall be turned out at the least total cost.

A mechanical system of driving is, besides inefficient, also inelastic. As machines are added time and again, the shafting, bearings and hangers become so strained and twisted that it is a wonder that they do not break down altogether. Our electric system, on the other hand, is perfectly elastic. Motors can be added from time to time without in any way affecting the efficiency of the system. Machines can be put in positions which would be impossible if they were driven by means of belting, and besides this, a perfect control of the individual machines is made possible with the electric system.

The fact, however, must never be overlooked that the generation of electricity by steam power must necessarily be dearer at the generator than the steam power itself. It is in the method of transmission and application that electricity scores, and by installing the motors right near the productive machines, avoiding all unnecessary losses, can we secure the highest economy and beat commercially every other method of driving.

The first cost of the power generating and distributing system is often of less importance as compared with other factors, which is, however, not the case in regard to the efficiency of the system. The losses in the distributing system naturally affect the size of the generating plant, and the value of this lost power is an item of great importance. With mechanical drive these losses are constant as long as the shafting is running, whether the productive machinery is running or not. This is, however, not the case with electric drive, as at no load when the motors are not running there is no loss taking place in the system.

An accurate knowledge of the absolute loss of power in driving shafts and belts would be of great value in determining the exact gain that would be effected if electric drive was substituted for mechanical drive. There has, however, been many tests made

to determine these losses, and it has been shown with the plant running at full load, it will range from 30 to 60 per cent, an average for clayworking plants being 40 per cent. Should only a few machines be running, the losses may, of course, come up to 75 or 80 per cent. of the generated power, or, in other words, four-fifths of the coal consumption is wasted in friction losses. With electric drive the losses are easily determined, and will not exceed 25 per cent., of which 12 per cent. is consumed in the motors, 5 per cent. in the wiring, and 8 per cent. in the generators. With the electric system it is possible to insert indicating instruments in the various circuits, and a complete check can at all times be had on the power consumed by the various machines. This is particularly valuable in testing departments, in order to determine the power required for driving brick machinery for different sorts of clay.

The advantage of electric drive is especially apparent where the conditions demand the location of the power house at a distance from the manufacturing buildings. Also, when cheap electric power can be purchased from an electric power company, the value of electric drive is still further accentuated. In such cases the power is supplied over long distance transmission lines at a high voltage, which is stepped down at the manufacturing center to a pressure adapted for the motors.

The alternating current three-phase system is probably the best adapted for brick factories. This system consists of a three-phase generator, composed of a stationary and a revolving part, an exciter for delivering the magnetizing current for the generator fields, a system of distributing wires and the motors.

The alternating current system is simpler than the direct current system, in that no current has to be delivered to any moving parts of the motor. In the direct current system current must be delivered to the rotating armatures of the motors through carbon brushes and a commutator. This commutator is the main difference between alternating and direct current motors. The brushes and the commutators are the only parts of the direct current motors in which trouble is liable to arise, due to accumulation of dust and dirt. The simplicity, durability and freedom from breakdown are, therefore, the main advantages of the alternating current motor. The pressure best suitable is 220 volts, as the danger by coming in contact with the wires is not very great, and as this pressure can directly be used for the lighting system, which in all cases, naturally, is provided. Where very large motors are used it may be advisable to use a pressure of 440 or 550 volts, as with this voltage the size of the wiring can be considerably reduced. Step-down transformers for the lighting system will, of course, have to be provided in such a case.

The frequency of the system is usually 60-cycles, as the same gives good lighting results, at the same time not causing any excessive inductive effects. The three-phase system has the advantage over the two-phase, in that the wiring is simpler, and in that the amount of copper required for the distributing system is less.

For driving brick machinery where a high starting torque is required, the induction motors with phase-wound secondaries will exactly meet the conditions. The secondary winding itself has a very low resistance, which means high efficiency and good regulation. By the insertion of external resistance in the secondary winding, the motor will be able to develop maximum torque at the start with moderate starting current. The motor should be large enough to carry the load under normal conditions without overloading it, and for brickmaking machinery the motors should be able to develop a starting torque of at least two times the normal running torque. Each motor should be provided with its own starter complete with overload and no voltage features. The former device will disconnect the motor on heavy overloads, and the latter will disconnect the motor if the plant for some reason is shut down.

The operation of every machine and conveyor by its own motor produces a very satisfactory appearance, but it may not return the most economical result. Very small motors are not so efficient as larger ones, and besides, they are more expensive per unit of power. For this reason it will frequently be found advisable to drive a group of smaller machines with one motor of a larger capacity, providing that the shafting for these machines not becomes too extensive.

An example showing the actual saving of an electrically-driven plant as compared to a mechanically driven may prove of interest. Through the courtesy of the American Clay Machinery Company, of Bucyrus, Ohio, which company has installed several very successful electric driven plants, I have been fortunate to obtain data that will give a very accurate idea of the saving that can be accomplished.

Assume a brick plant with a yearly production of 25,000,000 brick, which has to be equipped with the following productive machines:

1 Brick machine, consuming.....	75 h. p.
1 Pug mill	50 h. p.
3 Dry pans, each.....	35 h. p.
Represses and cutters.....	35 h. p.
Elevators	20 h. p.
Conveyors	8 h. p.
1 Exhaust fan.....	50 h. p.
1 Disc fan.....	10 h. p.

This will total approximately 350 h. p., the fans running twenty-four hours, but all of the other machinery only ten hours per day.

STEAM-DRIVEN PLANT WITH SHAFTING.

The average load during the period when the plant is running will be approximately 85 per cent.

COST OF INSTALLATION.

1 600 h. p. boiler equipment, complete with stack, pumps, pumps, piping, etc.....	\$9,000.00
1 400 h. p. engine.....	4,500.00
1 60 h. p. engine.....	2,200.00
1 15 h. p. engine.....	600.00
Belting, shafting, complete.....	2,500.00

Total cost of installation.....\$18,800.00

Horse power hours produced per year:

400 h. p., 85%, 10 hrs., 300 days = $40 \times .85 \times 10 \times 300$	= 1,020,000
75 h. p., 85%, 24 hrs., 300 days = $75 \times .85 \times 24 \times 300$	= 460,800

Total horse power hours.....1,480,800

COST OF PRODUCTION.

Fuel, 8 lbs. per h. p. hour = 5,900 tons at \$2.00.....	\$11,800.00
Interest, depreciation, taxes, insurance, etc., on boilers and engines, 15 per cent. on \$16,300.....	2,445.00
Interest, depreciation, taxes, insurance, etc., on shafting and belting, 30 per cent. on \$2,500.....	750.00
Oil, waste, etc.....	750.00
One day engineer at \$75.00.....	900.00
One day fireman at \$60.00.....	720.00
One night engineer at \$60.00.....	720.00

Total cost of operation.....\$18,085.00

STEAM-DRIVEN PLANT WITH ELECTRIC MOTORS.

The average load in this case is only 80 per cent.

COST OF INSTALLATION.

1 500 h. p. boiler equipment, complete with stack, pumps, piping, etc.	\$7,000.00
1 350 h. p. engine.....	4,000.00
1 75 h. p. engine.....	2,200.00
1 250 k. w., 3-phase generator.....	2,800.00
1 50 k. w., 3-phase generator.....	1,050.00
Cabling	750.00
1 75 h. p. motor for brick machine.....	675.00
1 50 h. p. motor for pug mill.....	475.00
3 35 h. p. motors for dry pans.....	1,050.00
1 35 h. p. motor for cutters and represses.....	350.00
1 20 h. p. motor for elevators.....	300.00
1 8 h. p. motor for conveyors.....	115.00
1 10 h. p. motor for disc fan.....	145.00
1 50 h. p. motor for exhaust fan with variable speed regulator	550.00

\$21,460.00

Less extra cost for buildings..... 2,500.00

Total cost of installation.....\$18,960.00

Horse power hours produced:

350 h. p., 80%, 10 hrs., 300 days = $350 \times .80 \times 10 \times 300$	= 840,000
75 h. p., 80%, 24 hrs., 300 days = $75 \times .80 \times 24 \times 300$	= 432,000

Total horse power hours.....1,272,000

COST OF PRODUCTION.

Fuel, 7 lbs. coal per h. p. hours = 4,450 tons at \$2.00....	\$8,900.00
Interest, depreciation, taxes, insurance, etc., 15 per cent. on \$18,960.00.....	2,845.00
Oil, Waste, etc.....	500.00
One day engineer at \$75.00.....	900.00
One day fireman at \$60.00.....	720.00
One night engineer at \$60.00.....	720.00

Total cost of operation.....\$14,585.00

Cost with mechanical drive.....\$18,085.00

Cost with electric drive..... 14,585.00

Saving by electricity =(19½ per cent.)..... \$3,500.00

For gas-driven plants the respective costs will be somewhat less than with steam driven.

Assume the same plant as before, but with gas engine, we get:

MECHANICALLY DRIVEN PLANT—COST OF INSTALLATION.

Producer equipment.....	\$11,000.00
Gas engines	22,000.00
Belting and shafting.....	2,500.00

Total\$35,500.00

COST OF PRODUCTION.

Fuel, 1½ lbs. of coal per h. p. hr. = 1,010 tons at \$2.50..	\$2,525.00
Interest, depreciation, taxes, etc.....	5,700.00
Oil, Waste, etc.....	500.00
One day engineer at \$75.00.....	900.00
One helper at \$40.00.....	480.00
One night engineer at \$75.00.....	900.00

Total\$11,005.00

ELECTRICALLY DRIVEN PLANT—COST OF INSTALLATION.

Producer equipment.....	\$9,000.00
Gas engines.....	18,000.00
Generators	3,850.00
Cabling	750.00
Motors	3,660.00

\$35,260.00

Less extra cost for building..... 2,500.00

Total\$32,760.00

COST OF PRODUCTION.

Fuel, 1½ lbs. per h. p. hour = 950 tons at \$2.50.....	\$2,275.00
Interest, depreciation, taxes, etc.....	4,920.00
Oil, waste, etc.....	300.00
One day engineer at \$75.00.....	900.00
One helper at \$40.00.....	480.00
One night engineer at \$75.00.....	900.00

Total\$9,775.00

Cost with mechanical drive.....	\$11,005.00
Cost with electric drive.....	9,775.00

Saving by electricity =(11 per cent.)..... \$1,230.00

Another place where a considerable saving can be made is by adopting electricity for the hauling of the clay from the clay banks to the factory. In one case in a brick plant outside of Chicago where this system has been installed, the operating force alone for this part of the plant was reduced by about ten men.

That there is a very large field open for the introduction of electric drive in existing brick plants and the tremendous saving that thus could be accomplished, is shown by the Government's statistics:

Number of plants	4,634
Number of plants reporting	3,476
Number of steam engines	4,113
Total h. p.	246,200
Number of gas engines	222
Total h. p.	5,245
Number of electric motors	128
Total h. p.	3,036

Before concluding this paper, it would be well to consider what one of our prominent brick machinery manufacturers has to say in regard to the electric drive:

"Try to picture in your mind a brick plant free from line shaft-



Prof. S. W. Beyer, Ames, Iowa.

ing and the necessary millwright work to support it, or the necessary brick or concrete piers. No line shaft bearings to require proper oiling. No pulleys. No couplings to work loose. No belting to fan the air, break, or get loose and slip. No constant renewals and sewing of same. No danger of employes being maimed by being caught in belts, and such accidents to be followed up by annoying and expensive law suits, and payment of lawyers' fees, court cost and damages. And when the 'electric juice' is taken from a centralized plant or trolley line, there will be no boilers, no engines, no engineer, no fireman, no water, no coal, no smoke, soot, ashes, or dust. With the machinery properly built, setting on good foundations, driven by direct connected motors, a greater portion of the noise is removed. Then imagine a dryer drying your brick with waste heat drawn from kilns being burned with producer or natural gas, thus eliminating smoked up brick in the dryer, no coal laying around the kilns, no men to handle the coal and ashes from the kiln, and no smoke rolling from the kilns. This is not a dream, but the future brickmaker's millennium, which a great many are enjoying today." (Applause.)

The delegates then enjoyed a stereopticon lecture on "Dollars and Sense in Drying, Burning and Handling Brick," by E. H. Vitalius, of the American Blower Company, of Detroit, Mich.

President Stevens: Since we will be crowded for time the rest of the day, I appoint as a committee on candidates for officers of the next year the following men: Messrs. Pixley, Morey and Green. We will expect them to report before noon. The next on the program is a stereopticon lecture by Messrs. G. G. and A. J. Wheat, of Emmetsburg, Iowa.

This will be published in full in the April CLAY-WORKER. After the reading of this excellent paper, the convention adjourned for lunch.

FOURTH SESSION.

Thursday Afternoon, 1:30 O'Clock.

Judge Stevens called the meeting to order. A motion was made that a committee of three be appointed to collect and disburse and handle the funds for the promotion of the interests of the tile industries of Iowa, which was seconded and carried.

The chair therefore appointed C. B. Platt, O. T. Denison and H. A. Rawson of said committee.

E. P. Smith: It seems to me the Secretary ought to send out a circular about once a month to ask if we know of anything for the good of the association, and to give notice of dues.

Judge Stevens: The Secretary is a busy man and draws no salary, but you can call on him at any time for anything you need and he will oblige you with it. The Secretary ought to be paid something for his work, and it is also suggested that he be sent to the Illinois Tile Association meeting.

Charles Rawson: I believe it would pay the association to send our Secretary over there to the Illinois meeting. He would get enough good ideas from that meeting to more than pay us for the expense. I move that the association stand the expense of sending Mr. Platt over there. Seconded and carried.

It was suggested further by Mr. Winter that the Secretary had fully earned such an honor and had given up enough of his time to be entitled to considerable more compensation.

Mr. Pixley brought in the report of his committee, nominating the following officers for the ensuing year:

President—Judge J. L. Stevens, of Boone.
Vice-President—Paul Beer, of Des Moines.
Secretary—C. B. Platt, of Van Meter.
Treasurer—F. A. Stephenson, of Mason City.

Mr. Denison then moved that the report of the committee be accepted and adopted, and that the Secretary be instructed to cast the unanimous vote of the convention for the officers named.

Seconded and carried.

Judge Stevens was called upon for a speech, and responded in a few words, saying that he would be very happy to serve the association, but had not expected to be elevated to such a high honor, inasmuch as he had been a member of the association for but five years.

Mr. E. P. Smith thought that the Secretary ought to be paid a salary sufficient to compensate him for the time and trouble to which he is put.

Secretary Platt said he did not care to have this question discussed just now, since it is for the interest of the association for all to work together as best they can for the common good, and did not care for any compensation except the payment of necessary expenses as would be provided by the Executive Committee.

Mr. Rawson: The committee in charge of the publicity movement would have authority to take the matter up of salary for the Secretary. There is a lot of stenographic work and other expenses which ought to be more liberally provided for, and the committee should make it an especial point to care for this.

Mr. Brecht moved that the committee be given this authority, which was seconded and carried.

Judge Stevens thought that the committee on the tile men's interests was the proper one to have charge of such expenditures, since it was principally for the benefit of the tile men that the most work is to be done.

The Secretary then read a paper by A. O. Anderson on "The Development of Iowa Drainage Engineering." This will appear in full in a subsequent issue.

Judge Stevens: It seems that Mr. Hanson's paper is not filed with the Secretary, nor is Mr. Hanson with us, so we will omit this number and take up the general discussions.

W. H. Brecht: Before discussions are taken up, we ought to bring before you the question of putting the report of this convention in print, as mentioned during yesterday's.

session. My understanding was that the report was to be so printed each year, and if such is not already the case, I move that the proceedings be printed and distributed among the members. Seconded.

The location of the next meeting was left to the Executive Committee.

Mr. Green: I have heard that some of the men want to go to Des Moines with the next convention. Now if we go to Des Moines for the next meeting, the convention should have it understood that we pay all our own expenses. The boys down there are entirely too hospitable, and I know the expense of entertaining us must be pretty high.

Mr. Brecht: I would certainly object to any such a resolution being passed by this convention. We don't make any more out of our brick and tile than anybody else, but our Commercial Club is a live one and it has a "convention fund" which runs up to \$6,000 or \$7,000 a year, for the simple purpose of entertaining conventions. I will say, however, that heretofore the local manufacturers have paid the bills for the entertainment of this association, and would be glad to do it again, but the Commercial Club, through its secretary, instructed me to pull this convention to Des Moines next year by all means, and that they would contribute liberally toward bringing the convention next year.

Mr. McHose: I want to present the report of your Resolution Committee. We have not done full justice to our work, but present the following resolutions:

REPORT OF RESOLUTIONS COMMITTEE.

Resolved, That we desire to compliment the President of our association for his devotion and labors for this convention.

That the care and painstaking work of our Secretary merits our gratitude.

That the greatest compliment that we can give our Mason City brothers is in the fact that their reputation for entertainers shown in the two previous conventions has drawn to this meeting a number exceeding any other in our history.

That in the labors of the Messrs. Wheat we recognize a desire, coupled with ability, to arrive at the exact truth in the proper use of cement by approving its use in those fields for which it is peculiarly adapted, and condemning its use for those purposes which must prove disappointing and disastrous.

That we are unalterably opposed to any attempt looking toward the raising or fixing of prices of clay products by this association, and that these matters are foreign to our purposes.

W. H. BRECHT,
J. B. MCHOSE,
O. F. MOREY.

E. P. Smith: I move that the resolutions be adopted and the committee discharged.

Seconded and carried.

Judge Stevens called for talks from those who came to the convention from abroad, and Mr. Ellis Lovejoy was asked to address the meeting.

Mr. Lovejoy: I am supposed to be the silent member of our firm of Richardson & Lovejoy. Mr. Richardson is the man who does all the talking. When I tell my friends this they say that Richardson does all the work and I sit in the office and take in the money. My duties of that sort, however, have been very light of late, and if it had not been that the other day we received payment of a bill which had been charged off against "profit and loss," I would not have been making this trip. So this is how I came to be here. (Laughter.)

Mr. Richardson had a request once for a paper from the Canadian Association, which is just now in session, and he put me down for the paper without my own consent, and without my knowing anything about it. I made him write it, however, and he read it, too, and I got the credit for a very nice paper. (Laughter.)

I wish to express my pleasure and satisfaction in meeting with you. This is the most enthusiastic meeting of its kind I have ever attended. The course you took to perfect your organization is certainly in the right direction. Ohio is the first clayworking state in the Union, but it has no state organization. We had one years ago, but it, like the Irishman, died from lack of breath. It ought to be alive today. Pennsylvania, New York and New Jersey stand high in clay products, but neither do they have organizations. If these states and many other states had organizations such as yours, the clayworking business would be on

a better footing. We could issue literature and get the publicity we all ought to have, and that the paving brick men already have. Every state should have such an organization as this, and keep it alive and keep our products to the front. I thank you very much for the pleasure I have had in attending this meeting. (Applause.)

The reports of the Secretary and Treasurer were then read and adopted. The Treasurer's report showed a balance of \$553.03 in the treasury.

Secretary Platt: We have on file some letters from Architect Fitzpatrick, of Washington, D. C., covering certain phases of the subject of the folly in the use of inflammable material for building purposes. Mr. Fitzpatrick, who is an expert, shows figures telling of the startling annual cost of fires in this country. It is probably not advisable to take these up at this time, but they would have been used in case we had a discussion on the subject of fires.

Mr. Denison: I believe the association should appoint a Committee on Legislation, and move that a committee of three, consisting of J. B. McHose, Mr. Morey, of Ottumwa, and G. A. Winter, of Mason City, as a committee for the necessary legislation for the tile and drainage people, and also to procure appropriations to aid the ceramic school at Ames.

Mr. Morey: I have been on that committee for two or three years and we have worked pretty hard, and what we have accomplished so far doesn't seem to amount to very much. We have got the department of ceramics established, but there is no appropriation to carry on the work with. I have been around there enough to know that there must be some member on that committee who can go to Des Moines and stay there and take the time to go to the Legislators and Senators and the Governor long enough to do something that will do some real good.

Personally, I have not got the time to spend, and hardly think that for a man to go to Des Moines for simply a day or two will result in much if any good to us. It will take a lot of real hard work. Somebody at Des Moines interested in the brick business could do a great deal more than I could. I would like to do my part, but can't afford the time.

Mr. Denison: I move that Mr. Pixley, of Des Moines, be placed on the committee in Mr. Morey's place.

Seconded and carried.

No further business being on hand, the convention adjourned sine die.

BRICKMAKERS IN ATTENDANCE AT THE IOWA CONVENTION.

Prof. S. W. Beyer, Ames, Iowa.
S. J. Harris, Adel, Iowa.
L. S. Straight, Adel, Iowa.
C. A. Thorp, Adel, Iowa.
Ollie Wilson, Barnes City, Iowa.
J. B. McHose, Boone, Iowa.
J. L. Stevens, Boone, Iowa.
E. D. Buckman, Buffalo Center, Iowa.
A. C. Olsen, Buffalo Center, Iowa.
Carlisle Brick and Tile Company, Carlisle, Iowa.
T. Dawson, Center Junction, Iowa.
G. A. Bruner, Center City, Iowa.
W. D. Simon, Churdon, Iowa.
C. C. Miller, Clearmont, Iowa.
D. G. Johnson, Clay Works, Iowa.
Wm. Johnson, Clay Works, Iowa.
U. M. Harris, Clarksville, Iowa.
J. G. Holdridge, Corwith, Iowa.
L. Wallenberg, Corwith, Iowa.
Charles Tramp, Creston, Iowa.
C. A. Marshall, Cresco, Iowa.
J. Berwald, Davenport, Iowa.
A. C. Westendorf, Davenport, Iowa.
B. J. Kornmeyer, Decorah, Iowa.
Chas. Kornmeyer, Decorah, Iowa.
Wm. Brecht, Des Moines, Iowa.
Paul Beer, Des Moines, Iowa.
J. A. Cook, Des Moines, Iowa.
Eagle Iron Works, Des Moines, Iowa.
H. Garner, Des Moines, Iowa.
Globe Machinery and Supply Company, Des Moines, Iowa.
W. J. Goodwin, Des Moines, Iowa.
J. Norwood, Des Moines, Iowa.
O. C. Pixley, Des Moines, Iowa.
H. A. Rawson, Des Moines, Iowa.
C. A. Rawson, Des Moines, Iowa.
J. O. Reaver, Des Moines, Iowa.

J. D. Stewart, Des Moines, Iowa.
 M. Woodmanse, Des Moines, Iowa.
 W. J. Wilson, Dows, Iowa.
 J. A. Wilson, Dows, Iowa.
 C. F. Zobel, Dysart, Iowa.
 C. A. Reaver, Eldora, Iowa.
 A. J. Wheat, Emmetsburg, Iowa.
 G. G. Wheat, Emmetsburg, Iowa.
 Fairfield Brick and Tile Company, Fairfield, Iowa.
 Plymouth Clay Products Company, Ft. Dodge, Iowa.
 Wm. Stahlback, Ft. Dodge, Iowa.
 Goldfield Clay, Brick and Tile Works, Goldfield, Iowa.
 W. H. Shaw, Grinnell, Iowa.
 R. G. Coates, Grinnell, Iowa.
 J. G. Sorrenson, Harlan, Iowa.
 Ida Grove Brick and Tile Works, Ida Grove, Iowa.
 Wm. Schnurr, Kalo, Iowa.
 Frank Schnurr, Kalo, Iowa.
 George Schnurr, Kalo, Iowa.
 D. F. Lucas, Lehigh, Iowa.
 P. W. Hearn, Lehigh, Iowa.
 Jas. Campbell, Lehigh, Iowa.
 E. P. Smith, Liscomb, Iowa.
 E. Travers, Livermore, Iowa.
 I. S. Finkle, Marshalltown, Iowa.
 F. W. Walcott, Marshalltown, Iowa.
 C. E. Tower, Mason City, Iowa.
 Vulcan Iron Works, Mason City, Iowa.
 E. Barr, Mason City, Iowa.
 O. T. Denison, Mason City, Iowa.
 L. M. Denison, Mason City, Iowa.
 F. E. Keeler, Mason City, Iowa.
 W. E. Millington, Mason City, Iowa.
 C. L. Smith, Mason City, Iowa.
 F. A. Stephenson, Mason City, Iowa.

S. M. McHose, Maxwell, Iowa.
 F. Dautremount, Monticello, Iowa.
 F. A. Martin, New Sharon, Iowa.
 Omer Smith, North English, Iowa.
 J. D. Morey, Ottumwa, Iowa.
 E. Supernols, Packwood, Iowa.
 W. E. Supernols, Packwood, Iowa.
 A. L. Tidmarsh, Pella, Iowa.
 L. P. Gunderman, Pella, Iowa.
 H. Reiveld, Pella, Iowa.
 H. L. Swift, Riverside, Iowa.
 Redfield Brick and Tile Company, Redfield, Iowa.
 J. A. Slemberger, Rockwell City, Iowa.
 F. E. Trigg, Rockford, Iowa.
 M. P. Typper, Sioux Rapids, Iowa.
 D. C. Duggan, Sioux City, Iowa.
 C. F. Green, Sioux City, Iowa.
 L. W. Pearson, Spencer, Iowa.
 G. C. Good, South English, Iowa.
 W. E. Bentley, Tama, Iowa.
 S. A. Dye, Tama, Iowa.
 C. B. Platt, Van Meter, Iowa.
 J. L. Platt, Jr., Van Meter, Iowa.
 Gordon Bell, Vilisca, Iowa.
 C. W. Long, Washington, Iowa.
 Warren Overpeck, Webster City, Iowa.
 A. E. Lewis, Williamsburg, Iowa.
 John Pollard, Strathcom, Alberta, Can.
 H. E. Search, Bloomington, Ill.
 Argillo Fire Brick Company, Carbon Cliff, Ill.
 G. H. Hartwell, Chicago, Ill.
 E. M. George, Chicago, Ill.
 H. Tanner, Chicago, Ill.
 C. W. Lansing, Chicago, Ill.
 E. R. Frazier, Chicago, Ill.
 J. H. Libberton, Chicago, Ill.
 E. A. Lof, Chicago, Ill.

Chas. Johnston, Chicago, Ill.
 W. M. Pratt, Earlville, Ill.
 F. G. Madison, Galesburg, Ill.
 C. W. Shuttuck, Monmouth, Ill.
 J. C. Stoll, Wheaton, Ill.
 Wallace Mfg. Company, Frankfort, Ind.
 J. E. Randall, Indianapolis, Ind.
 F. L. Thomas, Plymouth, Ind.
 Stephen Kelley, Rushville, Ind.
 Edgar Plummer, Rushville, Ind.
 J. W. Arbuckle, Rushville, Ind.
 S. C. Carr, Jackson, Minn.
 R. B. Hinkley, Luverne, Minn.
 C. W. Sheriff, Luverne, Minn.
 H. H. Wentworth, Minneapolis, Minn.
 L. J. Corey, Minneapolis, Minn.
 Jos. M. Carrington, St. Paul, Minn.
 L. F. Straight, St. Paul, Minn.
 E. H. Vitalius, Detroit, Mich.
 C. Burridge, Tecumseh, Mich.
 O. M. Carter, Mexico, Mo.
 Geo. H. Emery, St. Louis, Mo.
 Peter B. Gibson, St. Louis, Mo.
 Marion W. Blair, St. Louis, Mo.
 W. C. Steel, Geneva, Neb.
 J. W. Turner, Lincoln, Neb.
 Smith Brick Company, Omaha, Neb.
 Harry Smith, Omaha, Neb.
 S. A. Corneer, Omaha, Neb.
 J. L. Neble, Omaha, Neb.
 E. G. Rutland, Bucyrus, Ohio.
 J. B. Stanwood, Cincinnati, Ohio.
 J. C. Campbell, Cleveland, Ohio.
 S. A. Williams, Cleveland, Ohio.
 Ellis Lovejoy, Columbus, Ohio.
 C. W. Raymond, Jr., Dayton, Ohio.
 W. J. Edwards, Dayton, Ohio.
 Jos. Goecke, Maria Stein, Ohio.
 H. J. Votaw, Plymouth, Ohio.

SEEN IN NEW JERSEY.

BUSINESS ALONG the Hackensack River has been remarkably good all winter. For only about a week was the river closed. All the rest of the time it has been possible to send schooners and barges to New York regularly. This has enabled makers to supply their customers with such quantities as they have required, and it has also practically cleared the yards. It is seldom that the yards are as empty as they are this spring. It will be difficult for dealers to secure any important quantities from New Jersey this spring. Nearly all have been shipped before this. The few remaining will be sent down the river as they may be needed, and by the time the making season opens the yards will be clear, ready to offer full advantage to the makers on this year's output.

When asked what the outlook is in New Jersey, practically all makers who have been seen are of the opinion that the situation has improved, and that this season will be better than last. It is unquestionably true that the building development of New Jersey towns will be much larger this season than ever before. The new railroad tunnels and the other improved transportation facilities which will be completed by railroads before the year is over will exert much influence in developing the erection of new dwellings, new factories, and other buildings which will require great quantities of brick.

Charles E. Walsh has sold his brickyard at Hackensack to John R. Ramsey, George M. Brewster, and M. B. and L. B. Gardner. It will be operated by the Gardners this season. The others are capitalists, who have invested their money in what they believe is an exceptionally promising business. The Gardners are successful brick manufacturers, owning large works in Hackensack now, and the transfer of this property to their control insures the manufacture of the best quality of brick at the yard.

Building operations will include business buildings of all sorts, dwellings and many public buildings. For instance, Hackensack is contemplating the erection of a brick high school building to cost about \$250,000. Bayonne will erect a brick and terra cotta building to cost \$300,000. A new grammar school is to be built in Jersey City to cost about \$400,000. Paterson is to erect a new high school, and hopes to get it done inside of \$400,000. Several new public build-

ings are planned for Newark and many factory buildings are included in the list.

All these operations, which are substantially four-fold larger than they were last year, mean the consumption of innumerable thousands of brick, most of which will come from New Jersey yards. If this is kept in mind by makers, their lot will not seem so gloomy as it was last year, when structural operations were practically at a standstill.

The road question is prominently before the people now. It is proposed in a bill introduced in the legislature March 10 to build a boulevard from Atlantic Highlands to Cape May, to be at least 46 feet wide and be constructed in the best manner, insuring permanency under the enormous automobile traffic which would be attracted. This road is to cost \$1,000,000, and money is to be raised by the assessment of municipalities through which it passes and which are benefited by it. Of course, it is well understood that introducing a bill and securing its passage are quite different propositions, but inasmuch as this is not to be a direct tax on the state the bill stands some chance of passage.

Experts are investigating the different materials which will be offered for the construction of roads. Sometimes it seems as though concerted action on the part of the New Jersey brickmakers would result in the selection of brick, but, of course, it is impossible to say. If it were selected for an experiment it would be found much more durable than anything else which has been suggested so far, and in the end it would be cheaper. But somehow there is no concerted action and the claims of practically every other sort of material under the sun are pressed, while paving brick manufacturers hold back and fail to push their claims as vigorously as the others. After all the logical material is brick and it should be used wherever possible.

A bill has been introduced in the Legislature authorizing the construction of New Jersey's portion of an interstate boulevard along the Palisades, to be called the Henry Hudson road. It is intended that this shall be in a sense a memorial to the discoverer of the Hudson. At the same time it creates one of the most beautiful drives on the American continent, through the State Park recently acquired on the brow of the Palisades, and it forever saves the Palisades intact. The money is already provided, and it may be that the tercentenary of the discovery of the Hudson will be celebrated by the opening of this magnificent drive along the noble river.

A. L. B.

THE FAILURE OF A WOODEN BLOCK PAVEMENT.



THE ILLUSTRATION appearing on this page is a picture of North Delaware street, Indianapolis, Ind., showing the discarded wooden block taken from the street in the repairing, twelve days after the trouble referred to in the following clipping from the Indianapolis Star:

"There was no week-end half-holiday for the men employed in the City Street Department yesterday. The men were not through repairing the damaged block pavements all over the city when darkness compelled them to stop working last evening.

"On the record book in the office of Jos. L. Hogue, superintendent of that department of the city government, a complaint was registered in regard to almost every wood block pavement in the city. In some places the blocks had merely

APPROPRIATION FOR ILLINOIS CERAMIC SCHOOL.

A bill appropriating \$25,000 for the study of ceramics at the University of Illinois has been introduced in the Senate of the Illinois General Assembly by Senator Dunlap, of Champaign, and is attracting a good deal of attention. Clayworkers throughout the state, of course, approve of the measure, and are anxious to see it pass, even if the appropriation is cut a trifle. A further appropriation of \$15,000 a year is asked for salaries, investigations, general apparatus and ordinary expenses. The larger sum is to provide a building and proper equipment for this important work.

The preamble of the bill, which is a brief statement of mighty important facts, reads:

"WHEREAS, The phenomenal increase in population of this country together with the rapid disappearance of our forests



North Delaware Street, Indianapolis, Ind., Showing Discarded Wooden Blocks.

bulged into mounds, but in most of the streets the pavement was torn up as successfully as though men had been put to work to tear it to pieces.

"Delaware street, considered above St. Clair street to be the best-paved street in the city, was so badly torn up in places that vehicles could not be driven across it. The guarantee which would have held the contractor responsible for the action of the blocks expired in November, 1908."

The pavement is constructed of long leaf yellow pine block, from which the sap has been exhausted by the vacuum process, and ten pounds of creosote injected into each cubic foot of timber. The cost per lineal foot on each side is \$6.73, exclusive of curbing, excavating and concrete foundation. It has been under constant repair for the last six years on account of disintegration of blocks, permitting large absorption of water, causing the street to swell up at times in mounds 2 and 3 feet high. The curbing has been shoved out of place as much as 1½ feet from the true line.

makes it certain that we can not longer rely on lumber as our main source of building material; and,

"WHEREAS, Illinois abounds in clays suitable for the manufacture of a great variety of structural materials; and,

"WHEREAS, It is desirable that exhaustive studies of these clays and of similar substances be made to the end that the greatest variety and highest possible quality of the building materials or other clay products used in this State may be provided from her own resources, and that young men be thoroughly trained in the physics and chemistry of clays and in a knowledge of the changes they undergo during the progress of manufacture, so that our factories may be controlled by men trained to see opportunities and skillful enough to meet new demands in structural materials; and,

"WHEREAS, The work already accomplished by the Department of Ceramics at the University of Illinois gives promise of its future usefulness along these lines; be it, etc."



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Clay-Worker at the New Jersey School of Ceramics.

MY DEAR MR. RANDALL:

The extra copies of THE CLAY-WORKER asked for arrived in good order, and I thank you for them. Your journal seems to be very popular here, since I am always having trouble keeping the files intact on our class-room shelves. I am,

Yours truly,

CULLEN W. PARMELEE,

Director Department of Ceramics.

New Brunswick, N. J., March 2, 1909.

The Rochester Convention a Big Success.

FRIEND RANDALL:

I went East from Rochester and stopped at one or two places on my way back home. I am a little late, but want to say that I think the convention a big success, and I had both a profitable and enjoyable time at Rochester, and I trust I will be able to attend the next convention, wherever it may be.

Very truly yours,

Denver, Colo., March 3, 1909.

R. D. LINDSAY.

The Convention Report Perfect.

DEAR RANDALL:

I want to congratulate you on your report of the N. B. M. A. Convention at Rochester. Typographically, it is as near perfect as any I have ever seen. The cuts are superb. I must not forget Miss Wallace; she must have had a finger in the pie. It certainly was a fine convention, with a fine program, fine report, fine Secretary and fine stenographer.

Springfield, Ill.

A. L. CONVERSE.

The Clay-Worker Good to Read and Good to Advertise.

DEAR MR. SECRETARY:

I have read the convention number of THE CLAY-WORKER with as much, is not more interest, than if I had not attended the convention. It is in itself worth the subscription price of the entire twelve numbers. One can not afford to miss such a convention as was held at Rochester, and then such a complete report as was given in THE CLAY-WORKER is invaluable as a ready reference. I have proven again that no matter how good the article you have it pays to advertise, as is evidenced by the fact that I am receiving inquiries daily concerning my patent wire-cut lug brick. Got six inquiries yesterday. With kind regards,

Conneaut, Ohio, March 3, 1909.

F. B. DUNN.

Southern Brickmaker Teaches Bricklayers the Trade.

FRIEND RANDALL:

Enclosed please find \$3.00 to cover my membership for the ensuing year. I always look forward with pleasurable anticipation to the arrival of THE CLAY-WORKER, and am pleased to learn that the meeting at Rochester was such a great success. Lameness, as you know, prevents my regular attendance.

I am doing my part in this neck of the woods in the way of teaching young men the trade of bricklaying; three of my sons have learned the trade and two more are coming

on. All told, I have taught the trade to nine young fellows, all of whom are doing well.

Business continues fair, but prices are too low, caused by new firms in the business who have not yet cut their eye teeth. With many kindly wishes, I am,

Yours truly,

Milledgeville, Ga.

J. W. McMILLAN.

A Novice Asks for Information.

Editor THE CLAY-WORKER:

Assuming that there is some fraternity among those manufacturing burned clay products, and, being a subscriber to your journal, I am assuming also that there may be among your readers some who would extend a helping hand to a novice in the lists.

I have recently purchased a small brickyard, and am having my troubles. There is a good demand for brick locally, and those I make meet with the popular approval except that I have difficulty in securing sufficient toughness and hardness, or at least in securing a large enough percentage of tough, hard brick.

The clay burns red and there is plenty of it, but there is also considerable sand in pockets and some hard pan that gets into the composition in spite of our efforts.

I take the clay from the pit in dump cars, haul it to the foot of the incline, and there attach a cable and draw it up into the mill with a hoisting drum. It is there fed into the combination pug and auger machine and sufficient water added to make it feed properly through a dry die. It is then carried over a belt to the side cut-off machine, and the brick are then removed by hand and placed upon hacking planks, being spread and piled six courses high, and carried to the drying shed upon elevating top cars, where they are deposited and allowed to remain until thoroughly air dry. They are then taken from the dry shed upon these same cars and carried to the kiln ground. The kilns are set four brick to the bench, and one and a half to the arch. The benches are carried up eight brick and then drawn together in three with a bind. The jet brick being set two over two, allowing perfect escape of heat into the upper portions of the kiln, but notwithstanding this process, we find in burning (which is done with coal), that we get a great deal of water smoke, and it usually requires about four or five days' continuous firing upon both heads to remove the water smoke, then about six days more of cross-firing to complete the burning. We use a single platting, set quite open, and even with coal get "candles" over the entire kiln for several days.

As I said before, I am a novice in this business, and I will be very much gratified if you will refer this communication to some charitably-inclined fellow brickmaker, or to someone whose business it is to supply information to such as myself. I do not know whether the difficulty is in the materials or in our method of handling it.

Very truly yours,

MICHIGAN.

A Cleveland Brickmaker's Fish Story.

MY DEAR RANDALL:

Well, I left the Rochester Convention February 3d, stopping at home in Cleveland over night, and started for Florida at 12:30 p. m. February 4th, and at 8:45 p. m. February 5th we were in Jacksonville, Fla., with a temperature of 70 degrees in the shade. This in thirty-two hours was quite a change from zero weather, ice and snow, to summer, flowers and sunshine.

This climate is surely ideal, enjoyable and beneficial for a brickmaker, and especially one who has good, kind and big-hearted partners, who are generous to a fault, and who say, "Go and reap the benefits of the warm climate while we work."

And to say that I am doing it is but putting it mildly. After reaching Florida, we visited Jacksonville, St. Augustine, Sanford and Tampa until the 14th of February, and then proceeded to Dunedin, where we were quartered at the Dunedin Yacht Club House Hotel for a little more than three weeks; and just a word about Dunedin. It is a small town

of 400 to 500 people, and an additional Club House winter population of about 125.

Five of the Malone brothers, of the Malone Stone Company, Cleveland, have cottages at this town, and each, with about a dozen other Club House residents, own their own sailing yachts, and the Club House Company own several islands in St. Joseph's Bay, among them Shell Island, Hog Island and Round Island, all of which are beautifully covered with palmettos and other tropical foliage. The principal amusement is sailing on the bay and Gulf of Mexico, fishing, and in walking or driving through the beautiful grape fruit and orange groves, of which there are a number in the vicinity, and among which is the grape fruit grove of Mr. J. M. M. McClung, who received the silver medal for his exhibit of fruit at the St. Louis Fair. Another very promi-

thus far this winter, and I assure you I thought it was fine amusement and sport.

On March 2d our party went out into the Gulf to do king fishing, and one other gentlemen and myself of the party caught six fairly good-sized king fish, weighing from ten to twenty-one pounds each, and I send you herewith proof of a part of the catch taken by Yours Truly, as evidence of the truth of this story. These three fish weigh forty-four pounds, and they are a gamey fish to catch and very fine eating. Now, Brother Randall, thus far I have confined myself to the facts, and for fear that I might digress or waver, as reputable clay products manufacturers sometimes do, I will abbreviate this letter while my reputation is good, and again thanking you for your kindness and wishing you and the clayworking fraternity deserving and unbounded success,

Very truly,

CHAS. J. DECKMAN.

St. Petersburg, Fla., March 11, 1909.

A Correction.

Editor THE CLAY-WORKER:

We note in your January number an article on the Singer building, of this city, in which you state that the face brick for this building were supplied by the John B. Rose Company. There is an error in this statement, as all the face brick, both for the original Singer building and all the extensions since made to this building, including the tower, were supplied by us. That part of the article referring to the style and method of bonding the brick is correct.

Trusting you will rectify this error, we remain,

Yours very truly,

CARTER, BLACK & AYRES.

New York, N. Y., February 2, 1909.

National Builders' Exchanges Convention.

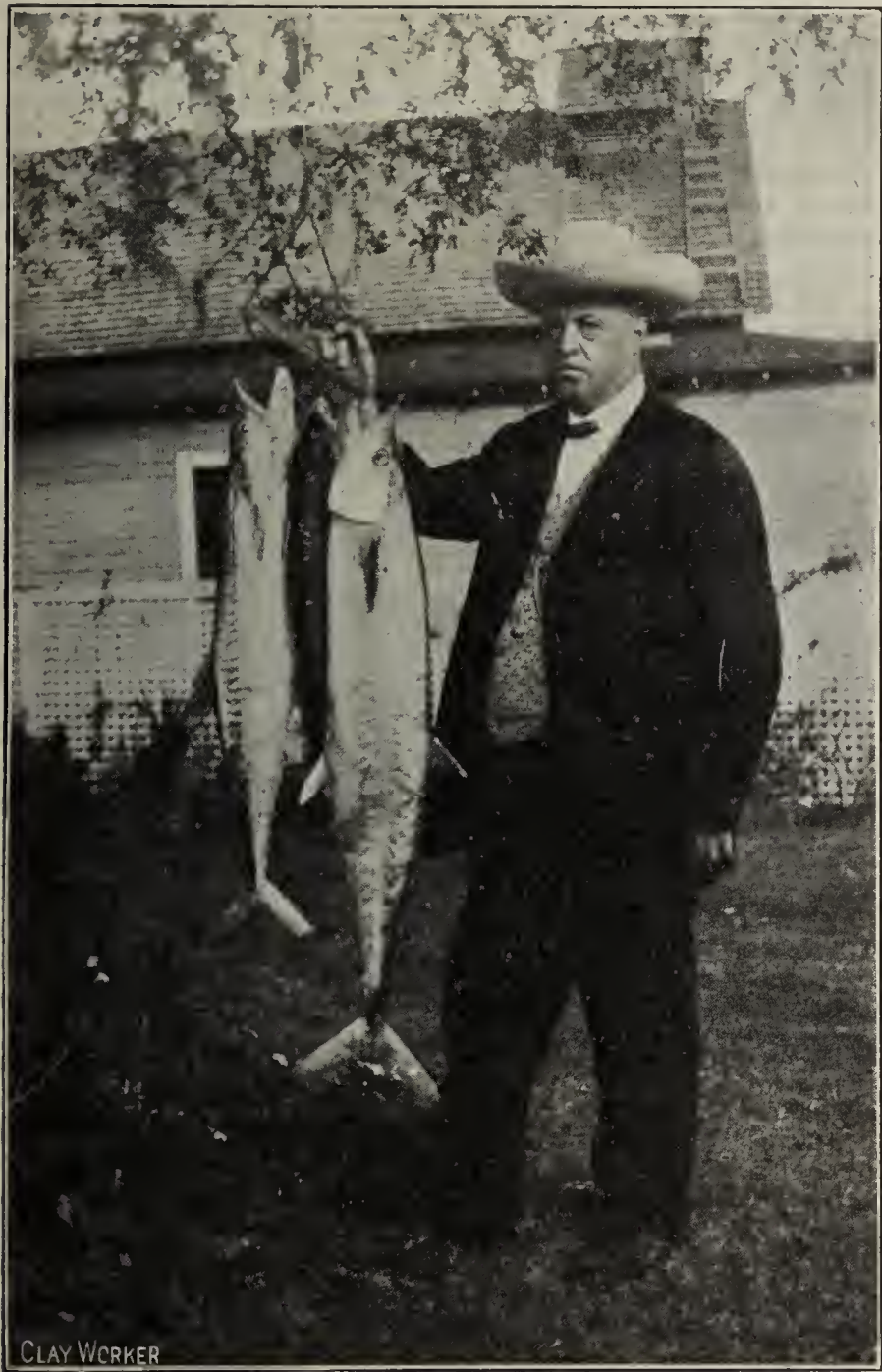
FRIEND RANDALL:

Your favor of the 3d received, and in reply would say that Mr. Bloomfield, Mr. Conway and myself attended all the sessions of the convention of the National Builders' Exchanges, and the writer the meeting of the executive committee on the following day.

While there were some misgivings on the part of your delegates, as well as other delegates, in the first place, a majority, if not all of them, came away with the feeling that a great deal had been accomplished in the way of extending the scope and usefulness of the association, and all those who had chips on their shoulders took them off and worked for peace and the common good; and our friend, Mr. Williams, who, from his many hard-fought battles has helped to bring this association to the point where it now stands, and to whom a great deal of credit is due, has acquitted himself very commendably, and has shown that when somebody else will take hold with him in the fight and shoulder part of the responsibility, that he doesn't always have to have his war paint on. He is willing and anxious to work hard on the lines that the majority may have laid, for the good of the cause and the association, which is very dear to his heart, and, as I said before, a good deal of credit is due him; and one of the results of the "get together" spirit that was shown was the burying of the hatchet by the Philadelphia and Scranton factions, which was surely very pleasing.

The Building Trades Employers' Association entertained the National Association in their usual way, to the embarrassing point, but objections were of no avail, we could only submit, and they have entered into the National Association movement with a will and a determination to make it a National Association, and are going to take upon themselves the task of trying, through their individual efforts, to bring into the membership of the National Association, all the builders' associations in the largest cities, from the Atlantic to the Pacific, taking this course with the idea that they can do more effective work from the outside than from the inside, as they have a tremendously powerful machine of their own here that runs like clockwork, not a cog missing or twisted.

I think the other two delegates of the N. B. M. A. agree with me that it is for the interest of our association to remain with the National Association of Builders' Exchanges while it is pursuing its present course, and give it all the support we can, which should be a great deal, if every brick-



Charles Deckman and His Prize Catch of King Fish.

nent grove is the Milwaukee, containing 14,000 trees, and from which 45,000 boxes of fruit are shipped annually.

But I am reminded that I was to tell a "fish" story. So here goes for a small one:

On February 26th, with five in our party we sailed out of the bay into the Gulf of Mexico about twelve or fifteen miles off land and anchored on a bed of rock formation in 32 feet of water, and in one and one-half hours we caught about 300 pounds of fish known as Grooper, Black Grooper, Boneto Mackerel and Grunts, quite a number of which weighed from 6 to 15 pounds. The three new recruits in our party, including myself, were of the opinion that it was a pretty good catch, but the old "sports" only laughed and contended that it was a small catch.

I still think, however, that it was a good one, and, in fact, no other set of fishermen have made as large a catch

maker in the country will work to bring into his local organization the builders of his own section, and through these local organizations into the National Association.

There was nothing in the tone of this convention that any conservative brickmaker could object to. The idea, as I understand it, is not one of warfare on labor, but one of peace (for which they will fight if they must); and mutual benefit and protection, not only to the employer, but to the honest laboring man, to which idea both the laborer and the employer have got to be educated; and when this association gets established all over the country, if established on the lines now being laid out, both the laboring man and the employer can turn to it for protection with equal confidence, and I think it is one of the grandest movements that has ever been started, and hope that every brickmaker will do his best to help it.

Note with pleasure that you expect to be in the East soon, and, of course, shall expect to see you here.

Sincerely,

New York City, March 6, 1909.

D. S. PLUMMER.

An Advocate of Hollow Building Tile for Moderate Cost Dwellings.

FRIEND RANDALL:

Again I poise my quill at you to note several things regarding THE CLAY-WORKER, etc. Passed the winter in Boston, and have returned here for the coming spring and summer.

I found the January and February CLAY-WORKERS awaiting me, and much of interest in both numbers. I find at last one good soul who has caught on to my idea of—lo, these many years' standing and advocacy, viz.—the use of specially adapted hollow tile as a house building material, and Mr. Elmer Van Wie, of Kenosha, Wis., is the happy inventor, and to his coming profit, the patentee of the "interlocking" idea. Time and again in the quite sometime ago, I wrote THE CLAY-WORKER on this very idea, urging you to take it up as an urgent matter in the interest of the brick and tile manufacturers, but until Van Wie came to the front with a live wire product and an ad, you evidently turned a deaf ear to my modest little screeds and relegated them and the idea to the W. B. If Van Wie is right, I was no dreamer or "hind-sight prophet." "A Tile House in New Jersey" (Bogota), comes in the same number as a side partner accomplishment to the invention of Van Wie, and both as a principle, places my idea and advocacy all to the good. The examples set by Messrs. Van Wie and Mr. Gibbons, of Bogota, will not end the matter, as their success will now compel hollow tile manufacturers to take up hollow building tile as an industry, and at least invent different forms (patentable), adapted to the same purpose.

The idea will grow as brick grew from the mud cube to the present art brick in diversified forms. The rich, the well-to-do and the prospering can and will take care of No. 1. They always do so, and can have their own homes built, be the costs what they may, but the working man of America as a mass is homeless. It is for the colossal majority that I have advocated a burnt clay material as against concrete with which cottage homes might be built at a cost less than lumber or brick, my preference being hollow tile.

"God must love the common people, he made so many of them," declared Lincoln, but the capitalist and the prospering must hate them, they help so few of them. The capitalist idea is rent, which, to the daily wage earner, comes as robbery.

Suburban cottage homes and a bit of the U. S. A. land in each case for it to stand on, will, in the case of the wage workers when they own such homes, do more to make contented and loyal American citizens than the wealth of the world poured into the coffers of the trusts and corporations, that which can come only out of human wage labor.

As timber becomes scarcer and lumber higher in cost, with brick holding its own in price and for laying, then it is concrete, or with Van Wie's and following similar products, an issue for low cost homes must be met, and it can be met with success and profit with hollow building tile,

which has ages of test to prove its unequaled merit as an enduring product.

Now, friend T. A. R., you and THE CLAY-WORKER go on with the good work—push this new (?) idea. You were the white-plumed Navarre of 1884-6 that led to the formation of the N. B. M. A. Why not lead on to founding a new era of building with an old material in a new form? The Rochester Convention was great! May Rochester live long and prosper. I have greatly enjoyed the convention articles and discussions.

Thanks for all past courtesies and accept best wishes,

Yours ever,

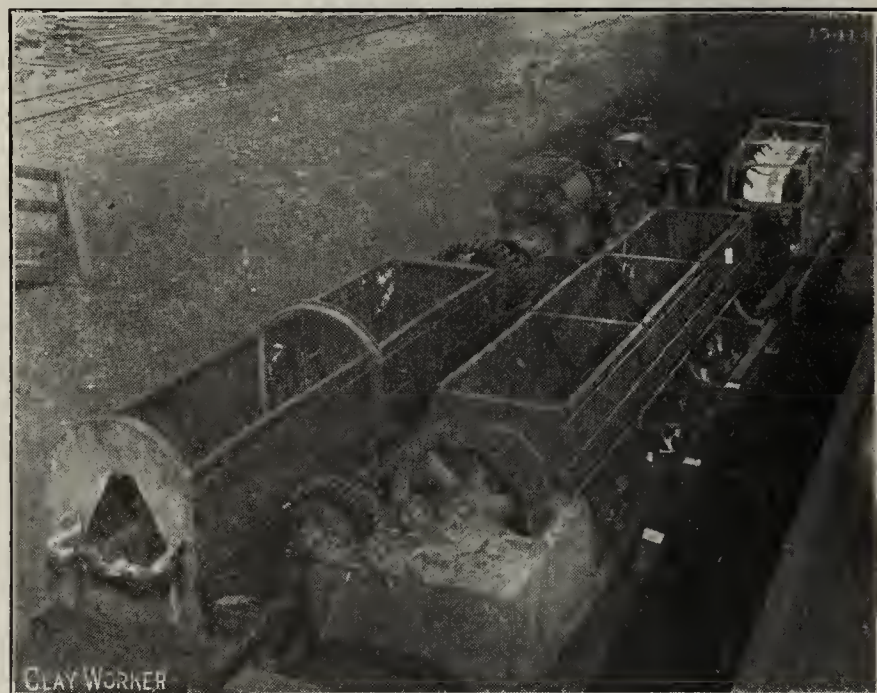
Haverstraw, N. Y.

DANIEL E. RYAN.

A LARGE SHIPMENT OF MADDEN MACHINERY.

One of the pleasures enjoyed by the delegates at the recent Iowa Brick and Tile Manufacturers' Association, held at Mason City, was a trip through the clay plants, which are, without doubt, the greatest drain tile factories in the world. The most interesting feature at this group of plants is the extremely rapid production of drain tile, hollow block, etc. There seems to be no limit to the output, it being only a question of how fast the ware can be taken from the machines.

All the clay plants in the Mason City district except one are using the well-known Madden machinery, which has a



A Carload of Madden Machinery Bound for Iowa.

record of making 127 fine 4-inch tile per minute. This is indeed a very creditable showing, and stamps the Madden machine as being one of the very best for tilemaking purposes. Only machines of the highest quality can stand up under such severe tests.

It is claimed that the success of the Mason City plants is due to the fact that Madden & Co. machinery is installed. The accompanying illustration shows a recent shipment of Madden machinery to the Mason City district, consisting of a 6D tile machine, granulator, pug mill, heavy duty disintegrator, hand cut-off table, and automatic cutting table.

Madden & Co. have a well-equipped factory at Rushville, Ind., and are running full force, finding the demands for their machinery greater this year than in any other in the history of this well-known company.

SOUTHERN CLAY PRODUCERS ORGANIZE.

Clay producers of Georgia and South Carolina have organized the American Clay Producers' Association, with P. W. Martin, of the American Kaolin Company, Macon, president, and Cecil Morgan, of the same company, secretary and treasurer. The object of the association, it is said, is to promote the use of American clay and to regulate railroad rates for hauling the product.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



HERE HAS BEEN much doing in the building world here since January in the way of business and excitement, and, incidentally the said building world had two chances at being represented in the City Council, but fell down in both instances.

Lewis D. Binyon, president of the S. S. Kimbell Brick Company, and also of the Builders' Club, was the man who was nearly struck by lightning out in the largest ward of the city, the Twenty-seventh, and only the fact that he was opposed by the best-disciplined ward organization in the city and that the day was so nasty that the "silkstockings" did not venture to the polls, prevented his receiving the Republican nomination. As it was, he split the vote of the hundreds who were not afraid of the weather so evenly with his opponent, that he was defeated by only 300 odd votes. But Binyon is a good party man, as well as a good business man, so he takes his defeat sweetly and serenely, and is working for the election of his successful rival.

Business is so very live here this winter that Mr. Binyon is not half sorry at the result, any more than feeling the natural disappointment in being defeated, for it has been a long time since there has been so much activity in January, February and March, and it's about all most competent business men can do to handle their own private affairs, without looking out for those of the city and of their constituents as well.

Ex-Alderman William E. Schlake, secretary of the Illinois Brick Company, was the second candidate who went down in glorious defeat. He was a candidate for the Democratic nomination in the Twenty-fourth Ward, and had all the forces of the "Uplift" with him, but it wasn't good weather for the "Uplift," most of which stayed at home for fear of getting its boots muddy.

The most ridiculous incident in the campaign of these two candidates was the raising of the "brick trust" cry by their opponents. Binyon's friends thought that he was especially maligned, for there has never been lack of wholesome competition in the pressed brick market. On the other hand, the charges as affecting Schlake seemed quite as absurd, for, regardless of what the history of common brick may have been a few years ago, with common builders selling for \$4.75 delivered, as they have been for several months up to the first of the year, there is little to indicate that the consumer is being "oppressed." Prices are a trifle better just at the present moment, but still they are not so great as to indicate a monopoly, and the common brick men are not exactly coining money according to their own stories. Moreover, the "war" is likely to break out again as soon as the season is well opened, and then back will go the prices to bed rock.

There has been just enough labor trouble in the air to make some people a trifle anxious for the future months, but the chances are that everything will blow over, and that the season will progress unhampered by unfortunate disputes. The trouble has arisen acutely over the tile laying in the big new LaSalle Hotel, which is undergoing the finishing touches, at the corner of Madison and LaSalle streets, a triumph of the builders' art.

The striking tilelayers are asking an increase from \$5.00 a day and car fare to \$5.60 a day and car fare, and the helpers are asking a raise of from \$3.00 to \$3.40 a day and car fare to the job. The work of window glazing is also tied up by a strike of glaziers, who demand an increase in wages from 42½ to 47½ cents an hour. A strike of lathers was also on for a short time, but most of the 1,000 men who walked out have returned.

The employing tilelayers, however, declare that they are determined to resist the demands for increased wages, insisting that the present scale is all that the business will stand. They denounce the strike as unjust, and are pre-

paring to bring strikebreakers from Indianapolis, Columbus, Cleveland and other points. It is feared that if the employers are successful in putting nonunion tilelayers to work on the LaSalle Hotel and a few other "struck" jobs, that workers in all the other building trades will strike in sympathy with the tilelayers. In that event, the entire building industry in Chicago and Cook County, which, as has been said already, is more than booming, might come to a standstill, all on account of a strike which originally involved only 200 men.

Two more skyscrapers are likely to be shoved onto the boards in the next few months. Both, it is said, will run up twenty stories, and be thoroughly modern in every respect. One of them is expected to occupy the southwest corner of Madison and LaSalle streets, diagonally across from the magnificent LaSalle Hotel. It is aimed to make the bottom floors of this building a banking home, and use the upper floors for offices. It is estimated that this building will cost in the neighborhood of \$1,750,000. The other new building is expected to occupy the present site of the old Victoria Hotel, at the northwest corner of VanBuren street and Michigan avenue. It will be an office building, with large shop space on the first floor. This will be so arranged as to be used for display or wholly commercial purposes. This building will cost \$1,500,000, it is estimated. Still another large enterprise along the same line is the new home contemplated for the Chicago Board of Trade. If the early plans are adhered to, it will be the most costly structure put up in the downtown district, with the exception of the county building and the new City Hall. An outlay of \$4,000,000 is anticipated for the building and essential furnishings. It will rise sixteen stories, the first floors being given over to the "pits" and the gallery, the offices of the officers of the board, and rooms for convenience and comfort. It is probable, too, that the ground floor will be used by brokers for offices, fronting on the four streets which will surround the structure. The proposed building is to stand on the site of the present Board of Trade building, which is owned by the board, and which runs from Jackson boulevard to VanBuren street, and from LaSalle to Sherman street. Prior to the work of removing the present structure, a temporary one-story structure will be put up on the west side of Sherman street, for use during the construction of the new building.

Of smaller enterprises in the building line there are many, a number of which are important as indicating the general trend of the city's growth. In the downtown district, improvements costing approximately \$100,000 are to be made at the northwest corner of Dearborn and Madison streets. Out in the new industrial district, along Indiana avenue, an eight-story brick building for wholesale lofts and manufacture is to be put up by Mrs. H. B. Borland for the use of Gage Brothers, milliners. Frost & Granger, are the architects.

The Commonwealth-Edison Co. is buying up large sites in different parts of the city preparatory to building new power and transmitting stations. Moody Institute, on the North Side, is planning to add to its present equipment an administration building and two dormitories, at a cost of \$300,000, and in Norwood Park, a monastery, three stories high, built in "U" shape, to cover a square of 200 feet, is to be erected at a cost of \$150,000.

The retirement of Mr. D. V. Purington from active business after the long years he has put in in active service, has been an event in the building world, although it occasioned no great surprise. No words but those of praise and affection are heard for the veteran paving brick man, whose life has been interwoven with the brick business of the city and the state for so many years. In whatever quarter one mentions his retirement there is always the hope expressed that "D. V." will enjoy his well-merited rest in his beautiful home on the gulf, and that he will not forget to drop in on them or frequent his old haunts at the Builders' Club when he returns to the city. His brother, W. S. Purington, succeeds him at the head of the Purington Paving Brick Company. W. G. D. Orr becomes general manager, and Frank Matteson, in addition to being sales manager, is now vice-president also.

SCRIP.

DISAGREEMENT AMONG TERRA COTTA MAKERS.

A petition has been filed by Alfred H. Bond, representing minority stockholders of the Atlantic Terra Cotta Company, with Edward O'Malley, Attorney-General for New York, asking that quo warranto proceedings be instituted for the removal of William H. Powell, president of the Atlantic company, which is the name of the consolidation of Eastern terra cotta manufacturers, effected in 1906.

The petition alleges the violation of the consolidation agreement of 1906, a violation of the agreement made with DeForest Grant, who was president and general manager of the Atlantic company until last January, and that the voting trust agreement was not fulfilled in several particulars. Mr. Bond was one of the stockholders of the old Atlantic company which formed the nucleus of the combination, consisting of the Atlantic, the Perth Amboy, the Excelsior and the Standard Terra Cotta companies, and he represents a majority of the stockholders in the original concern. The action is asked against William H. Powell, John N. Partidge, Edward J. Hall, Samuel S. Whitehurst, and Patrick H. Hart, the latter the treasurer of the consolidation.

The agreement, it is said, provided that the officers of the old Atlantic concern should remain at the head of the consolidation for three years after the date of forming the organization, which was December 10, 1906, but in alleged violation of this agreement an election was held January 21st last. DeForest Grant, president, and Dwight W. Taylor, who had been in office but two years after the consolidation, were dropped. William H. Powell, former president of the Excelsior Company, and Patrick H. Hart were elected president and treasurer respectively, the petition alleges, through the action of a voting trust.

The effect of the election was to eliminate the old Atlantic company management, which, at the time of the agreement, it is said, controlled more than a majority of the stock. The present capital is \$3,000,000, and the minority stockholders say they control one-third. The legality of the voting trust under which the present officers were elected is challenged, and a general rearrangement of affairs is requested as a result of this agitation.

NEW EDITION OF "CLAYS, THEIR OCCURRENCES, PROPERTIES AND USES."

Those interested in various clayworking industries will be glad to know of the appearance of the second edition of "Clays, Their Occurrence, Properties and Uses," with especial reference to those of the United States, by Heinrich Ries, Ph. D., Professor of Economic Geology in Cornell University, Fellow Geological Society of America, member American Ceramic Society, member American Institute of Mining Engineers, and author of "Economic Geology of the United States."

The phenomenal success and early exhaustion of the first edition is a mute testimony of its merit and value to all working along ceramic lines, with chapters on "Origin of Clay," "Chemical Properties of Clay," "Physical Properties of Clays," "Kinds of Clays," "Methods of Mining and Manufacture," "Distribution of Clay in the United States," "Alabama-Louisiana," "Maine-North Carolina," "North Dakota to Wyoming," and "Fullers' Earth."

The lack of a collection of reliable data has long been felt by ceramists generally. The able manner in which Dr. Ries has collected and arranged this material, interweaving much of his practical experience in the field, makes it a rare addition to literature, and the wealth of data to be found in it makes it indispensable to clayworkers.

In the new edition a number of practical points along theoretical and scientific lines have been added, bringing it up to date in every respect.

On account of the writer's long personal acquaintance with the author and the character of work he has been doing, he does not hesitate to state that we are fortunate in having a man of Dr. Ries' calibre to have undertaken this important task. Prospectus of the book will be sent anyone desiring same.

OBITUARY.

Death Again Invades the Ranks of the N. B. M. A.

John Miller, Washington, D. C., long identified with the National Brick Manufacturers' Association, having served as Vice-President for the District of Columbia for several years, died February 26, 1909. Mr. Miller, while a thorough going business man, was of a genial disposition, and found both pleasure and profit in attending the annual meetings of the National Association. He was born in England in 1850. When he was three years of age his parents came to this country and took up residence in Washington.

Mr. Miller engaged in business at an early age and his energy and keen insight in commercial affairs enabled him to achieve success. His first important venture was entered into thirty-five years ago, when he engaged in the coal business. Later he branched out into the building business as a dealer in structural materials, and about fifteen years ago became actively engaged in the manufacture of brick. He had one of the largest plants in the vicinity of Washington, which he managed in connection with his other ventures.

Mr. Miller's health has been failing for the last six years. For the last two years he has suffered from Bright's disease and general nervous breakdown. Since the new year he has



John Miller, Washington, D. C.

failed rapidly, although he attended the last National Convention but three weeks before his death.

From Rochester he went indirectly to Atlantic City in search of health, but failed rapidly after arriving at Galen Hall. The end occurred February 26, 1909. Mrs. Miller, his son, William C., of Yale, and Mrs. B. W. Brockett, a daughter from Cleveland, Ohio, were with Mr. Miller during his last days.

He was buried Monday, March 1st with Masonic Rites from his home, Woodlawn, Cleveland Park, D. C. Mr. Miller is survived by his wife, three sons and three daughters, Mrs. B. W. Brockett, Agnes and Sarah Miller, John H., William C. and Allison Miller.

John H. Miller, the oldest son, who for the last eight years has been identified with his father in the manufacture of brick, will continue his business interests.

Death of Wm. Lahey.

William Lahey, one of the most prominent Hudson River brick manufacturers, died at his home at New Windsor, just south of Newburg, N. Y., at 6 o'clock Friday morning, March 5. Mr. Lahey was a veteran brickmaker and his acquaintance was wide. About a year ago he sustained a stroke of paralysis, from the effects of which he never recovered. He is the last of the direct members of the well-known Lahey family. For many years Mr. Lahey conducted a brickyard

at Fishkill Landing. Up until a short time ago he conducted one of the Verplanck yards, north of Fishkill Landing. He had extensive yards at New Windsor, where he always made his home. Mr. Lahey was a well-known member of the N. B. M. A., the convention at Rochester being the first one he had missed for a number of years.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NOTES.



GENERAL CONDITIONS in the brick manufacturing business have been showing considerable improvement during the past month, which was undoubtedly caused by the open weather that has prevailed in this entire district. Building operations have been prosecuted without delay of more than a day or two at a time during the past six weeks, so open has been the weather, and with the approach of spring it is generally thought that there will be a rapid resumption of building.

The fire brick business has been particularly good all month, and refractory material manufacturers are working their plants steadier now than they have been able to for some time. The steel and iron business is improving rapidly, and as additional furnaces are being fired the owners have decided to reline all furnaces and stoves that are not in the best of shape, so that should there be a boom in the steel market, these furnaces will be in good condition for a long run.

The demand for paving brick is just beginning to make itself manifest, and from the present indications, is going to be large this year. There will be a large amount of street paving in which vitrified pavers will be used for surfacing, and several counties in this end of the state have practically decided that they will pave most of the new roads that will be built with the same material. Brick roads are gaining strength very rapidly in western Pennsylvania, and during the mild weather of this winter when the other roads have been soft and in some cases almost impassable, the brick roads have been the great salvation where there has been any heavy hauling.

Building brick, both of the common and pressed varieties, has been in practically as good demand all winter as it was during the latter part of last summer and all through the fall. There have been a large number of residences, large and small, built in this vicinity this winter, and the large proportion of them have been of brick, so that with the exception of December, the demand has been steadily on the increase. And it is thought that the demand will show far greater increase, commencing early in April, as there is a large amount of building scheduled to start during that month.

And as the building trades have been busy, the fireproofing business has likewise been good, and some excellent orders have been placed, both in this city and in the surrounding cities. Local concerns report that they have been awarded some excellent contracts from other large cities all over the country, and that their plants are now running better than they have been for over a year.

The demand for sewer pipe, although not very good now, shows every indication of at least doubling within the next couple of months, and as there are not great quantities stored in the yards, manufacturers are putting their plants in operation in order that stocks may be run up as high as possible before the first of May, when the actual demand is expected to show material signs of increase. There will be a great deal of new sewerage done, and inquiries are being received in large numbers from scores of cities and towns anticipating the laying of new sewers.

The National Fireproofing Company, of this city, will furnish the large amount of fireproofing that will be required for the immense new Oliver building that is to be built this year at Smithfield street and Oliver avenue. The

foundations of this structure are now under way, and the erection of the steel skeleton will be started by the time this issue of THE CLAY-WORKER is in the hands of our readers. The building will be twenty-four stories in height, and will occupy the entire block between Sixth and Oliver avenues, making it one of the largest structures in the state, and the largest in Pittsburg. The fireproofing contract is an excellent one, and will call for many tons of the best material.

The Harbison-Walker Refractories Co., Farmers' Bank building, this city, has been awarded the contracts for furnishing several additional blast furnace and hot blast stove linings for the plants of the United States Steel Corporation in this district, and will have them placed under way at the works in this vicinity at once. These orders are of sufficient size to keep the local plants in steady operation for some months to come.

The Allegheny County Commissioners have decided to issue bonds to the extent of \$1,000,000 for the improvement of the roads within the county this spring and summer. It is estimated that at least seventy miles of new road will be built, and of this there will be a considerable portion of brick, tests of the vitrified block during the past year having proven more than satisfactory where there is much heavy hauling. Contracts for a portion of the work will be awarded early in the summer.

The Cannonsburg Pottery Company, of Cannonsburg, Pa., has been incorporated this month under the laws of this state, and will operate a plant at that place, making a specialty of porcelain and china tableware. The incorporators of the concern are: John George, John C. Morgan, Charles C. Johnson, James Shaw, and J. A. McConnell, all of that place.

A. SMOKER.

"HAND BOOK OF INFORMATION."

This is the title of a neat pocket booklet recently mailed to the trade by the American Blower Company, of Detroit, Mich. It advertises their boilers and exhausters for forges and furnaces, and contains twenty-five pages of interesting information, illustrated with a number of fine cuts of their various types of blowers, blast gates, heating and ventilating apparatus, fans, etc. The descriptive matter includes price lists and capacity tables. Anyone interested in problems of draft and economical drying and burning of clay goods, should correspond with the American Blower Company, Detroit, Mich.

SALESMEN AMENABLE TO TRADE CONTRACT.

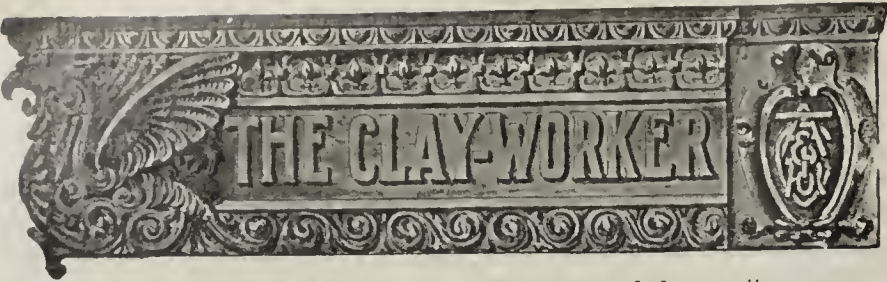
An opinion has been rendered by Judge J. J. Miller sustaining the Harbison-Walker Refractories Company, Pittsburg, Pa., in its equity case against William A. Stanton.

Mr. Stanton was president and majority stockholder of the Basic Brick Company, of Johnstown, and agreed not to manufacture nor sell any silica or clay fire brick for fifteen years after the Harbison-Walker Company had taken over the Basic Brick Company's plant at a purchase price of \$300,000. In addition, he was not to be employed by any competing company to dispose of their wares in Pennsylvania, Ohio, New Jersey, Kentucky or Maryland.

It is alleged that after his company sold out to the refractories company, Stanton entered the plaintiff company's employ as sales agent, and was receiving a salary of \$16,000 a year until January 1, 1908, when his resignation was demanded. Stanton, it was charged, after being relieved of his duties as sales agent, entered the employ of independent concerns in violation of his agreement, and made sales aggregating \$360,000.

In his opinion, Judge Miller, after reviewing the facts in the case, finds that Stanton has violated his agreement, and makes an order restraining him from manufacturing or selling brick in the territory embraced in the agreement.

The gift of gab does not produce anything but noise, but it frequently helps call attention to things that are produced and deserve merit which would not likely get a fair share of it without the use of some such agent to attract attention.



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A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

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Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
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No. 3.

CURRENT COMMENT.

* * *

Some men make it a rule to never swear at all, and there are others who swear off.

* * *

Political spoils may belong to the victor, but spoiled brick generally go to the scrap pile.

* * *

Honesty, like good brick, has many pretentious imitators, but there are no superiors, and only one real, genuine article.

* * *

Simplicity is a great thing in either man or machine, but ignorance, which sometimes resembles simplicity, will not answer the purpose.

* * *

Competition really has its seat of being in the mind of man, and not in the channels of trade, and it is because of this fact that a man is frequently his own worst competitor.

* * *

The idea of having paving brick inspected at the plant should not only appeal to every manufacturer, but isn't it time to get busy and arrange for bringing this idea into action much more extensively than it has been?

* * *

Correspondence schools have now reached the point of teaching people how to learn automobilng. The next thing we know brides will be taking advance courses in cooking lessons by correspondence, and husbands will be taking absent treatment for dyspepsia.

* * *

Notwithstanding the long process of eradication that has been going on through the influence of Christianity, civilization and education, there is still enough of the element of hog left in humanity to occasionally inspire a man to put his

feet in the trough and spill his own feast, as well as that of others.

* * *

When a man gets to fooling with that instrument we call the price cutter, he is in danger of disfiguring himself.

* * *

Many a man gets his mind relieved and purified by airing his views of things, but it rather rough on the people whom he airs them before.

* * *

When a man has a reputation that gets him classed as a brick, it may not add anything to his finances, but it beats any jolly you can go before a bank president with when you want to borrow money, especially during hard times.

* * *

After all, as has been said, the will of the people is the supreme law, and all laws in this country must reflect the public opinion. Otherwise, it is evident that lots of them will be repealed. This is all right, too, but the trouble is that the public opinion changes its mind every once in a while, and the law is apt to be changed accordingly.

CHINESE GOVERNMENT BRICK WORKS.

The Chinese Government has gone into the manufacture of builders' supplies, and has established quite an extensive works at Canton, China, apparently manufacturing lime, cement and brick. Vice-Consul General Williard B. Hull tells of the Imperial Government having bought German cement machinery and installed a cement plant of 500 barrels daily capacity, and also of the installation of brick works operated in connection therewith which cost close to \$50,000. The brick works began operation last October, and in this the machinery is also of German manufacture, being made at Bergedorf. The output is about 24,000 a day, and it is said that while at present the Government is using the entire output, it is figured that later on they will put part of it on the market at a price of \$72.00 for 10,000 at the works.

THE BUSY SEASON.

As the busy season approaches there is naturally some speculative wonder in everybody's mind about just how busy he is going to be. To a certain extent this depends on how building operations progress; to a certain extent it depends on each man's individual efforts in his own case, and to a certain extent it depends on all those interested in building material. There should be general encouragement of building operations by everyone, because practically all conditions are now favorable to this work, but aside and apart from all this there should be enterprise on the part of every brick manufacturer in the way of pushing clay products into the building world. It has been pointed out heretofore that one good way to further this work is by use of more traveling salesmen. That is, by more personal effort. The time is ripe now to put forward lots of effort of this kind. If you can get out on the road more or less yourself and visit with people who contemplate building, it is one of the best things to do. Where you can not do enough of this yourself it helps a whole lot to put bright traveling salesmen out. They are real mission workers that do a lot of the trade building in the world, and wield a lot of influence, not only directly, but indirectly, in shaping the sentiment of the buyers in the country towards certain material. There is not a better material to work for its wider use in the building world than brick, and with this material behind them and plenty of good arguments to support it, bright traveling salesmen should be able to develop lots of business eventually that will help keep the firm sending them out for business without going after some other fellow's

trade. In other words, there is room to build up new business, and among the best business building methods are those of personal work. So get busy at this as a part of the preparation for the busy season in brickmaking.

THE SPRING ROUND-UP.

Does it ever occur to you that order, style and cleanliness are just as beneficial around a clayworking plant as anywhere else? It might sound like a joke to some of you to speak of cleanliness around a brickyard or in the factory itself, where dirt is the ingredient being worked, but for all that there is the same room for order and cleanliness in a clayworking institution that there is in any other factory. Factory people, like housekeepers, have a sort of spring cleaning time, a putting away of winter accoutrements, and a burnishing up and getting ready for spring and summer. A brick manufacturer frequently has quite a lot of this because he shuts down his plant during the severe weather of the winter and before starting in the spring he may make repairs, changes and alterations, and there must be a general cleaning up and overhauling anyway before starting into the busy spring season. When you go at this, do it thoroughly; don't rush through it and get half done and then start off to work and leave some of it to be done at odd times, because it means a handicap right along and a lot of the things will be left undone. Make a thorough cleanup, plan for as much light and fresh air as practical during the spring and summer, remove as many unsightly accumulations as practical, and get things in order like you would feel inclined to do if the factory was to be thrown open to inspection by a lot of critical visitors. By being thorough about this and attending to it early in the season, you will enter the busy season with not only more cheerfulness and enthusiasm, but you will be better equipped to get the best results with the least practical cost.

BENEFITS OF INDUSTRIAL TRAINING.

There is not only an industrial and commercial benefit derived from properly training young men in trade schools, but there is in addition to all this a moral benefit, a benefit to the young men themselves, getting the training and to the community and world at large; that of itself is worth all the cost. This point has been touched upon incidentally by various advocates of trade schools, and it should be kept before the mind of the young men and of the parents because in some respects it is of even more importance than that of having competent men trained to carry on the skilled work of industries. Our deepest students have reckoned that as a preventative of crime from development of criminal instincts, the best safeguard in the world is specific training in some skilled trade. Also, it is an equally good safeguard against industrial poverty and distress. A qualification to do skilled labor is already recognized as a safer and surer thing for the young man to rely on to protect his future needs than professional training. There may not seem at first the same opportunity to attain distinction and a high place in the world, but by and by, after one studies the subject more thoroughly, it is found that the opportunities for distinction are just as plentiful among the skilled trades as among the professions. Not only that, but when distinction is attained through these channels it is generally more firmly planted and lasting. In promoting the trade schools, of course, brick manufacturers are naturally more interested in those branches that teach bricklaying than some others, but brick men, as a rule, are broad-gauged, and lend their support to all movements for the general good.

We may go a little further into this idea than to lend

moral encouragement, and give substantial aid to trade schools. We can take the idea home to the brickmaking institutions; that is, to making a feature of training the help, instead of letting it be a mere incident to the work. There are many things to learn of a practical nature in connection with clayworking, and the more attention that is given to the training and teaching of the young men around a plant, the correct theories and practices, the more efficient workmen will be developed and the better men for the community. So let us not only give more attention to the promoting of this idea in the trade schools, but also take it home with us and make it a part of the daily life around the brickyard and general clayworking institution. Take a special interest in the young man, and let that interest take on the form of proper training, both mentally and physically in carrying out their work. If followed up rightly it will benefit both the employer and the employe.

CLEVELAND INDUSTRIAL EXPOSITION.

Cleveland is to have an industrial exposition June 7th to 19th, in which will be displayed various products of Cleveland. It is claimed for this city that it leads in the production of ships, heavy machinery, hardware, twist drills, and other small tools, wire nails, and a great list of other industrial products, including chewing gum. One thing we know that Cleveland and vicinity furnishes, is some excellent paved streets and highways. There are probably more miles of brick-paved roadways running out of Cleveland than can be found in the same amount of territory in any other part of the world, and while, of course, it is not practical to gather these up and show them in an exposition building, some of the materials used therefor can be shown, and the highways in actual service can be shown to visitors and furnish an object lesson of what can be done elsewhere. Here is a good chance for the paving brick people to show the visitors what can be done in the way of paving both streets and roads, and thus encourage others to do likewise. If we may offer a hint, it is to catch the city fathers when visiting from other cities and give them a special introduction to the brick-paved highways in and about Cleveland.

ARCHITECTURAL TENDENCIES.

There is some indication in the air that a part of architectural tendencies in the next year or two may take on the Gothic form. There are already to be seen some public buildings in which has been carefully worked out what is termed a cathedral effect. There is being shown what is termed a cathedral Gothic furniture, and as styles in furniture and home building frequently follow more or less harmonious patterns, we may expect more attention to the Gothic in architecture. The Gothic, of course, is a part of practically all church architecture, but if the fad for Gothic takes on a wide scope it may be embodied even in the building of homes during the next few years. It is evident that something is to follow the mission idea pretty soon, because it has been with us until it has undergone about all the changes practical and it is about time to take up something new. If the change comes and the leaning is toward the Gothic, it suggests that it may furnish somewhat wider opportunities for architectural terra cotta. The Gothic in architecture involves in its original conception the combining of structure and sculpture, and in work of this kind architectural terra cotta lends itself readily as it does also in the production of cathedral effects. There is nothing that might be called a positive tendency toward the Gothic yet, but there are some indications that point in that direction, and as the time is ripe for some changes in architectural sentiment, it furnishes an interesting opening for study, experiment and development.

THE MANTEL, TILE AND GRATE TRADE.*

With apologies to the descendants of the author of "Wearin' of the Green," by HENRY BANAN, Rochester, N. Y.

Oh, the Mantel, Tile and Grate Trade has a standing of its own, Its lines are rich and varied, as will be quickly shown. It has Faience, Matt and Terra Vit: Della Robbia and Antique, Faenza Peau de Sole and others just as hard to speak. Grip back for walls—Ceramic floors in many different styles, In fact there is no ending to the art in making tiles.

There's the National, the Old Bridge, the A. E. T. and Trent, In looking through their literature, a pleasant hour is spent, There's the Robertson, the Hartford, the Cambridge, and U. S., Grueby, Alhambra, Matawan, Wheatley, Pardee and the rest, They make the goods, they get the trade and try to make their pile, By selling to the dealers the very best of tile.

The Mantel Men are not behind as their many styles do tell, In Birch, Cypress, Oak, Mahogany and other woods as well, They have Golden Oak and Mission, Weathered, Fumed and Wax, Early English, Natural, Tuna, in getting finishes they're not lax; Their wood is all well seasoned, their finish spic and span, Its hard in this progressive age to beat the Mantel Man.

There's Steul and Thuman, Petersen, Wiggers, Hegan and Voss, Ehman, Knoxville, Steiner—but Columbia should be boss, There's Dame, Moline, Fox, Thauwald, Rathbone and Panigot, Look through the list again, you'll find not one of them is slow, They also make the goods, and sell by salesmen on their trips, Let's hope that all these Mantel Men are stacking up the chips.

There's the men that do the metal work—they're not backward in the race,

For designs and originality, they sure can set the pace, They make grates for gas, and coal and wood and electricity, do you mind,

Andirons, Fenders, Pokers, Tongs and all things of that kind, They Oxidize and Specialize with Iron, Brass and Copper, If these metal men make lots of coin—its only right and proper.

There's the Peerless, the Ohio, Dawson Brothers and Bridgeford, Superior, Rathbone and Panigot—Chattanooga "en accord," There's Bucholtz, Graf, Boston Brass, Elm City and Rostand, With Janusch as their leader—they make a fine brass band, Strait and Richards make the goods that go with all good gas log grates,

May the Metal Men and Gas Log Men stack the long green up in crates.

There's the "Monthly," it too has its part, in developing of the trade, It tells all the progress and advancement that is made, It tells of New Ideas, New Designs and New Effects, And will surely get your business—if you only recollects To send in the five subscribers as you ought to, Mr. Man, And share in the good things coming through the Co-Operative Plan.

Let me thank you very kindly for reading this my screed, In writing it my object is to show all my creed, I honestly believe that we can combat every ill, Drive out unfair competition—increase our trade, and kill Undesirable imitations that flourish for a while, And show to all there is no trade like Mantels, Grate and Tiles.

*Respectfully dedicated to the members of the Interstate Mantel and Tile Dealers' Association in Annual Session—New Willard Hotel—Washington, D. C., February 9-10-11, 1909, by the Mantel, Tile and Grate Monthly.

REPORT OF CLAY DEPOSITS OF GEORGIA.

A second report on the clay deposits of Georgia, written by Otto Veatch, Assistant State Geologist, Atlanta, Ga., has been received from the press, and is ready for distribution by the State Geological Department. This report follows a small, preliminary report made by the department more than ten years ago.

The book is a comprehensive discussion of the clays of the whole state, and the subject is one which can hardly fail to be of general interest to Georgia clayworkers. The object of the work is primarily economic, and is designed to advertise the clay resources of the state, yet, at the same time, scientific accuracy and caution are maintained. The value of clay products and clay mined in Georgia amounts to approximately \$2,500,000 annually. With vast resources of clays, and the fact that this report may be consulted for clays, suited for nearly any clay ware manufactured, Georgia, in coming years, should increase its rank among the states.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 508.]

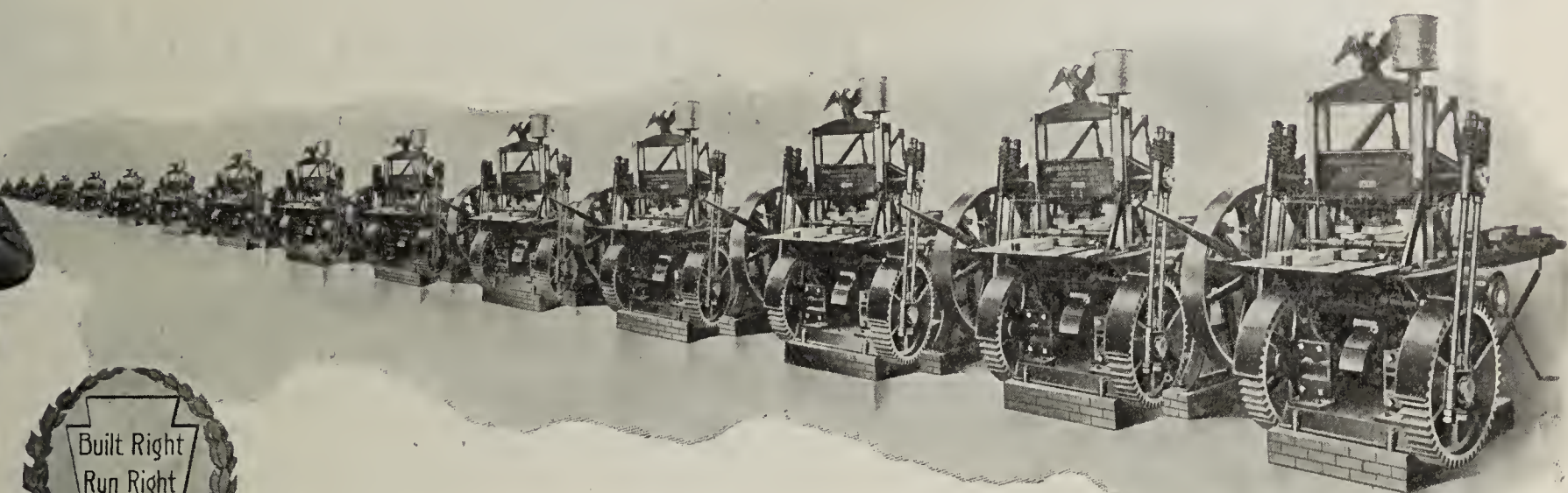
WANTED, FOR SALE, ETC.

FOR SALE.

An up-to-date tile plant, located on the P. C. C. & St. L. Railroad in central Indiana. An abundance of fine clay. Excellent equipment, two Atlas 60 h. p. boilers, Chandler & Taylor engine, complete line Madden machinery. Four kilns. Make 30,000 brick daily. Can not supply orders. Reason for selling, owners wish to retire from business. Address from business. Address INDIANA, 3 tf L Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on Pages 499-503.

READY FOR A PRESSING ENGAGEMENT.



UNCLE SAM'S BATTERY OF EAGLES *at* GALESBURG, ILL.

SINCE the above picture was made five more Eagle Re presses have been installed at Galesburg. The addition of Eagles from time to time is the very best indication of satisfaction. The Eagle Re press always satisfies because it is built to satisfy. We build equally satisfactory machinery for making every type of clay products by all processes.

SATISFIED.

Galesburg, Ill., August 31, 1908.
The American Clay Machinery Co.,
Bucyrus, Ohio.

Gentlemen—We are in receipt of yours of the 29th, and would say we are using at the present time twenty Eagle Re presses.

The same are giving good satisfaction.

Yours truly,
The Purington Paving Brick Company.

**The American Clay
Machinery Co.,**

Bucyrus, Ohio, U. S. A.

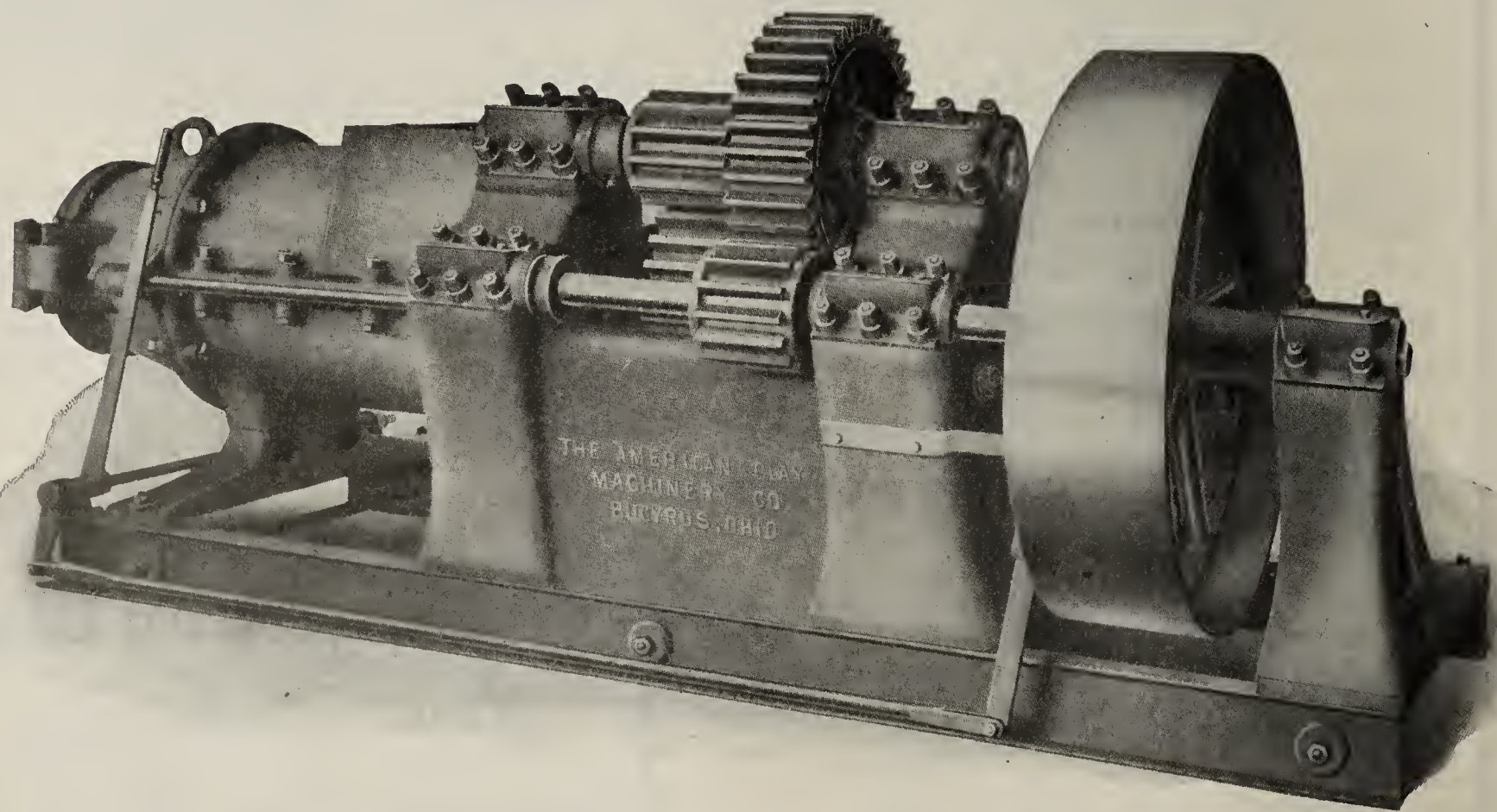
WHY NOT LOOK AT BOTH SIDES OF THE MACHINE?



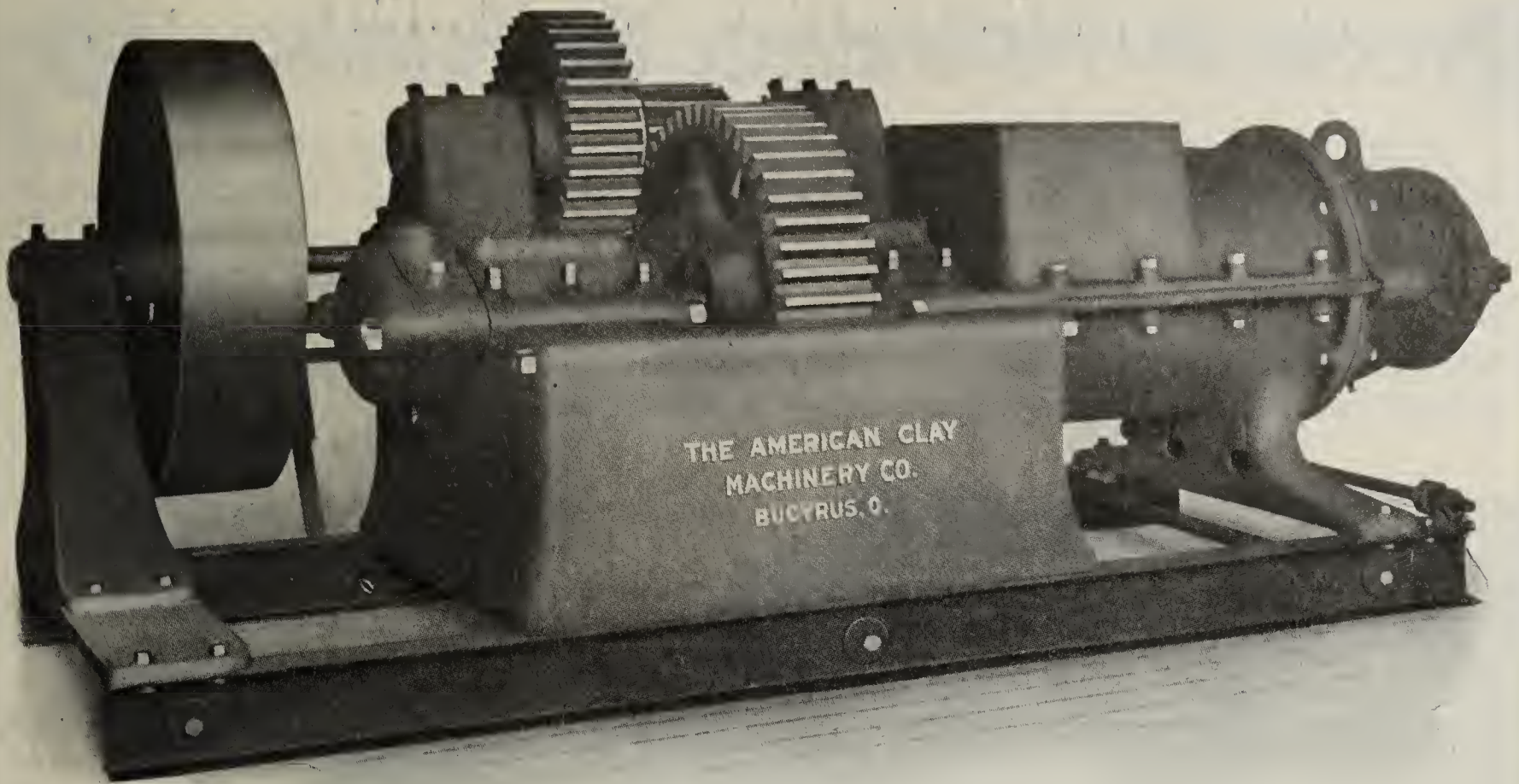
It's an excellent plan to look at both sides of a machine. We show herewith both sides of our No. 65 Auger Machine. Both views will prove interesting to the man who is looking for a machine which will make money as well as save it. In the purchase of any machine both sides of the investment should be considered because a machine which will save money on its first cost and fail to make money in its daily operation is not an economy. This massive No. 65 Auger Machine is built to save money from day to day and to make money every moment of its operation. It is built for strength, durability and capacity, and its entire construction is replete with labor-saving, money-saving and money-making features. It is adapted to the manufacture of Brick, Tile, Hollow Ware and similar products made by the plastic clay process.

The construction of the machine is high class throughout, the material used is of the best quality and the workmanship of the highest standard. The machine is built with a high factor of safety.

The No. 65 Machine is entirely self-contained, being mounted on heavy steel I-beams. The massive self-contained gear frame contains all the principal journal bearings which are long and well babbitted. The end thrust bearing is secured to



No. 65 Auger Brick Machine—Front View.



No. 65 Auger Brick Machine—Rear View.

the gear frame by heavy steel bolts. This bearing consists of two large chilled plates between which is a phosphor bronze wearing plate revolving in a bath of oil. The main shaft is hammered steel $6\frac{1}{4}$ inches in diameter. The hammered steel intermediate shaft is mounted in the gear frame above the main shaft where the bearings are accessible and the gears may be protected from dirt. The gears are covered with a neat steel housing to protect them from dirt and prevent injury to workmen. The gears are heavy and made with strong teeth, designed for smooth and quiet operation. All end thrust is taken on steel rods which parallel the main shaft and pass through the gear frame. The nozzle is fitted with a renewable corrugated lining made of a special mixture of white and gray iron which is also used in making the auger and knives. This special mixture, we have found, gives great strength and wearing qualities. The die front is hinged to the nozzle and provided with a safety-pin attachment which will shear off should the clay become too stiff and the strain excessive, thus preventing serious damage to the machine.

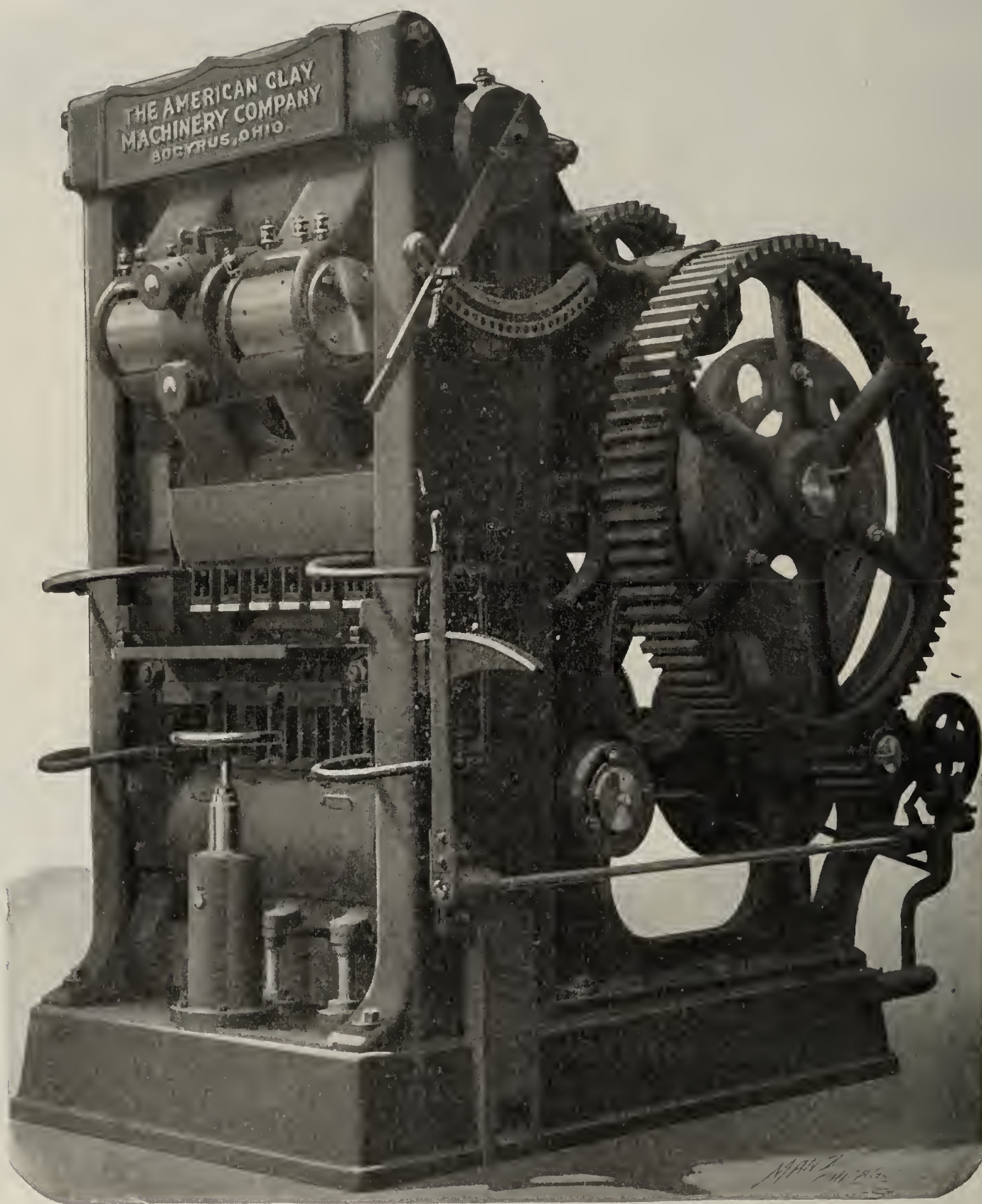
We build every machine and appliance required for the manufacture of every class of Clay Products by every process. Our complete catalogue will be sent upon request. Correspondence invited.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Presses for Performance Not Promise



From our Six Mould Dry Presses down to our Hand Presses we can guarantee the quality and performance of each machine. Our Press Builders are experts who build nothing but Dry Presses in our own factory under our close supervision. The quality of material, the design and workmanship combine to make Presses as near Perfect as it is possible to get. All capacities and all sizes. We also build every machine and appliance needed to manufacture every class of Clay Products and Sand-Lime Brick. Write for particulars or catalogue.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

SUPERIOR DRYERS—AND WHY



The success of a Waste Heat Dryer is largely in the Blower. We know that our Blower Dryers are best because our specialists on Dryers design the fan to meet the needs of each case.

Because every fan for every dryer is built in our factory. We know its quality and can guarantee it.

Because we do not have to depend upon the workmanship of some other factory but build ALL OUR OWN FANS.

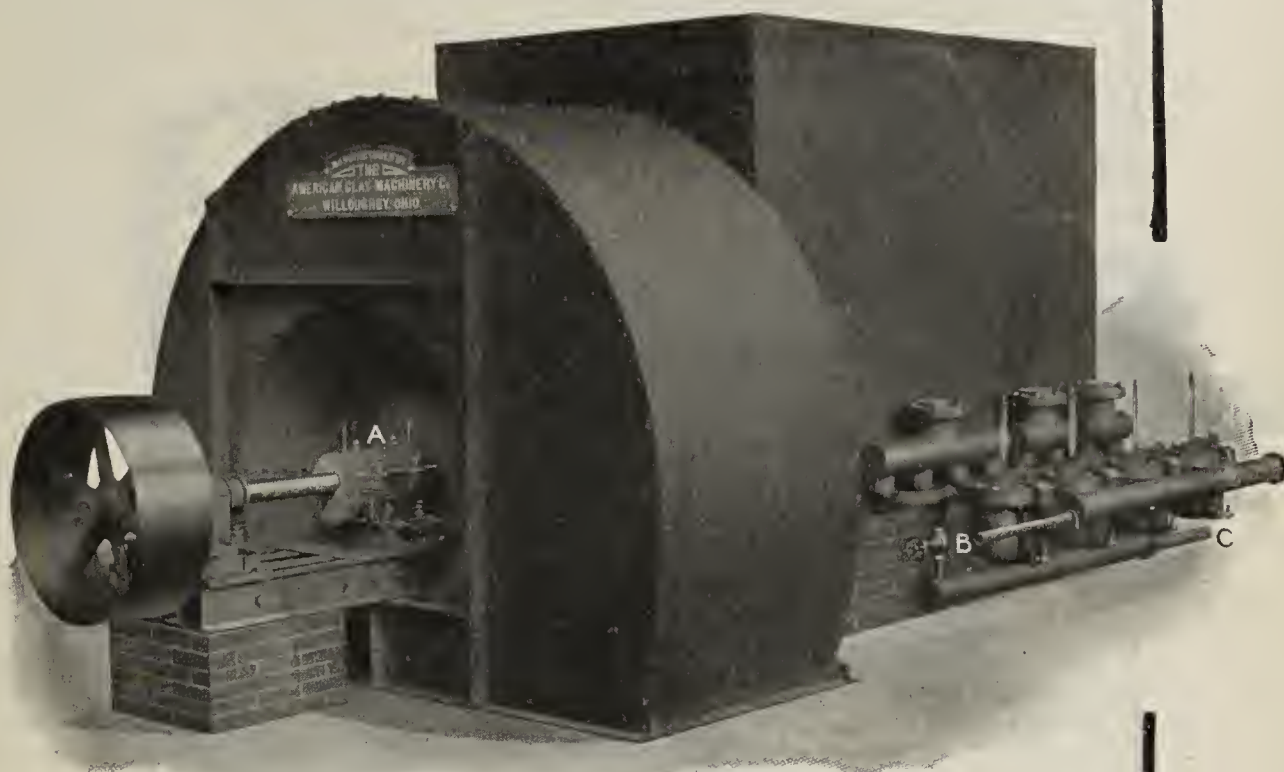
Because these fans are of extra heavy and substantial construction designed especially for handling the hot gases from the cooling brick kiln and are much heavier and more substantial than an ordinary fan intended for heating and ventilating factory or office buildings which are sometimes sold for installing in waste heat dryers and invariably give poor results.

Because the American quality is in our equipment and will maintain it a success.

Because we have the best Waste Heat Dryer men in the country. With the best engineers, the best material and the long experience, we know that we can give you the best service and a better value for the money invested than can others whose equipment is assembled from various factories.

Then again we are Dryer Specialists in every sense of the word. We are not content with making one kind of dryer, but make every kind. We are, therefore, in a position to consider your interests without any bias or prejudice toward any one kind of dryer. This insures your getting a dryer which will most successfully handle your clay, whether the dryer be a Waste Heat, Steam, Hot Air or Furnace Dryer. We build a full equipment for every dryer in our own factory including Fans, Heaters, Car, Transfers, Turn Tables, etc. We also build and equip dryers to be operated by the carless system.

If you are in the market for a dryer let us look over your plant, consider the clay and conditions and design you a system that will be a success. Then if you place the order with us the equipment will be made in our own factory and will be of our standard quality. As it is with dryers so it is with every class of Clayworking Machinery. We build a full line for making Clay Products by every known process.



The American Clay Machinery Co.,

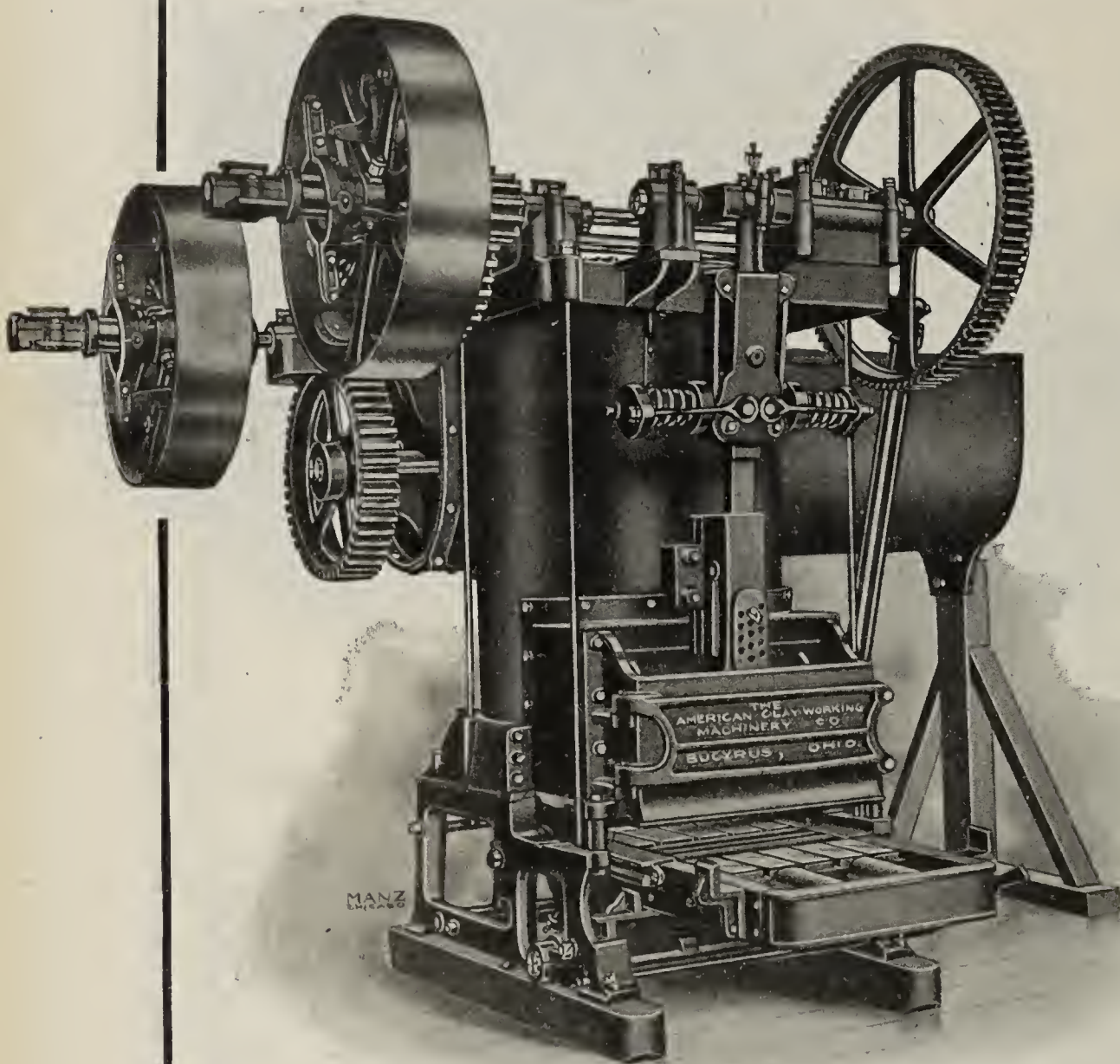
Bucyrus, Ohio, U. S. A.

Soft Mud Brick Machinery



There is many a clay which can best be worked on Soft Mud machinery. To handle such clay on Stiff Mud or Dry Press machinery would prove a failure in the long run.

We build a complete line of Soft Mud Brick Machinery and appliances to meet the needs of such clays. We are not interested in selling you machinery which may prove a failure. We have the very machinery you require to make a success of your business, and that is the only machine we will sell you.



Our Upright Stock Brick Machine is built for long and continuous use. It has many satisfied users who will cheerfully recommend it.

Our line of Plunger machines is complete, with a size range to meet your requirements.

Our Eagle Horse Power and Eagle Steam Power machines are popular favorites in their class.

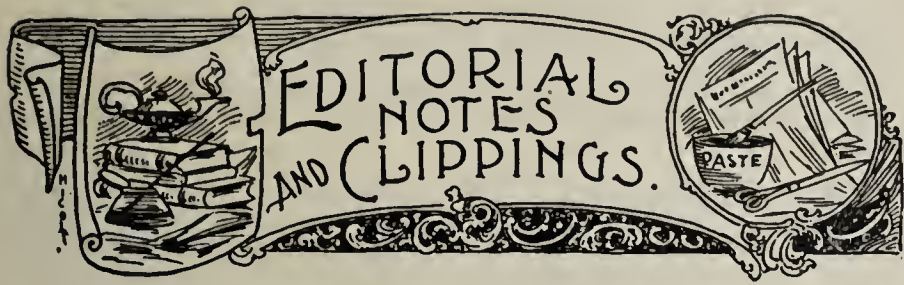
Every machine we build has a quality behind it attained only by faultless designing, excellent material and superior workmanship.

In buying the "Built Right Run Right" line you buy quality and that means successful operation.

We build every machine and appliance needed to manufacture Clay Products by any known process. Every machine built in our own factories, so that we are able to guarantee the quality because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



S. R. Pope has sold his brick plant at Buchanan, Ga., to W. C. McLeod and T. L. Craft.

E. M. Lewis, of Anniston, La., will establish a brick plant at Wallett, Okla., of about 50,000 daily capacity.

W. W. Whitehead and L. H. Wells are interested in a movement to establish a brick plant at Alamosa, Colo.

S. P. and Phillip Hartman have purchased the plant of the Brookfield Paving Brick Company, Brookfield, Mo.

Covington, La., wants a first-class pottery. Interested parties can get particulars by addressing L. M. Bourgeois.

The plant of the Union Brick Company at Iola, Kans., was damaged to the extent of \$500 by fire which broke out in the dryer.

A large sewer pipe and drain tile plant will be erected at Dallas, Texas. T. F. Hook, of Webster City, Iowa, is at the head of the enterprise.

The company store of the United Fire Brick Company, of Dunbar, Pa., located at Pechin Station, was broken into recently and robbed of merchandise amounting to over \$200.

Work has been commenced on the rebuilding of the plant of the Scranton Vitrified Brick and Tile Company, at Nay Aug, near Scranton, Pa., which was destroyed by fire a short time ago. The plant when rebuilt will have many modern features which were lacking in the one destroyed.

The name of the Nelson Brick Company, Mound Valley, Kans., has been changed, by vote of the stockholders, to the Parsons Vitrified Brick Company, and the main office of the company will be moved to Parsons. H. W. Raber is president; H. F. Reid, secretary, and K. Barton, treasurer of the company.

Mike Butler, one of the leading citizens of Austin, Texas, and one of the largest brick manufacturers of Texas, died at his home in Austin, February 25th. He was sixty-seven years old, and had been in ill health for some time. Mr. Butler was at the head of large brickmaking plants at Austin, Houston and Butler.

A. I. Hunter, manager of the Red River Valley Brick Corporation at Grand Forks, N. Dak., has returned from his trip East, well pleased with his trip generally, and particularly the convention at Rochester. A steam shovel will be added to one of the company's plants, and they will also install machinery for the manufacture of hollow brick and tile.

Trebling its capital and increasing its output four-fold, the Shackleford Brick Company plans to erect in Des Moines the largest and most modern and extensive brick plant in Iowa. Work will at once be commenced on a large continuous kiln and a number of other important improvements and changes in the plant. F. W. Shackleford is president and F. W. Stewart is manager of the company.

A large force of men is at work on the \$250,000 fire brick plant that is being erected by the Harbison-Walker Refractories Company at Ensley, Ga., pushing the erection with all speed possible, as it is understood they contemplate being in shape to commence operation by August 1. The long storage building has already been completed, and the construction material is now being housed therein, but it will be used as a storage house for the finished product when the plant is finished.

The Brownwood Brick Company, Brownwood, Texas, has bought additional grounds and a right-of-way for a railroad siding, which will be built within a short time to give them ample facilities for loading the brick that is shipped to out of town points. The company has started out with renewed interest to make the brick business in Brownwood a success. New kilns are to be constructed and brick will be manufactured regularly in the future. H. W. McGhee has been made

manager of the company, and a neat brick office room is in course of construction at the yards now.

A company of which W. A. Carlson, Basalt, Colo., is president, will locate a large brick plant at Glenwood Springs, Colo.

The Mt. Vernon (Ill.) Pressed Brick Company expect to locate a brick plant in Texas, and are now investigating a site at Denison.

The Clymer Brick Company, Indiana, Pa., have recently booked three orders that aggregate over 1,000,000 pavers, and say the prospect is bright for an unusually good season.

The capital stock of the Noble Brick Company at Ava, Ohio, has been increased, and a number of improvements will be made at the plant which will increase its capacity. Five new kilns will be added to the kiln equipment.

Calver & Leek are making a number of improvements in their brick plant at Ogden City, Utah, which will increase their capacity to 75,000 brick per day, and so enable them to meet the increased demand for this product.

The Buckeye Fire Clay Company, Uhrichsville, Ohio, has purchased a sewer pipe press from the Taplin, Rice-Clerkin Co., Akron, Ohio. Mr. W. B. Stevens, the general manager of the company, announces that they will make a number of improvements in the factory.

The Bomberger Brick Works, of Lancaster, Pa., has been organized and has taken over the plant of Henry Bomberger. The old machinery will be replaced with new machinery, and a modern steam dryer will be added. The new company is composed of William Bomberger, Rose Bomberger, H. P. and J. F. Martin, all of Lancaster.

The plant of the Union Brick Company at Gas City, Kans., which has not been operated for nearly a year, was put in operation the first of March. The supply of brick on hand when the company shut down has been exhausted, and the number of orders now on hand leads the company to look forward to a prosperous season.

The Taplin, Rice-Clerkin Co., of Akron, Ohio, has received a contract from the Republic Rubber Company, of Youngstown, Ohio, amounting to between \$30,000 and \$40,000 for the making of rubber equipments, in order to enable the rubber works to double the present capacity in the production of automobile tires. The contract consists largely of cores, molds and other necessary equipment.

The brick manufacturers of the New Britain (Conn.) district, who have been identified with the Federal Brick Company, of Rhode Island, and who control an annual output of about 80,000,000 brick, have taken steps to reorganize along the lines of the Central Brick Exchange, which operated successfully for several years. The Federal Company, which was backed by the Union Trust Company, of Providence, negotiated an agreement with various brick manufacturers in the New Britain district to take their output at a specified price for a period of five years. Owing to the financial panic and to the consequent depression in the brick market, the Federal Company was unable to carry out its plans, and

(Continued on page 494.)

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.

EDITORIAL NOTES AND CLIPPINGS—Continued.

the New Britain, Berlin and adjacent manufacturers have withdrawn from the company.

The McCook Brick Company has filed articles of incorporation with the Secretary of State of Nebraska. The plant and principal office of the company will be at McCook, Neb.

Wm. F. Stimmel is making a number of improvements in his plant at Kutztown, Pa. He now has on hands orders for more than a million brick, and predicts a very busy season.

The Montgomery Brick and Tile Company, of Montgomery, Ala., has been purchased by James and John McIntyre, who will take charge of the plant and will operate same.

The Pawhuska Brick Company has been incorporated with \$30,000 at Pawhuska, Okla. They will put in a plant of 50,000 daily capacity. J. M. Parkins, of Humboldt, Kans., is the principal stockholder.

The Taplin, Rice-Clerkin Co., Akron, Ohio, reports that their shops are being run to the fullest capacity, including a night shift, in the production of their celebrated Climax stoves, ranges and furnaces.

The Wilkesbarre Brick Company, Wilkesbarre, Pa., has been incorporated by R. A. Reed, G. W. Gotthold, W. H. Ainesbury, and D. H. Evans, of Wilkesbarre, and A. D. Thomas, of Edgarsville, Pa. The capital stock is \$100,000.

The plant of the Streater Clay Manufacturing Company at Streater, Ill., was completely destroyed by fire March 1st, entailing a loss of nearly \$100,000. Several thousand dollars had recently been spent in improvements at the plant. The plant will be rebuilt at once and on a fireproof basis.

The plant of the Garner Brick Company at Haverstraw, N. Y., was almost completely destroyed by fire the latter part of February. The loss is estimated at \$30,000. The plant was out beyond the fire limits of the town, and so the flames were almost beyond control by the time the firemen reached the plant. The fire originated in the drying room.

George Farrar and Frank Lawrence, employees of the Ohio Brick and Clay Company, were buried in a cave-in at the company's plant out on Warren road, Cleveland, Ohio. The son of Mr. Farrar led the rescuers who dug out the two men. Mr. Farrar, who had charge of the men in the clay bank, sustained a broken hip, two ribs and a lacerated face, and the other man's left leg and shoulder were broken.

The Lexington Brick Company, Lexington, Ky., of which F. A. Cramer is president, and Harry C. Cramer is secretary, has taken over the plants of the Monticello Brick Company, at Monticello, Ky., and the Fayette Brick and Supply Company, of Lexington, and will consolidate the three plants under one management. Each of the plants acquired have a capacity of three and a half million brick a year. About \$25,000 is involved in the deal. The Monticello plant will be removed to Lexington.

The Phoenix Brick and Construction Company, St. Joseph, Mo., will enlarge its brickmaking capacity, and at an early date engage in the manufacture of fireproofing and sewer pipe, in addition to making pavers. To do this the company has decided on a bond issue by which to raise the sum, \$60,000 to \$100,000, the bonds to run twenty years and bear 6 per cent. interest. The demand for paving brick, fireproofing and sewer pipe is increasing rapidly in the territory tributary to St. Joseph.

The Taplin, Rice-Clerkin Co., Akron, Ohio, has also been awarded the contract from the Pomona Terra Cotta Company, Pomona, N. C., for the complete equipment with clay-working machinery of the large new additional plant to be built at Pomona. The present plant is now equipped with the machinery made by the Taplin, Rice-Clerkin Co., which has been highly satisfactory, and being awarded the second contract seems to be very complimentary for the class of work turned out by the company.

Under an agreement reached by the bondholders, the Logan Brick Manufacturing Company, with home offices at Toledo, Ohio, has gone into the hands of a receiver. Federal Judge Taylor has appointed Joseph P. Degnan, of the Toledo Builders' Supply Company, as receiver. The company was a \$300,000 corporation, with its main plant located in Logan, Ohio, where it has a big industry. The plant at the present time is shut down. Two plans are being considered by the

bondholders, one to reorganize and another to dispose of the company's assets and go out of business.

Henry Edelmaier has sold a half interest in the Scribner (Neb.) Brick Manufacturing Company's plant to Richard Felgner.

The Twentieth Century Clay Company is the name of a new concern recently incorporated at Cleveland, Ohio, with \$300,000 capital stock, by C. L. Morton, A. H. and S. F. Moore, D. H. Tilden and Elmer G. Derr.

The Hancock Brick and Tile Company at Findlay, Ohio, is now running its plant day and night to enable them to keep up with their orders, and will probably keep up this order of things for some time to come.

The El Dorado Brick Works, El Dorado, Ark., are having a very busy season. They recently made a large shipment of their building brick to Farmersville, La., and the prospects are good for a continuance of this demand.

The Leavenworth Brick Company, Leavenworth, Kans., has been adjudged bankrupt. This company was organized several months ago, and leased a plant which they put in operation, and turned out a good product, but, owing to the fact that they could not collect the money subscribed by the stockholders, they were not able to pay bills incurred, and hence were forced into bankruptcy.

The Auburn Shale Brick Company has purchased the plant of the Gettysburg Brick Company, Gettysburg, Pa., from J. L. Butt, the assignee of the latter company. This is the third plant owned by the Auburn Company, as they now have in operation plants at Auburn and Schuylkill Haven, Pa. They will make a number of improvements and repairs at the Gettysburg plant, and expect to turn out dry press building brick, as well as vitrified pavers.

ARE YOU TROUBLED WITH WHITE WASH?

Do you want to make a better face brick? Do you want a wider and more profitable market for your product? Do you want to make from the same material, whether light or dark, a variety of colors and shades that are winners in the market, and double your margin of profit? Why not go your competitor one better? Let us help you earn larger dividends. J. B. & I. L. Hammond, exclusive agents for the Lynn brick facing machine. Adds \$2.00 to \$15.00 per thousand to the value of your product, and costs but little in comparison. Positively the most advanced step yet taken in the manufacture of impervious face brick. Inquiries promptly answered. A collect telegram will bring a representative.

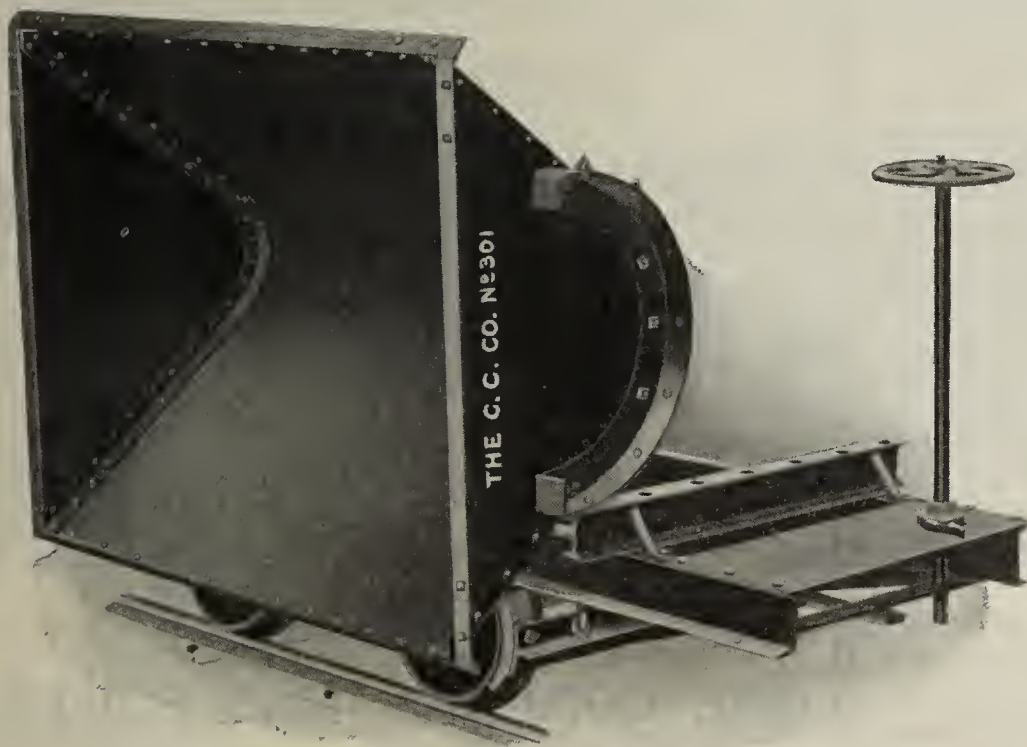
J. B. & I. L. HAMMOND,
Specialists in the Brickmaking Industry,
Bolivar, Pa.

FREE Most favored harbor
on Columbia River.
Natural deep channel
—no Dredging—no Ice—no Floods
FACTORY 60 miles
from
Ocean
Same freight rates Seattle and Portland. Unlimited
SITES raw material—varied timber resources. Furniture, Finish and Pulp Woods—finest Pottery Clay. Ideal location for manufactures. No "hot air" schemes
RAINIER will be considered. For more detailed information write to
OREGON L. S. THOMAS
RAINIER
OREGON

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NO. 301 ROCKER DUMP CAR.

CLEVELAND DUMP CARS ARE RIGHT.

We can convince you of that fact without difficulty through a trial order.

Many satisfied users will also corroborate this statement.

These cars are properly balanced, strongly constructed, run easy and clear the road thoroughly.

Note these features carefully in purchasing your equipment.

The Cleveland Car Co.

WEST PARK, OHIO.

Manufacturers of Industrial Railway Equipment for all Classes of Service.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE KENTUCKY
METROPOLIS.



HERE SEEMS to be only one drawback to the brick and allied clay lines in this section, and that is the weather. It has rained a great deal in this city and state for several weeks, and this is seriously interfering with the buildings that are under way and those that are contemplated. There are a number of structures going up in this vicinity this spring; in fact, more than has been noted in several years. There are rumors of a number of large structures that will be constructed with terra cotta and brick, and a large number of smaller buildings with the same material.

The Board of Public Works will soon advertise for bids on a large amount of brick street work, and it is said that there will be considerable of this done this year.

After a lockout lasting twenty-one months, there has been a settlement made between the union bricklayers of this city and the Master Brick Contractors' Association. Representatives of the Bricklayers' and Masons' International Union of America and the Master Brick Contractors' Association have come to a settlement, and the men will now return to work. The trouble was originally caused by the bricklayers becoming affiliated with the Building Trades Council of this city, the latter organization being now defunct. As a part of the agreement the local journeymen bricklayers are now affiliated with the international body, with headquarters at Indianapolis, Ind. There was no question as to the wages paid, and the same rate will still prevail as has been the case in the past, 60 cents per hour.

The Louisville Fire Brick Works are rapidly getting things under way at their plant at Highland Park, Ky., since its damage by fire. They have completed dry houses Nos. 1 and 2, and are able to operate again. The weather has interfered somewhat with work on the rebuilding the same. However, they are filling orders every day, and are able to make a very fair progress. They say that there is as much business as they can take care of, and that they are not inclined to take other than a hopeful view of the situation.

The Southern Brick and Tile Company are getting things in shape to resume operations at their plant within a short time. They say that the demand for brick now is equal to their output. There has been a very fair demand all along with them, and they are pleased with the indications for the coming spring.

The Louisville Brick Company are shipping out all the brick they can manufacture. They believe that there is a very decided improvement in the situation at this time as regards the future demand for brick. They are operating the plant on full time, and are highly pleased with the demand for their product.

The Burrell & Walker Clay Manufacturing Company note some increase in the demand for clay products. They are now more hopeful with the outlook than they were, and are of the opinion that there will be a very fair business this year. It is not to be expected that the demand will be abnormal. They are operating their plant at Owensboro, Ky.

The West Point Brick and Lumber Company are getting things so arranged at their plant that there will be a resumption of operations with the settlement of the weather. They have completed the installation of several new kilns, and are so fixed now that their output will be greatly increased. They are still shipping out brick, but their stock is now running low.

The Hydraulic Brick Company say that they are now operating most of their plants, in view of the indications

for a better business in brick lines this year. There has not been any great revival in the industry as yet, but there are very pleasing indications, and they feel that there will be a big increase over that of a year ago. There are so many prospects of buildings here that there will be at least a fair per centage of them erected.

The P. Bannon Sewer Pipe Company find the situation to be about as favorable as they can hope for at this time of the year. There has been only a fair demand for sewer pipe as yet, but the fact that the weather has been unsettled in the past month or so has had a depressing effect on the situation to some extent. They hope for a decided revival in the demand before very long.

C. O. Smith says that there is at this time every indication of a brisk demand for all kinds of brick. He feels that within the next six months there will be a big increase in the call for brick.

The Falls City Brick Manufacturing Company are not operating their plant as yet, but they will soon begin running the same, and will be enabled to supply a big demand. There is reason to feel that the business this year will very far surpass that of a year ago.

The Kentucky Fire Brick Company are getting things in shape to place on the market the finest quality of building brick. With the vast improvements in their plant that they have been making for some time, they will be enabled to turn out large quantities of the same.

The Kentucky Vitrified Brick Company says that there is enough to keep their plant in operation, and that they feel very well pleased over the indications for the next few months. There has not been any marked increase as yet, but there will be sure to come a time before long when the demand will be quite marked.

COLONEL.

The New Champion Brick Mould Sanding Machine

The ORIGINAL, Light
Running, Always Running.

CHAIN DRIVEN and BELT DRIVEN.
Patented Spring Feed Rack.
Hundreds in Use.

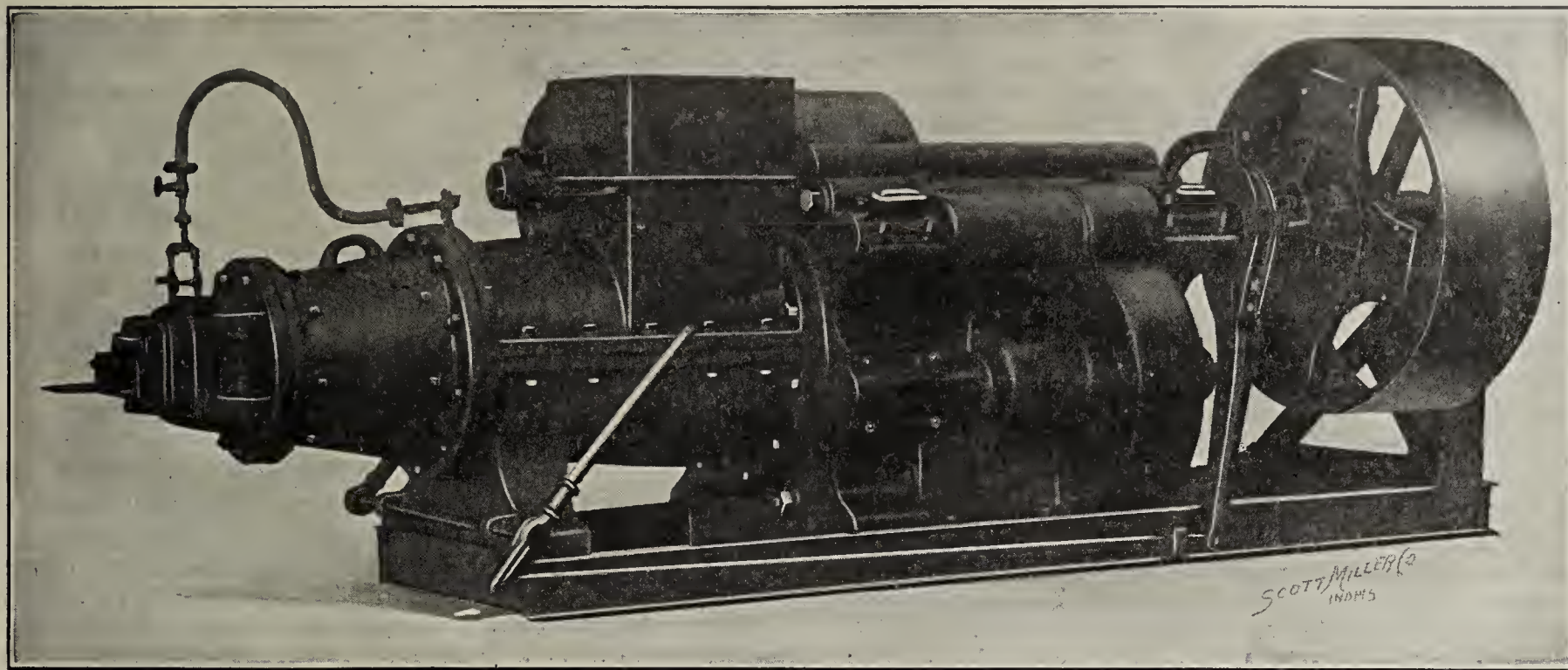
ONE COMPANY HAS FORTY.

FOR PALLET OR GROUND YARD.

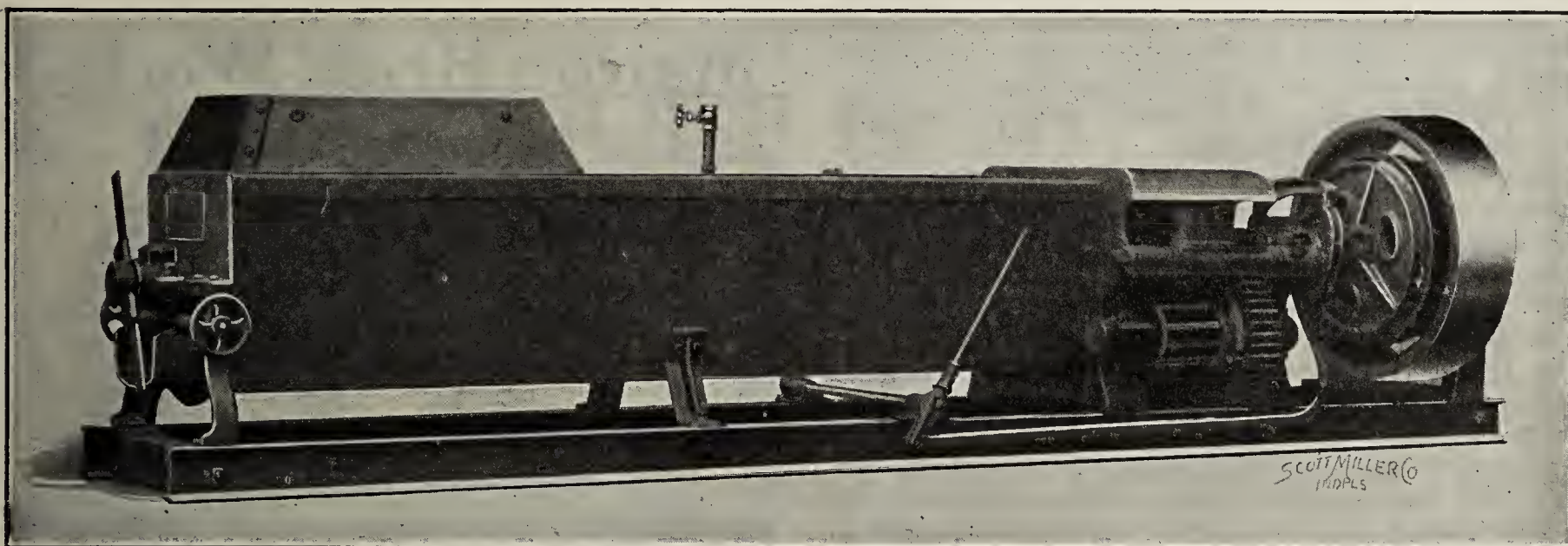
ADDRESS US
FOR INFORMATION and PRICES.

The Cohoes Iron Foundry
& Machine Co.,
COHOES, N. Y.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

(Mention The Clay-Worker.)

Galion, Ohio.

See ads on pages 533 and 534.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



HERE NEVER was so good a prospect for the common brick manufacturers to make money in this section of the country as at the present time. The past year it took hustling for them to come out even, on account of the fierce competition, but the prices have already advanced to a point which will leave the manufacturer a profit, and there is every reason to believe that there will even be further advances before the summer is over. There will at least not be any declines in the prices this year. There is at the present time a veritable common brick famine in this city, and contractors are hustling around trying to get enough material in sight to warrant their beginning a job before making a start on it. This condition will be relieved to a considerable extent when all the local plants begin to sell, but a number of them have just begun to operate, and their product will not be on the market for several days yet.

Common brick have advanced to \$7.00 per thousand, on board cars, and are very scarce at that figure. This advance of a dollar a thousand has been made in the winter months, when building operations are generally supposed to be at almost a standstill. Of course, the brick production in the winter has been much below the production that is to be expected this summer, but there has not been a season in years when there was as much building in sight as at the present time.

At a meeting of the Kansas gas belt brick manufacturers, which was held the first of February, it was ascertained that there were 57,000,000 less brick in stock at that time than a year before. It also developed that quite a number of the plants would be closed down indefinitely, on account of lack of gas. Should the Kansas Natural Gas Company succeed in getting the gas from Oklahoma, however, several plants will be able to start up again which will otherwise be closed.

There is great activity on the part of the Kansas City Hydraulic Pressed Brick Company, and it is very evident that this company will come in for its share of the money making this year. Chas. W. Reed has succeeded F. L. Joy in the management, and all four of the plants have been put in thorough repair, and the last of them to be completed, the East Bottoms plant, was started the last week in February, this being the first run the plant has made in a couple of years. Mr. Reed has been with the company for years, and has been office manager of the Kansas City branch for a long time, and, having made some warm friends under his management, it is certain that he will be able to make a fine showing this coming season. Among the improvements out at their Diamond plant was the installation of three new represses. This company reports that their deliveries to outside points up to the present time this year have been double what they were in the same period of last year.

As an index to what may be expected in the real building season of this year, it may be stated that the building permits for February show a total value of \$839,525, or a gain of \$308,460 over the corresponding month of last year. There was nothing about the February weather to encourage building operations, either, as the weather was so very changeable, varying from summer heat to winter cold every few days.

Those who have investigated the brick situation in Oklahoma declare that practically every plant in the state has contracted its output of common brick for the entire year, at a price of \$5.00 per thousand on board cars at the plant.

Mr. Eadie, of the Eadie Building Supply Company, and

his wife and daughter have just returned from a three weeks' vacation trip to Mexico. This is the first vacation Mr. Eadie has taken in fifteen years, and he comes home looking like it had been of great benefit to him, and his competitors can now expect to see him set a good warm pace for the coming season.

The Pittsburg Vitrified Paving Brick Company hopes to be able to start up its plant in Sycamore again before long. It all depends upon the ability of the Kansas Natural Gas Company to get gas out of Oklahoma. One of the main pipe lines passes this plant, and if gas can be secured in this manner the plant will begin operations again.

The Lyle Brick Company is again operating both its yards at full capacity, only having closed down for the shortest possible time for necessary repairs.

The Flanagan Brick Company is running both its plants regularly, having made a close-down of but a few days this winter, to put in a few repairs which were absolutely necessary.

A. G. Bodwell, president of the Kansas City Brick and Stone Company, which is now operating a rock crusher out on Sugar Creek, has just returned from a visit to eastern points, where he has been investigating brick manufacturing machinery. His company will soon begin the erection of a brick plant with a daily capacity of about 100,000 to 125,000 brick per day, to make use of the shale which is uncovered by the rock crusher. This plant is expected to be in operation within six months, and will be located at Sugar Creek, but the office will remain at 333 Scarritt building in this city.

The Pittsburg Vitrified Paving Brick Company reports the landing of a couple more contracts for their noiseless paving blocks, one for 585,000 to be laid in Emporia, Kans., and one for 234,000 to be laid on Fifth street in Joplin, Mo.

K. A. W.

Marion Brick Works

Indianapolis, Ind.

MARION PAVERS

A Strictly High Class Paving Block.

Also

FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade
Missouri semi-flint fire clay.A large stock of Number One brick
and shapes always on hand.Let us quote you prices and we will
save you money.

Samples sent upon request. Address

Mexico Brick & Fire Clay Co.

MEXICO, MISSOURI.

FOR SALE. WANTED, ETC.

ATTENTION—CLAYWORKERS.

Years of experience and a thorough knowledge of clayworking methods enables me to install an accurate cost system for a nominal price. For details address

BOX 10,

3 1 cm

Care Clay-Worker.

WANTED.

A competent German brickmaker, with fourteen years' experience, will take full charge of any plant manufacturing any kind of clay goods. Understands the business thoroughly in every way. Am expert burner and not afraid to work. Best of references. Address

2 2 d

B. & B., Care Clay-Worker.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,

2 tf L

Cleveland, Ohio.

WANTED—Position with a building brick plant. Am thoroughly experienced in the work from burning to management. Have also had experience in installing brick machinery, and building to plans and specifications. Can burn with wood, coal or gas. Address

3 1 d

PITTS, Care Clay-Worker.

WANTED—AT ONCE.

A man with some capital to take charge of a live dry press brick business. The plant is up-to-date in every respect, has a good market, and the only one of its kind in this section of the country. No one now connected with the firm is a practical brick man. For the right man we can make a very interesting offer. Address, giving full particulars as to ability, etc.,

3 1 dm

E. F. H., Care Clay-Worker.

FOR SALE—Four-mold Boyd and Simpson dry press; 3-mold Boyd and Andrus dry press; 2-mold Berg, Boyd, Whittaker and U. S. dry press; dry pan, pulverizer, elevator and screen; 35 sandlime brick cars and 65-foot curing cylinder. Address

1 2 cm

P. O. BOX, 443, Denver, Colo.

FOR SALE.

One four-mold Simpson dry press. One four-mold Model "B" dry press. New elevator boot with buckets. One 40-inch Stedman mill. All in excellent condition and very cheap.

Address "XX,"

3 1 L

Care Clay-Worker.

A GOOD INVESTMENT.

Face brick plant near New York making high-grade light colored ware offers 150 shares of 7 per cent. cumulative preferred or common stock (par value \$100). Proceeds needed for working capital. Have five-year contract for entire output. Correspondence and inspection solicited. Address

3 1 c

"C," Care Clay-Worker.

FOR SALE—A SNAP.

Soft mud brick plant, 35 h. p. engine and boiler, H. Martin "A" machine and sander, dry sheds, racks, pallets for 150,000 brick, kilns for 650,000 brick, all in running order. Clay for brick and tile, ten acres of land, two houses on it; fourteen blocks from center of city. Will sell machinery, pallets, etc., separate at a bargain.

3 1 cm

MUSCATINE PRESSED BRICK CO., Muscatine, Iowa.

FOR SALE.

One two-mold American dry press in first-class condition. One Grath Special four-mold dry press. Was bought under guarantee and made good. Strongest and simplest four-mold press on market. Practically new. Factory turned over to manufacture of fire brick, plastic process exclusively.

2 tf d

SOUTHERN CLAY PRODUCTS CO., Chattanooga, Tenn.

WANTED—Head burner for paving brick plant in Iowa. Address

3 1 d

"PAUL," Care Clay-Worker.

WANTED.

Position as superintendent by a practical man 20 years' experience, understand up and down draft kilns and the building of same. Am sober and industrious. The South preferred. Address

3 1 dm

GEORGE, Care Clay-Worker.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

2 tf L

THE KING ENGINEERING CO., Richmond, Va.

ARE YOU LOOKING FOR A SNAP?

On April 1st at 2:00 p. m., I will offer for sale to the highest bidder the plant known as the Superior Brick and Tile Company, a complete plant with sixteen acres of rich clay land. Twenty million brick will be used in Lima alone in the next two years. Reason for selling, stockholders can not agree. Address

3 1 cm

WM. F. NUMAN, Lima, Ohio.

FOR SALE.

The plant and clay banks of the New York Brick and Paving Company at Syracuse, N. Y., situated on the Erie Canal and the New York Central Railroad. Plant in first-rate condition to make paving brick and the famous New York Brick and Paving Company's acid-proof brick. Will sell the whole plant or a majority of the stock to a live, up-to-date brick man. For further information, address

3 tf d

C. H. KING, 201 S. A. & K. bldg., Syracuse, N. Y.

Continued on next page.

KEYSTONE DOUBLE DISINTEGRATORS

Produce this result



Grinds materials that are too wet for Dry Pans.

Small stones and pieces of ore are ground with the clay.

Grinding tests made for customers.



Chambers Brothers Company,
PHILADELPHIA, PA. CHICAGO, ILL.

See ad on page 407.

FOR SALE. WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE.

8,000 No. 1 white pine pallets. 33 in. x 10 in. x 3/4 in. Price, F. O. B., \$25.00 per M.
MRS. LAURA M. BANKER,
2 3 cm So. State St., Greenfield, Ind.

WANTED—To buy or lease a brick plant having shale or fire clay, raw material and round down-draft kilns. Address
LOCK BOX 743,
1 tf dm Uhrichsville, Ohio.

FOR SALE.

One 4-mold Ross-Keller brick press in good working condition. Has been used only one year.
CHISHOLM, BOYD & WHITE,
2 tf L 57th and Wallace, Chicago, Ill.

WANTED.

Position as glazemaker by graduate ceramist. Understands the chemistry and mathematics of glaze mixing. Address
H. O. W.,
3 1 cm Care Clay-Worker.

FOR SALE OR LEASE.

Good soft mud brick plant in an Indiana city of 10,000. Capacity, 25,000. Will be sold at a bargain on easy terms. Good reason for selling. Address 5-C,
1 3 cm Care Clay-Worker

WANTED—A machine foreman, also a yard foreman, who thoroughly understands shading and grading of face brick. Send references and state experience.

PACIFIC FACE BRICK CO.,
402 Commercial Club Bldg.,
2 tf d Portland, Ore.

FOR SALE.

Twenty thousand white pine pallets, racks and covering for same. Three clay carts, four trucks, one clay gatherer, shafting, belting, wheel barrows, etc. Cheap.
J. H. MCGREGOR BRICK CO.,
2 tf d Bloomington, Ill.

WANTED.

To hear from face brick manufacturers making light colored stiff mud brick within 200 miles of New York, Chicago and St. Louis, who would be in position to contract to furnish a half million to a million brick in 1909. Address
FACE BRICK,
1 3 d Care Clay-Worker.

BRICK PLANT—TO LEASE.

An extensive brick plant for sale or lease at Fishkill-on-Hudson, N. Y. Eighteen modern machines; unlimited clay; 2,600 feet river front; convenient docks; 1,834 feet new kiln sheds; four separate steam plants. Would divide yards.
BENJ. RICHARDS,
2 3 cm 75 Liberty St., New York City.

WANTED—Position as head burner of a continuous kiln or any other style of kiln. Best of references. Address
2 2 d BOX 11, Care Clay-Worker.

WANTED POSITION.

A man with long experience wants position as foreman. Is competent in every particular. Address
2 2 d A. B. C., Care Clay-Worker.

FOR SALE.

One Hercules mud machine.
One mold sander.
Three mule brick trucks and a lot of six-brick pallets.
Address J. C.,
1 3 dm Care Clay-Worker.

WANTED—POSITION.

A party at present employed desires a position as superintendent or head burner. Am thoroughly familiar with all kinds of dry clay, press and down-draft kiln propositions. Have first-class testimonials. Address
"J. J. K.,"
1 tf d Care Clay-Worker.

FOR SALE.

One kiln tile plant, ready for operation. Drying building 30x175 feet, two stories high. Slate roof. Fine and ample clay. Excellent market. Machinery in good condition. Eight miles from Toledo. Price, \$4,000. For further particulars, address
D. E. CHILD,
1 3 cm Findlay, Ohio.

WANTED—POSITION.

As superintendent or foreman of a dry press or stiff mud brick plant. Am a first-class machinist and am thoroughly familiar with all kinds of brick machinery. Can handle either up or down-draft kilns, burning wood, coal or oil. Am strictly temperate and can give the best of references. Address
BOX 220,
3 1 c Care Clay-Worker.

WANTED—Position as superintendent of shale brick plant by a man thoroughly capable of obtaining best of results. Seventeen years of experience. A first-class burner with good references. Address
H. C. R.,
3 1 c Care Clay-Worker.

WANTED—Second-hand two or four-mold dry press brick machine. State condition, where located, and lowest cash price; also name of manufacturer, when bought, and amount of brick made or how long used. Address
"C. W.,"
3 1 L Care Clay-Worker.

WANTED.

By a high-class man, position as superintendent or manager of a stiff mud plant. Have had an unusually wide experience in the manufacture of paving brick. For references as to ability, etc., address
B. J. G.,
3 1 d Care Clay-Worker.

FOR SALE.

One Hercules stock brick machine, two Horton mold sanders, two dozen new brick molds, one elevator, one dump table, revolving, a lot of trucks, a lot of wheelbarrows, several carloads of brick pallets, one 100 h. p. engine. This machinery will be sold at a bargain, as we are manufacturing drain tile only, and have no use for it. Machinery has been used one summer, is clean, painted, rebabbitted and guaranteed as good as new. Address
AMERICAN BRICK & TILE CO.,
2 4 c Morenci, Mich.

FOR SALE OR TRADE

Well equipped Brick and Tile Plant in Central Iowa. Everything complete and ready for business. Plant cost \$20,000 and will pay good dividend at that figure. What have you to offer? Will consider good land (prefer clean land as plant is unencumbered) in exchange. Give legal description, price and fullest particulars in first letter. Address
OWNER, BOX 253,
3 2 dm St. Paul, Minnesota.

BRICK and MORTAR**COLORING**

For thirty years "COLORIFIC COLORS" have steadily grown in favor of Brick Manufacturers and Builders.
FREE SAMPLES ON APPLICATION.

JAMES M. WELLS CO., Ogdensburg, N. Y.

FOR SALE.**Modern Brick Plant.**

Favorably located for Chicago, Indianapolis and Cincinnati markets; capacity 50,000 per day, with inexhaustible bed of red and buff shale for finest face, building and paving brick; ample coal mined from same premises. Death of manager prompts owners, otherwise occupied, to offer this property for sale at sacrifice. For particulars address

J. B. CORLISS,
Detroit, Mich.

3 1 cm

The Ceramic Supply and Construction Company

Write us for Clayworking Specialties, Brickyard and Pottery Supplies, Controlling Apparatus for Power Plants, Factories, Dryers and Kilns.

See display advertisement in THE CLAY-WORKER next month.

CATALOG?

280 North Front St., Columbus, Ohio.

PRICES?

... FOR SALE ...

640 acres of fire clay and coal land being a square mile, adjoining Vandalia, Mo., suitable building site for a large fire brick plant. Is under control of the Commercial Club and can be had by company desiring to manufacture fire brick in a large way. Underlying the land there is a vein of clay and coal showing a face of 25 to 30 feet. Fire brick can be manufactured at Vandalia at a less cost than any other point in the United States. For further information, address
F. P. DYE, Vandalia, Mo.

ON THE BARGAIN COUNTER

ONE Chambers End-cut Auger Brick Machine, 25,000 to 30,000 capacity daily. At Chambers' works. Machine rebuilt with new gear, and all internal wearing parts renewed.

ONE Chambers Auger Machine of about 40,000 capacity daily. These machines will be sent out under the same broad guarantee as accompanies any new machine of same pattern sold from our works.

We have them because in each case our customer's trade increased to justify the use of our largest pattern of Auger Brick Machine.

CHAMBERS BROTHERS COMPANY.

Fifty-second and Media St.,
Philadelphia, Pa.

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An Opportunity of a Life Time

Will Sell at a Low Figure and on Easy Terms

An up-to-date brick plant located on the James River, Va., and in easy touch by water with eight rapidly growing cities.

Brick bring \$7.00 at kiln and future outlook is excellent.

The outfit consists of Henry Martin soft mud machine, 50,000 per day capacity, with latest patent steam dryer. Also J. D. Fate Co.'s stiff mud outfit 25,000 per day capacity, with Scott's patent cars. All practically new.

New and commodious dwellings for manager and laborers. Not a better equipped yard in the state. Twenty or more acres of finest plastic clay, average depth fifteen feet and burns cherry red in five days. Cheap fuel and labor, with low freight rates and a mild climate offer a combination seldom met with. The improvements have cost \$16,000. Will sell for 10 per cent. cash, balance in five years.

Address BOX 5, Care Clay-Worker.

FOR SALE.

Several good second-hand represses, all makes.

THE OHIO CERAMIC ENGINEERING CO.,

3 1 L

Cleveland, Ohio.

WANTED—Position as manager or superintendent of an up-to-date brick plant. Know the business thoroughly. Can give references. Address

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J. A. F.,

Care Clay-Worker.

FOR SALE.

Two-acre lot, 500 feet railroad frontage; four new down-draft kilns, 22 feet inside diameter; two 100 h. p. boilers (new), warehouse, stable, and lot of machinery saved from fire. Liberal terms at one-fourth its value. Address

3 3 cm

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2 3 cm

CHAS. H. CROWELL,

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FOR SALE.

One two-mold Simpson dry press machine.

One three-mold Andrus dry press machine.

One E. M. Freese & Co.'s board delivery cutting table.

1 tf L

DUNLAP MFG. CO.,

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FOR SALE—An Andrus three-brick steam press complete in first-class condition, with a William disintegrator and elevator, sieve, belts, shafting, pulleys, etc., and every part complete ready to run. Also six two-wheel heavy trucks and twelve boxes holding 500 press brick. Address

1 3 cm

THOS. J. ROSE BRICK MFG. CO.,

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FOR SALE.

Two pallet brick yards in good order. One yard situated close to the B. & M. & C. V. R. R., with a switch from each to the shed. Ninety acres with plenty of clay and sand. Three of Wiles H pattern machine and pug mills.

One yard on the B. & A. R. R.; about fifty acres of clay and sand. Two of Wiles B pattern machines. Owner wishing to sell on account of other business. Call on or address

2 3 L

FRANK E. WILES,

Grassy Point, N. Y.

Continued on page 502.



DAVENPORT LOCOMOTIVES

for

CLAY HAULAGE

Small Size

Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

Write for particulars

Davenport Locomotive Works,
Davenport, Iowa.

FOR SALE.

One 9-foot dry pan, iron frame.

One revolving screen.

T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
11 tf d Zanesville, Ohio.

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Complete set of U. S. rocking grates, good
as new. Cost \$100. Will sell cheap, as
they do not fit our present boiler.

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CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want
to buy, sell or exchange any kind of real
estate or business anywhere, at any price,
address FRANK P. CLEVELAND,
965 Adams Express bldg.,
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FOR SALE—Second-hand machinery cheap,
including 25-ton Ref. Wolf ice machine.
Chambers brick machines, pug mills, drying
cars, repress, line shafting, boilers, engines,
fan pumps, feed water heater, electric loco-
motive, etc. Address
ANTHONY & BUCHANAN,
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FOR SALE—One Leader Manufacturing
Company brick machine, one Kells ma-
chine, one Big Wonder, and one Quaker.
All in good running order. Also three
engines and three boilers. Each from 40
to 50 h. p., which I desire to sell outright
or trade for engines of more horse power.
For full information, address D. P.,
12 6 cm Care Clay-Worker.

FOR SALE.

Three-fourths yard Thew shovel, stand-
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"L. G." Special on standard gauge trucks,
used three months.

"L. G." Special on standard gauge trucks,
used six months.

Send for latest contractors' list.

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REBUILT ENGINES AND BOILERS.

The cleanest and most thoroughly re-
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tered everywhere and merely listed.

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20x42 Allis, 18x
42 Hamilton, 16x42 Lane & Bodley, 14x36
Lane & Bodley, 14x24 Wright, 12x30 Allis,
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16x20 Chand-
ler & Taylor, 16x18 Erie, 14x24 Atlas, 13x
16 Chandler & Taylor, 14x14 Lewis Verti-
cal, 10x16 Owens, Lane & Dyer, 10x12 In-
dustrial, 9x12 Ajax, 8x12 Climax, 7x12 H.,
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Also full assortment of new machinery.
Sole manufacturers of the celebrated
"LEADER" INJECTORS and JET PUMPS.
Send for circular.

THE RANDLE MACHINERY CO.,
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Cincinnati, Ohio.

FOR SALE.

A modern, vitrified paving brick plant situated in central part of Ohio,
with unlimited supply of shale and local coal. Plant contains 22 down-draft
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Unequaled railroad facilities for shipping. An excellent opportunity for a
practical brick manufacturer.

We have acquired this plant in the course of business, and as we are not
practical brickmakers we wish to dispose of same. For particulars apply to

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1 3 cm

Room No. 2, Temple Court, Cincinnati, Ohio.

A FINE BRICK PLANT IN CALIFORNIA.

I have 176 acres of very fertile land on the Sacramento
river, the only clay that makes good brick in this vicinity,
with sufficient wood to burn several million brick. Brick
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good practical brickmaker with \$10,000 to buy half interest,
or will sell entire for \$18,000; one-third cash, balance as you
can make it. Country is growing and progressive.

Address
12 6 cm

D. MADIGAN,
Chico, Butte Co., Cal.

J. B. & I. L. HAMMOND,

Specialists in All Kinds of Brick and in All Phases of the Brick Business.

Properties examined, physical and chemical tests of materials made.
Practical opinions given as to the adaptability of materials. Estimates made
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suited to conditions. Practical suggestions as to improvement of quality and
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uct developed. If you are in need of treatment, let us prescribe for you.
More than twenty years' practical experience and a good knowledge of con-
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on our staff.

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Specialists in the Brick Making Industry, Bolivar, Pa.

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BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PRE-
PARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
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Our Special
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Round Point

Two of Our Special Makes

Of the Mikola Patent Shovels

... 70 STYLES AND SIZES ...

Especially designed for handling shale, crushed stone,
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Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use

Cutting Wires For Brick Machines

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ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

WE KNEW OF THE RECENT HARD TIMES
THROUGH HEARSAY ONLY.

WE WERE BUSY **ALL** THE TIME building our

IMPROVED FLUE SYSTEM KILNS

and installing our patent flues in old kilns that were not doing as they should. We invite correspondence with those contemplating new kilns, and with those whose old kilns are not giving best results.

Absolute Draft Control. Fuel and Time Economy.

Kiln and Yard Rights, with Plans, Specifications, License, etc., sold at very reasonable rates. Booklet and full information cheerfully furnished.
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For Brick, Roofing Tile,
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Send Specifications and Get Prices.

Mershon, Eddy & Parker Co.,

Saginaw, Mich.

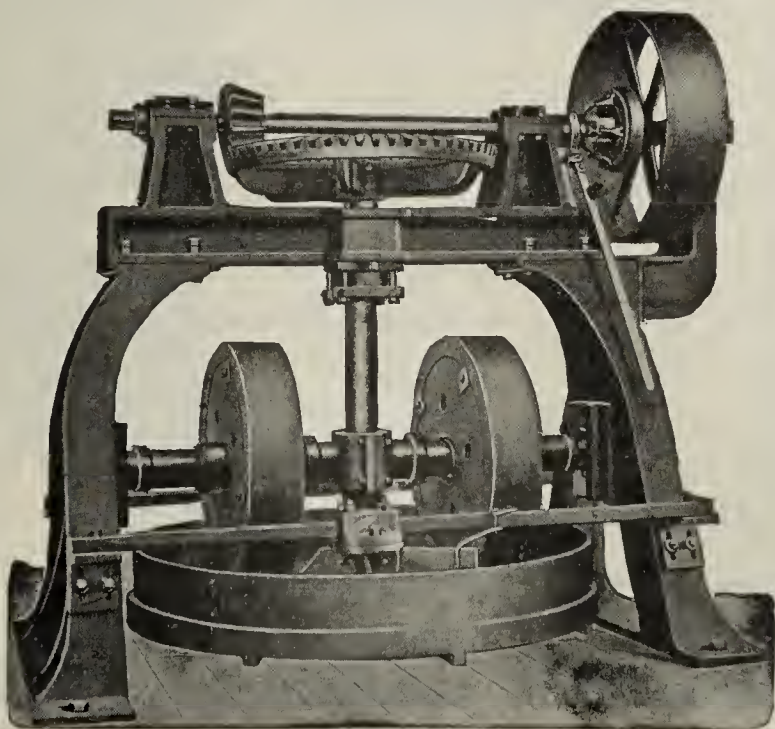
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Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



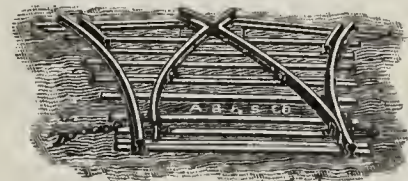
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An ideal location with an inexhaustible supply of high-grade plastic clay and coal. The analysis is as follows:

Hygroscopic water, 1.1 per cent. Loss on ignition, 12.1 per cent. Silica, 46.9 per cent. Ferric Oxide, .2 per cent. Alumina, 38.9 per cent. Lime, .2 per cent. Alkalies, .6 per cent. Magnesia, trace. If interested, write to
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Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.

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Cleveland, Ohio.

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Down Draft Kiln

and the

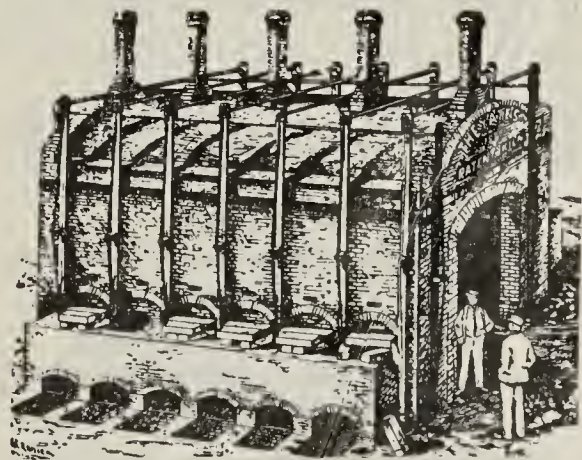
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

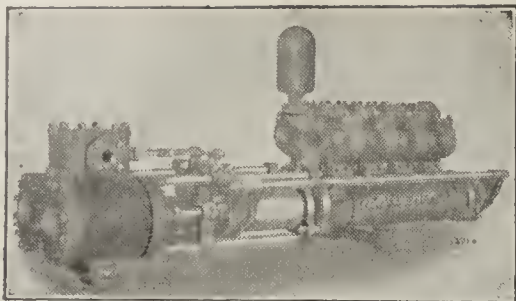
Elgin, Texas.



The Yates Patent Down-draft Kiln.
Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitriified Brick Co., Johnsonburg, Pa.

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JET AND SURFACE CONDENSERS

DEAN BROS. STEAM PUMP WORKS

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MANGANESE

FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

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SUCCESSORS TO KENDALL & FLICK.

DO YOU NEED MODELS or MOULDS?

We can furnish you with them for any line of clay products, ornamental or plain. Plaster-blocks and cases made to order. First class work guaranteed.

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Terms

reasonable.

First-class

references.

If you have trouble with Clay, Machinery or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

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3325 Caroline Street,

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Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.

Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
A Complete Line of the Best Supplies.

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Fire Brick for Building Kilns.

Factories :
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ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

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Awarded Gold Medal at St. Louis for
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We manufacture BRICK AND TILE CUTTING WIRE, drawn especially to withstand abrasion.

Send for prices of wire in coils.



A New Clay Feeder and Mixer.

Send for full descriptive circular.



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H. L. JACOBS, Gen. Mgr.

SUFFOLK CLAY COMPANY,

MANUFACTURERS OF BRICK.

Shipping Point, Lady Smith, Va.

Suffolk, Va., May 10, 1907.

Marion Machine, Foundry & Supply Co., Marion, Indiana:

Gentlemen—We received and installed the New Rust Clay Feeder about three weeks ago and are well pleased with same. In our twenty-five years experience in the brick business with nearly every make of machinery, we have yet to find a feeder that will equal yours. It is perfection and instead of increasing our power it has decreased it at least ten per cent by the regular feed we get on all the machinery. Our machine does not vary ten bricks an hour as long as we keep clay in the feeder. We can set the feeder for any capacity from ten to one hundred thousand and the output is regular. It runs almost noiseless. It can be adjusted while in operation and in a few seconds to any capacity. It works the clay either wet or dry. We cheerfully recommend it to all Clayworkers and we would not be without it for five times its cost.

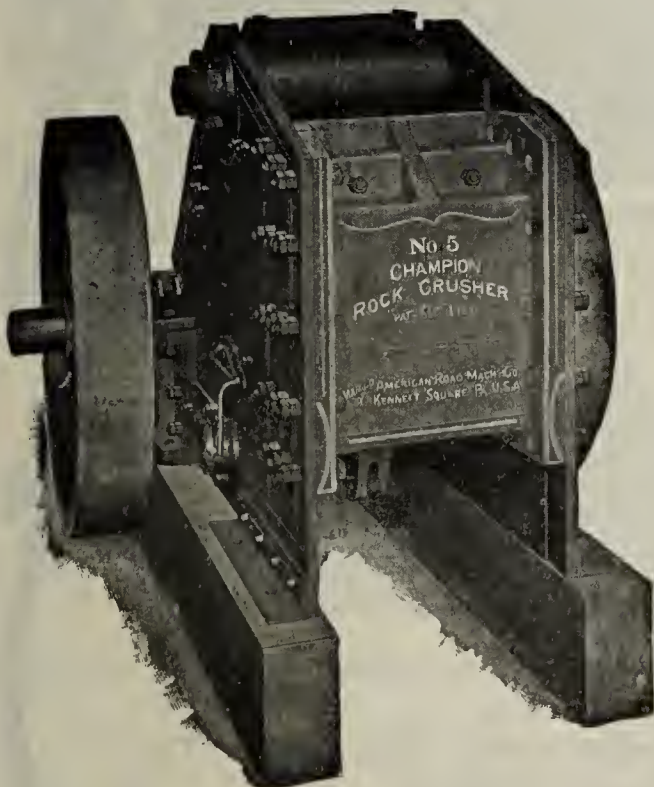
Very truly yours,

SUFFOLK CLAY CO.,

For further information address

H. L. Jacobs, Gen. Mgr.

MARION MACHINE, FOUNDRY AND SUPPLY CO., MARION, IND.



NO. 5, 11x26 CHAMPION CRUSHER.

It Looks Good

on paper.

It Looks Better

crushing shale, fire clay, rock and other hard material.

THE CHAMPION CRUSHER

is expensive, to do without, because it saves you money.

Catalogue is free on application. Address

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Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address

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NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

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THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

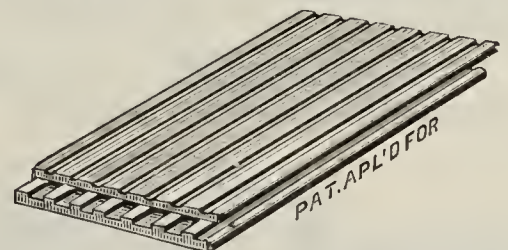
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Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

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PROFESSOR EDWARD ORTON, JR.,
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Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

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G. K. WILLIAMS & CO.,
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Largest Manufacturers in
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Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
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Manufacturers of

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on each package.

Let us tell you about Side-Walk Black.

GABRIEL & SCHALL

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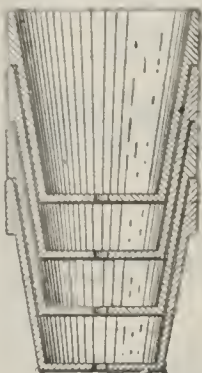
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The only preventative for scum and discolor-
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No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

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Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

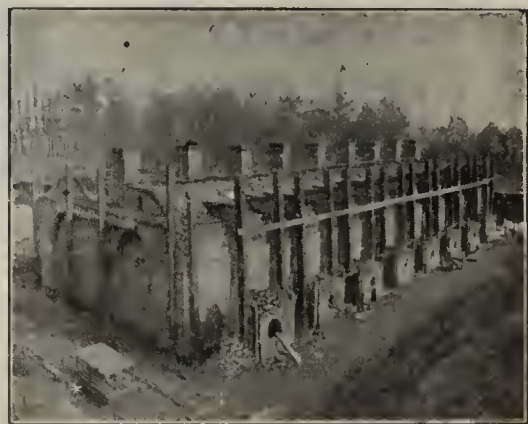
Some Claims Made for the Dennis Double Cham-
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Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.

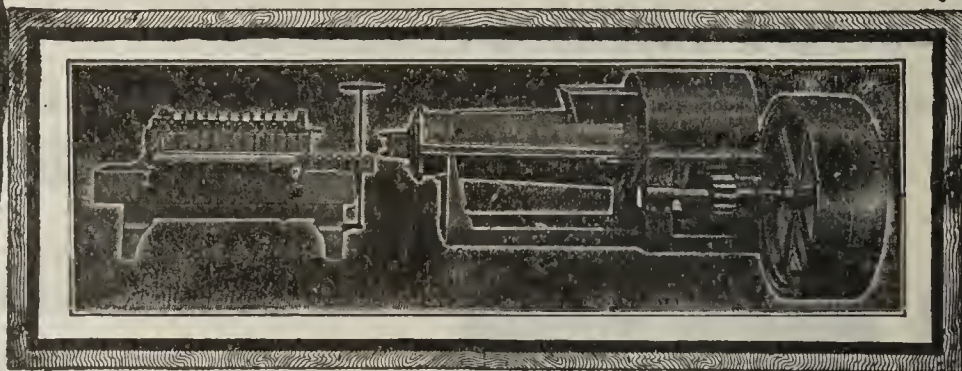


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Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
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It has had few rivals and no superiors. Improved from
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Strength, Simplicity, Durability, Efficiency and Quality

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The Kells Foundry and Machine Co.
ADRIAN, MICH.

CHOOSE WISELY . . .

when you buy a SEWING MACHINE. You'll find all sorts and kinds at corresponding prices. But if you want a reputable serviceable Machine, then take

the **. WHITE .**



27 years experience has enabled us to bring out a HANDSOME, SYMMETRICAL and WELL-BUILT PRODUCT, combining in its make-up all the good points found on high grade machines and others that are exclusively WHITE—for instance, our *TENSION INDICATOR*, a device that shows the tension at a glance, and we have others that appeal to careful buyers. All Drop Heads have Automatic Lift and beautiful Swell Front, Golden Oak Workwork. Vibrator and Rotary Shuttle Styles.

OUR ELEGANT H. T. CATALOGUES GIVE FULL PARTICULARS, FREE.

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Old Machines Taken in Trade.



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a Man

for any position or a position in any connection with the Clayworking Trades use the

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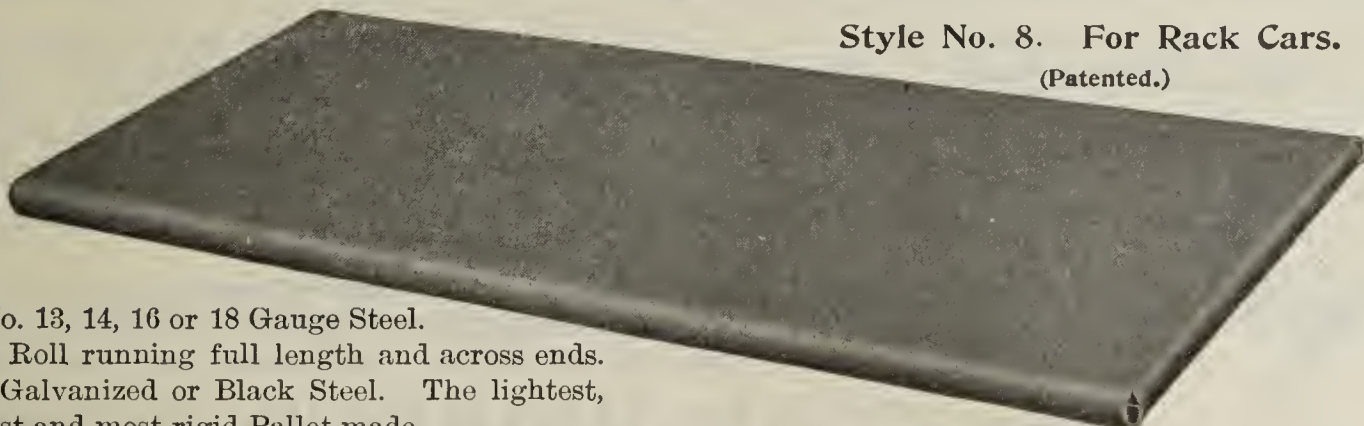
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The Best, Quickest, Cheapest Method of Securing Results.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.

(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.

Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
 100 William Street,
 NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
 R. & H. PRECIPITATED.

Oxide Tin,
 Oxide Cobalt,
 Red Oxide Iron,
 Green Oxide Chrome,
 White Oxide Antimony,
 Black Oxide Manganese and
 all Chemicals used by the Clay Trades.

The Richardson-Lovejoy Engineering Company

Manufacturing Propositions Investigated. Clayworking Plants Designed and Construction Superintended.
 Dryers and Kilns of every type, adapted to the special conditions and purposes.

Pamphlets, "Ceramic Engineering" and "Brick Kilns," free.

SCHULTZ BUILDING, 232½ North High Street, COLUMBUS, OHIO.

REMARKABLE OFFER.

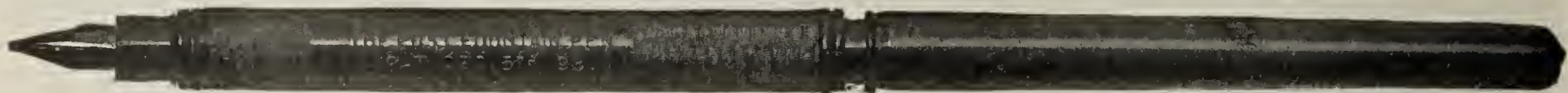
We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The New Way.



The Latest Fountain Pen. Guaranteed by Makers.
NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



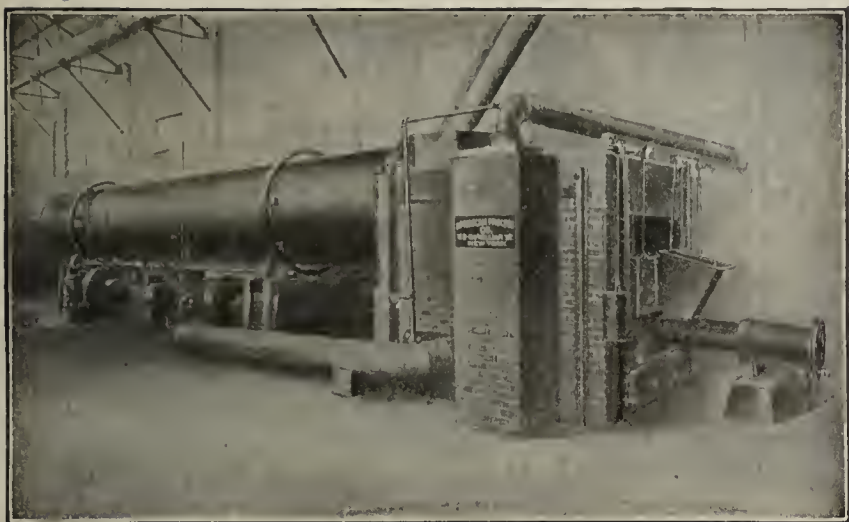
The Old Way.

Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the 'Post.'"

Judge Luther L. Mills, Chicago: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

Dr. Josiah Strong: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the 'Post' leaves nothing to be desired."

The CLAY-WORKER, INDIANAPOLIS, — INDIANA.



Automatic Improved DRYERS

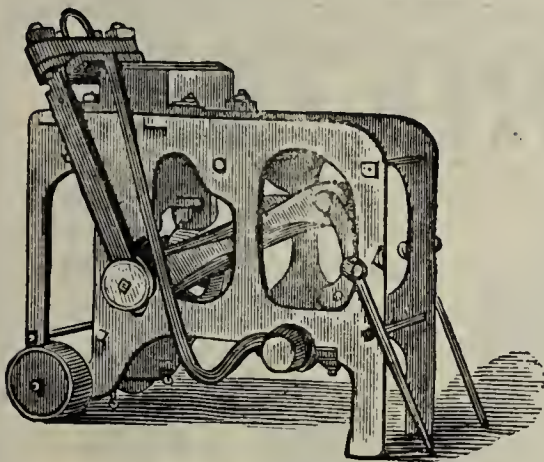
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

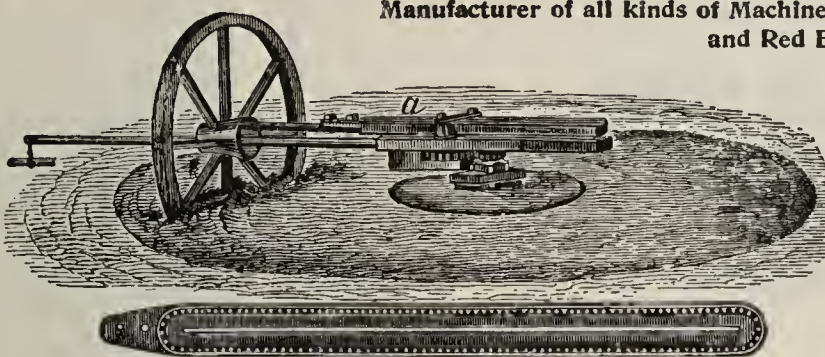


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Madden Tile and Brick Machinery

Built for the heaviest service, of the best material, by the best workmen, in a modern shop—That's the **MADDEN MACHINERY**.

All the shafting in our new mills is of the best hammered steel—The main gears, cut steel—Everything about the machine of the very best.

In buying a **MADDEN** machine you can feel that you will have a mill that will be ready for work every day in the year. No break downs—Small repair bills—Large output in any clay. Don't that interest you?

Write us for our catalogue of horizontal machines to make Brick, Hollow Ware or Tile up to 12 in. Our Vertical machines to make Tile up to 24 in. Disintegrators, Pug Mills, Granulators, Dry Pans, Cutting Tables, etc. for any capacity plant.

MADDEN & CO.,

RUSHVILLE, IND.



When we sell you a Leviathan belt we expect that belt will help us sell you another Leviathan.

This we expect simply on each Leviathan belt doing its work so thoroughly wherever you put it, —be the conditions easy or severe, whether power transmitting, elevating or conveying,—that you have no worry about it and that you have to think of it less than any belt you have ever used before Leviathan.

We ask your first order as a favor which we shall later try to deserve, as we will your further business.

Will you put us to the test?

MAIN BELTING COMPANY

1224 Carpenter Street,
PHILADELPHIA.

59 Market Street,
CHICAGO.

118 Pearl Street,
BOSTON.

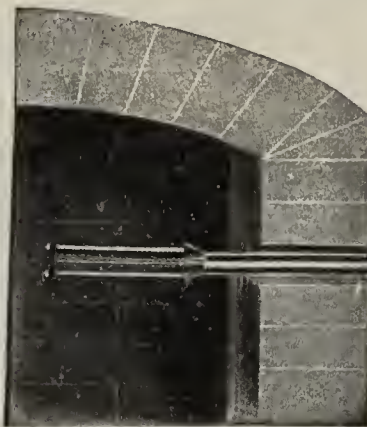
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
1251 Morse St., N. E., Washington, D. C.

PYROMETERS

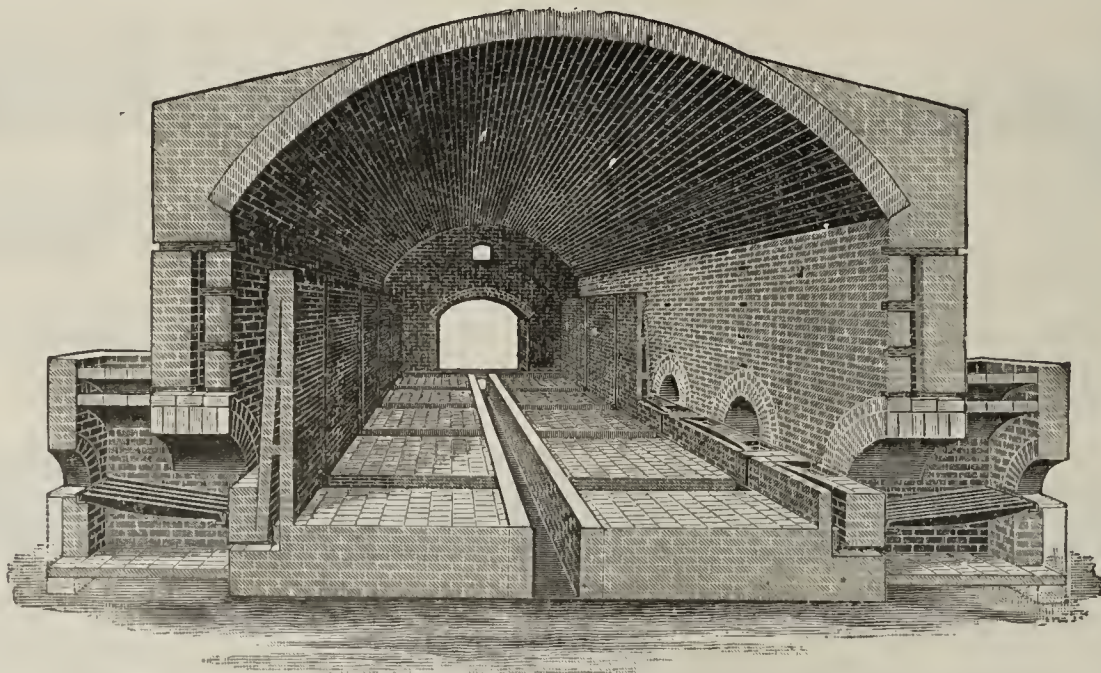


For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311 Walnut St.,
Philadelphia, Pa.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.

The STARKEY Automatic Brick Counter



Registers

the correct number of cars, trucks or wheelbarrow loads. Will not lie, cannot forget, is simple and practically indestructible. Will

wear for years and pay for itself in a few days. Send for description and prices. TERMS, ten days' trial, subject to approval.

Manufactured by J. STARKEY, Minerva, Ohio.

Let Us Tell You About Our

GEAR SHIELD

An Adhesive Compound Lubricant that will accomplish WONDERFUL saving in LUBRICATION and PRESERVE the wear of GEARS and PINIONS by preventing NOISE and METALLIC CONTACT between the gear teeth.

THE OHIO FILLER & SHIELD CO.,
Columbus, Ohio.

When You Travel EAST OR WEST

Bear in Mind Always that The



"AMERICA'S GREATEST
RAILWAY SYSTEM"

New York Central Lines

Affords the most comfortable service, the fastest and best equipped trains between New York, Boston, Chicago, St. Louis and all connecting Points.

"KNICKERBOCKER SPECIAL"

An Electric-Lighted vestibuled Train, with Stenographer, Maid, Barber, Valet and Bath Service for the benefit ... of its Patrons between ...

ST. LOUIS, INDIANAPOLIS AND
NEW YORK CITY

THE SOUTHWESTERN LIMITED

Leaving New York daily at 10:30 a. m. and arriving St. Louis 1:45 p. m. next day, has the same equipment and service. Ask your local ticket agent for full information, or write to

WARREN J. LYNCH

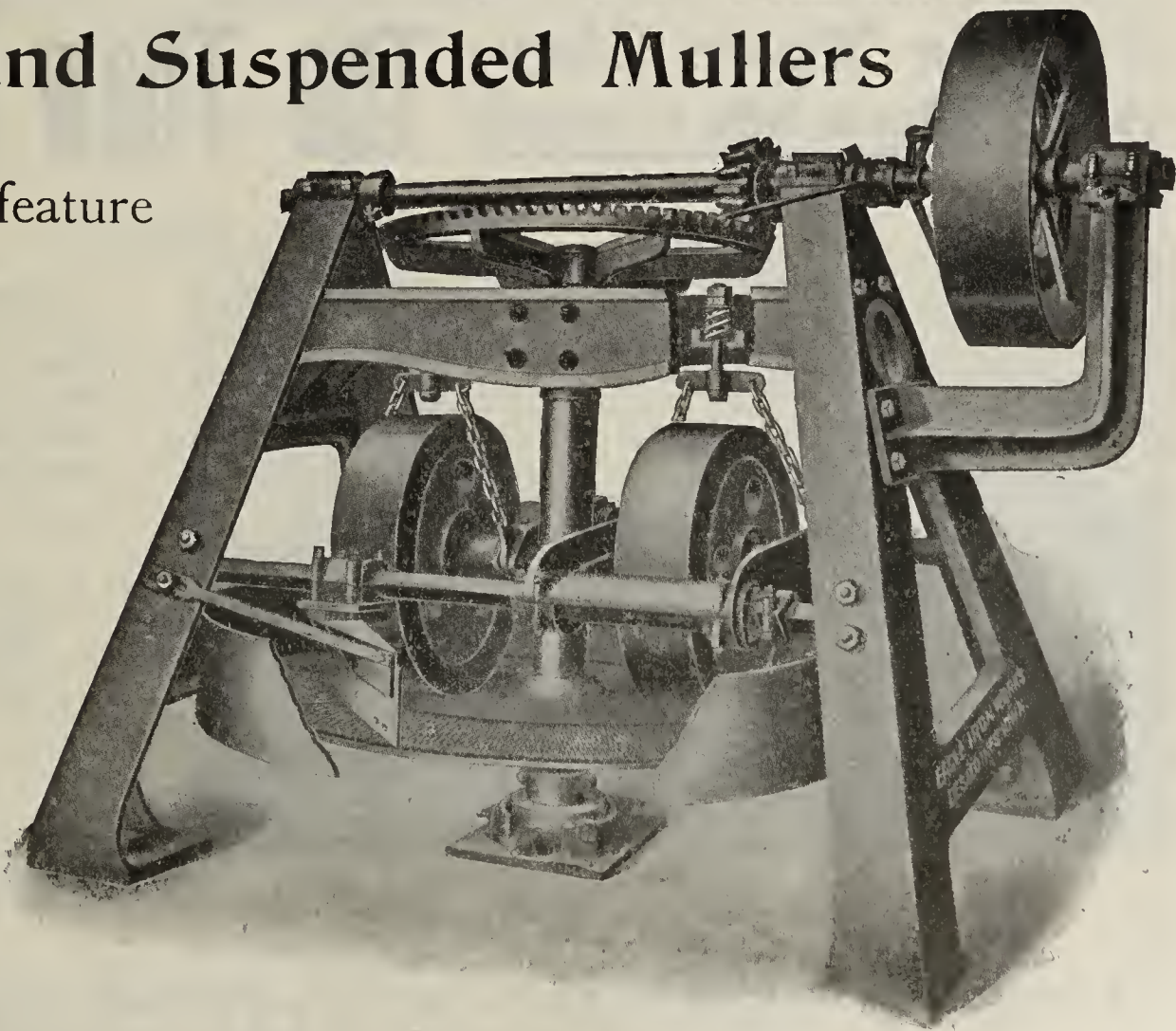
Passenger Traffic Manager : : : : Chicago

Independent and Suspended Mullers

the distinguishing feature
of our

DRY PANS.

Other valuable features which our catalogue fully describes.



EAGLE IRON WORKS, Des Moines, Ia.

Mention The Clay-Worker.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:
East Falls,
Philadelphia, Pa.

New York City.

City Office:
Builders' Exchange,
Philadelphia, Pa.

Washington, D. C.
Trenton, N. J.

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

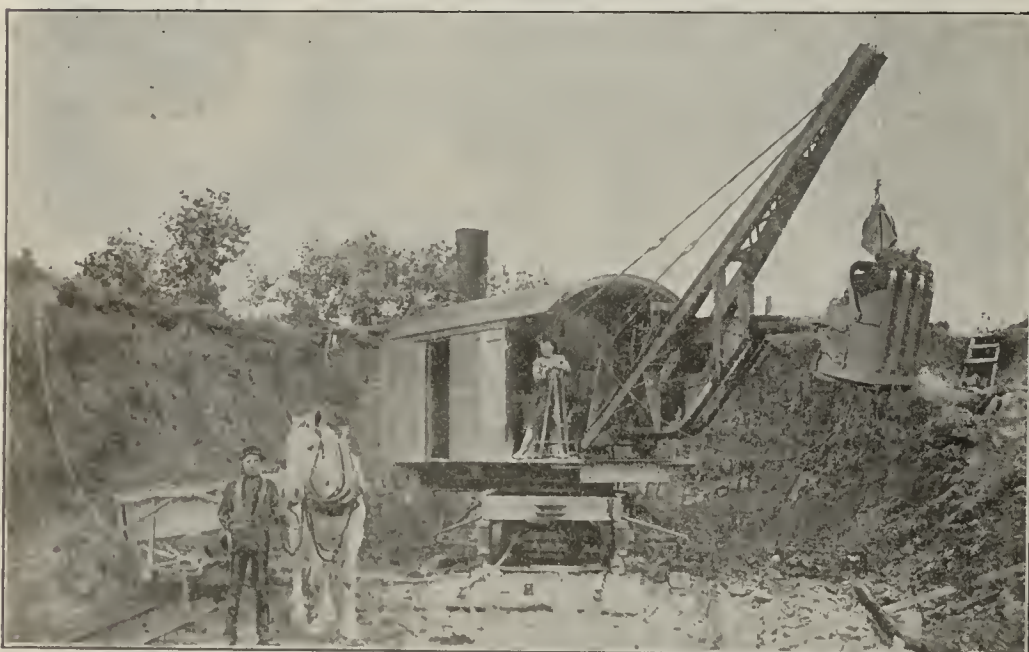
**We Build and Equip
Complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.**

**Ross-Keller Triple Pressure
Brick Machine Co.**

**Offices
Fullerton Bldg., ST. LOUIS, MO.**

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 1—Traction Wheels or Car Wheels, $\frac{3}{4}$ -Yard or One-Yard Dipper.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.

Mounted on Car Wheels
or Traction Wheels.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Square Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.

BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.

Write for Catalogue.

JOHN C. BOSS,
Monger Bldg. ELKHART, IND.

Record of a Six-Track King Radiated Heat Dryer.

"This dryer has tunnels 110 feet long, and is in operation on the brickyard of W. Benj. Davis, Manchester, Va. Dryer has been in use 17 months with no expense for repairs on dryer or cars; present condition of each is excellent. Use three men to move cars from machine into dryer, attend furnaces night and day and take cars out of tunnel ready for the setters. Consumes $2\frac{1}{2}$ tons of coal each twenty-four hours. Highest temperature in tunnels 136 degrees. Number of brick dried as taken from Mr. Davis's books:
1908—June 8, 44,520. June 9, 48,230. June 10, 42,930. June 11, 37,100. June 12, 42,400. June 13, 32,330. Brick dried in six consecutive days 247,510, an average of 41,251 each day."

The above are extracts from a letter written Sept. 26, by Mr. J. W. Holt, manager of Mr Davis's brickyard.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.



Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.

The Original ^{EXHAUST STEAM} Dryer is the National.

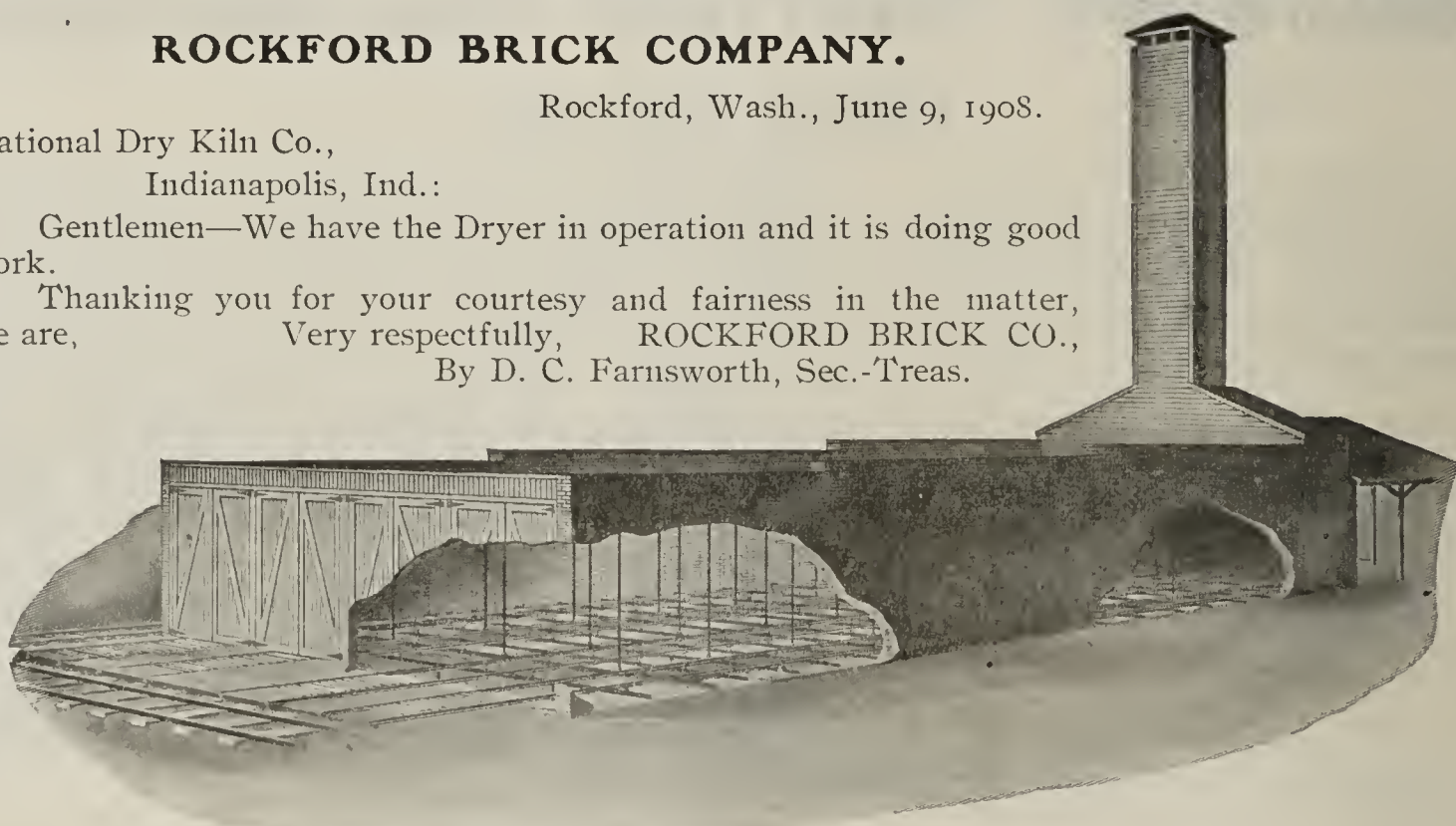
ROCKFORD BRICK COMPANY.

Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good
work.

Thanking you for your courtesy and fairness in the matter,
we are, Very respectfully, ROCKFORD BRICK CO.,
By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.

No Fire Danger.
Steel Roller Bearing Cars, etc.

Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

HAIGH'S IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
Paving and Common Building Brick,
AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
particulars
address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryer, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

Vitrified Paving Brick, by H. A. Wheeler, E. M. Price \$1.00.

A review of present practice in the manufacture, testing and uses of Vitrified Paving Brick.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting of Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvements.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

The Youngren Gas Fired Continuous Kiln

ANNOUNCEMENT.

We are pleased to announce to the Brickmaking World that we have taken over all patents of the late Peter L. Youngren, of Milwaukee, Wisconsin, covering the Youngren Gas Fired Continuous Kiln and all other types of the Youngren Kiln.

The success of this kiln is now most thoroughly established. All who are interested in the installation of the Youngren Producer Gas, Gas Fired Continuous Kiln are invited to consult us for particulars regarding construction, operation and contracts of same.

The C. W. Raymond Co.,
Dayton, Ohio, U. S. A.

We issue the following publications which may be obtained upon application to our Publicity Department:

GENERAL CATALOG

"Smiles"

Exhibits

- 2040. Heavy Duty Dry Pan.
- 2044. "999" Brick Machine.
- 2045. Perfection Hand Represses.
- 2046. Conveyors.
- 2047. Four-Roll Combination Crusher.
- 2049. Niagara Hollow Ware Machine.
- 2053. Bevel-Geared Pug Mills and Clay Granu-
lators.
- 2056. Portable Track.
- 2060. Roofing Tile Designs.
- 2061. Dry Press Machinery.
- 2063. Raymond System of Open Air Drying.
- 2069. Peerless Smooth Roll Crusher.
- 2070. No. 3 Daytonian Brick Machine.
- 2075. Universal Semi-Automatic Cutter.
- 2078. Soft Mud Machinery.
- 2081. Automatic Wet Pan Emptier.
- 2083. No. 1 Rotary Automatic Cutter.

"Old Methods Discarded"

Exhibits

- 2084. Dryer Cars.
- 2085. Hand Dry Press.
- 2086. End-Cut Cutting Table.
- 2087. "777" Brick Machine.
- 2088. Hoisting Apparatus.
- 2089. No. 2 Combination Brick Machine.
- 2090. No. 2 Daytonian Brick Machine.
- 2091. Cup Elevators.
- 2092. Conical Roll Crusher.
- 2093. Piano Wire Screens.
- 2094. Single-Geared Pug Mill.
- 2095. No. 2 Rotary Automatic Cutter.
- 2096. "555" Brick Machine.
- 2097. Low Frame Dry Pan.
- 2098. Victor Repress.
- 2099. Radiated Heat Dryer.
- 2100. Standard Pug Mills.

"Dry and Why"

Practical Tests and Chemical Analyses.

THE C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

WONDERFUL!

The Greatest Money-Saver
Ever Introduced on a
Brick or Tile Plant.

Use the McKissick Brick and Tile Kiln Steam Boiler

Patented June 30, 1908,

which utilizes the waste heat from the kilns and saves 80 to 100 per cent of the boiler room fuel. This system has been in successful operation at the plant of the Carlisle Brick and Tile Works, Carlisle, Ia, for the past seven months.

Write for further information and blue prints concerning its workings.

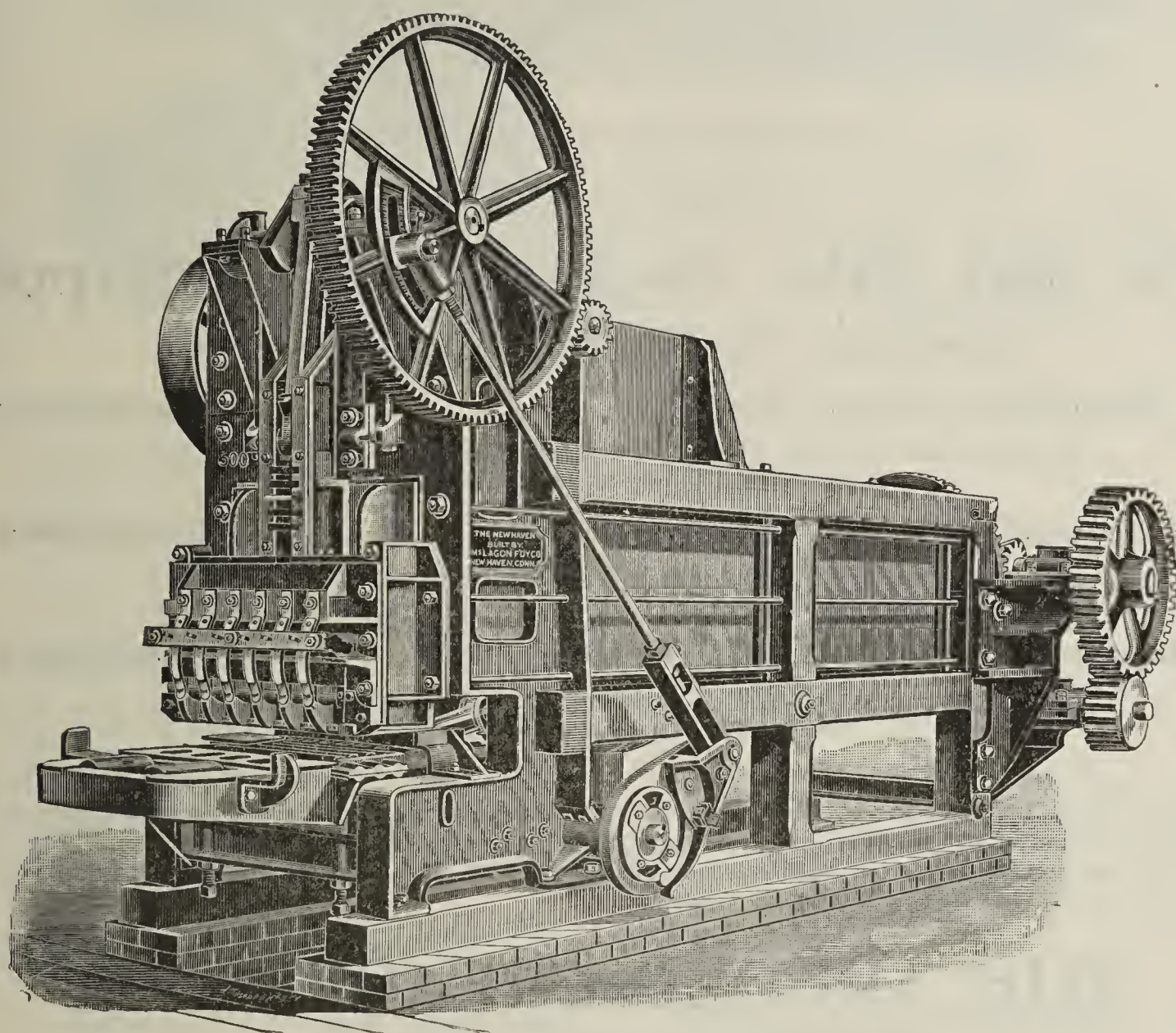
W.L. McKISSICK & CO.,

Carlisle, Iowa.

Endurance the Crowning Quality.

The "New Haven" Horizontal Brick Machine is the Strongest Soft Clay Brick Machine in the World.

It is adapted to work any clay and is suitable for any yard, large or small, that uses steam for motive power. The brick made on it are solid and square, having smooth surfaces and sharp corners. For **Quantity** and **Quality** of production we challenge comparison with any machine built. The capacity of the machine is really limited only to the facilities for handling the brick as they are made.

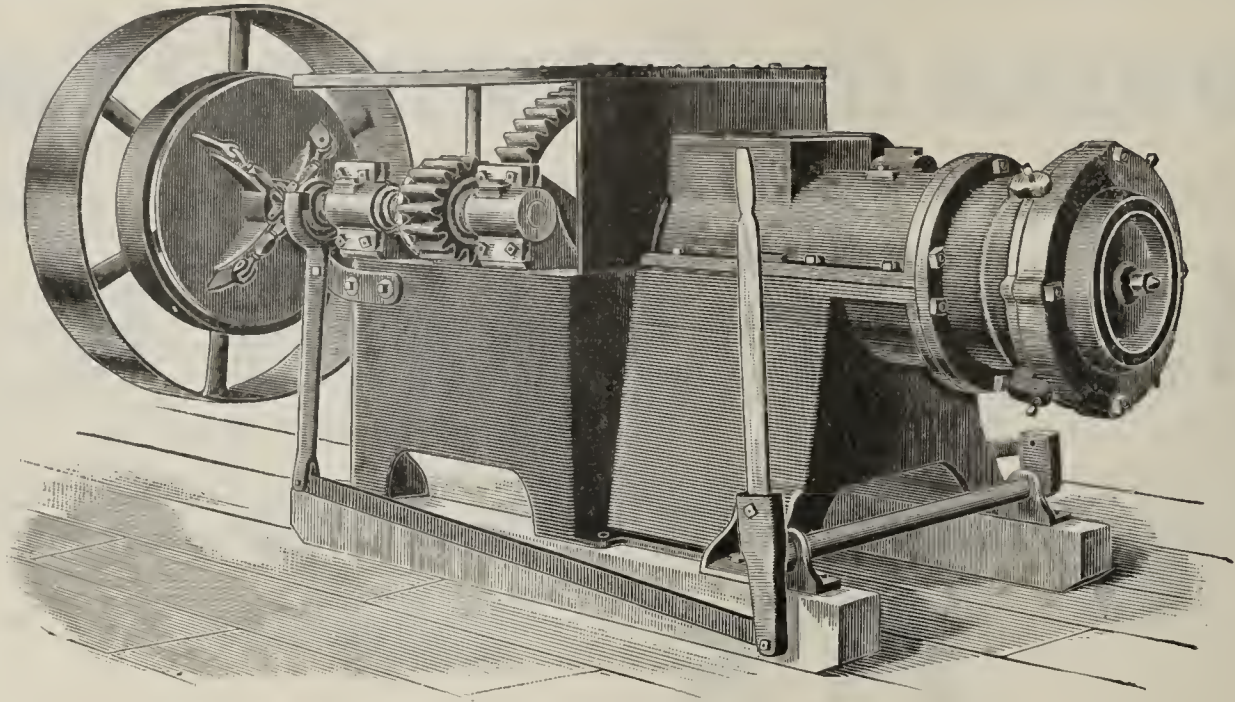


"New Haven" Horizontal Brick Machine.

We will be pleased to submit estimates for a complete plant or any portion of one. We can furnish machinery of the most modern and approved construction for soft mud plants of any capacity at reasonable prices. Shafting, hangers, bearings, pulleys, gearing and machine work of all description.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.



NO. 25 LEADER BRICK AND TILE MACHINE.

OUR LINE OF
Brick and Tile Machinery and Supplies
 Represents the Combined Experience of

D. J. C. Arnold, New London, Ohio.

Established 1880.

Manufacturer of Brick Moulds, Barrows, Trucks, Dump Tables, Kiln
 Doors, Ventilators, Grates, Bands, Etc.

Jonathan Creager's Sons Co., Cincinnati, Ohio.

Established 1881.

Manufacturers of Soft Mud Brick Machines, Pug Mills, Disintegrators,
 Sanding Machines, Clay Elevators, Cars, Etc.

Leader Manufacturing Co., Decatur, Illinois.

Established 1889.

Manufacturers of Stiff Mud Brick Machines, Tile Machines, Represses,
 Automatic Cutters, Crushers Etc.

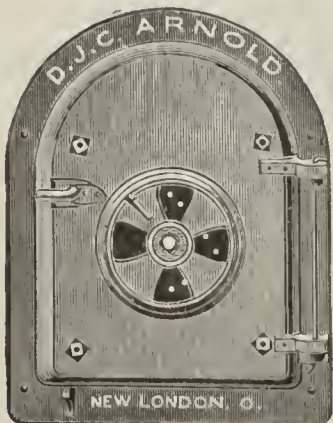
Continual usage brings out the weak spots in any manufactured article. The experience of several years past, has resulted in many changes of design and construction of our present line. We are not offering any experiments. Our machinery is giving satisfaction all over this country and in foreign lands. If you want the "Tried and True" line, address

THE ARNOLD-CREAGER CO.,

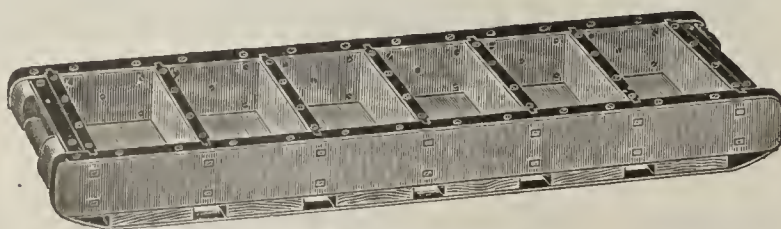
(Successors to the Above)

Shops and General Office:

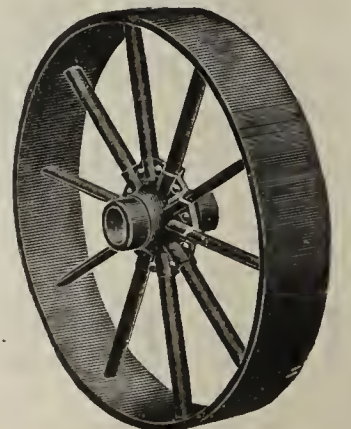
NEW LONDON, OHIO.



KILN DOOR

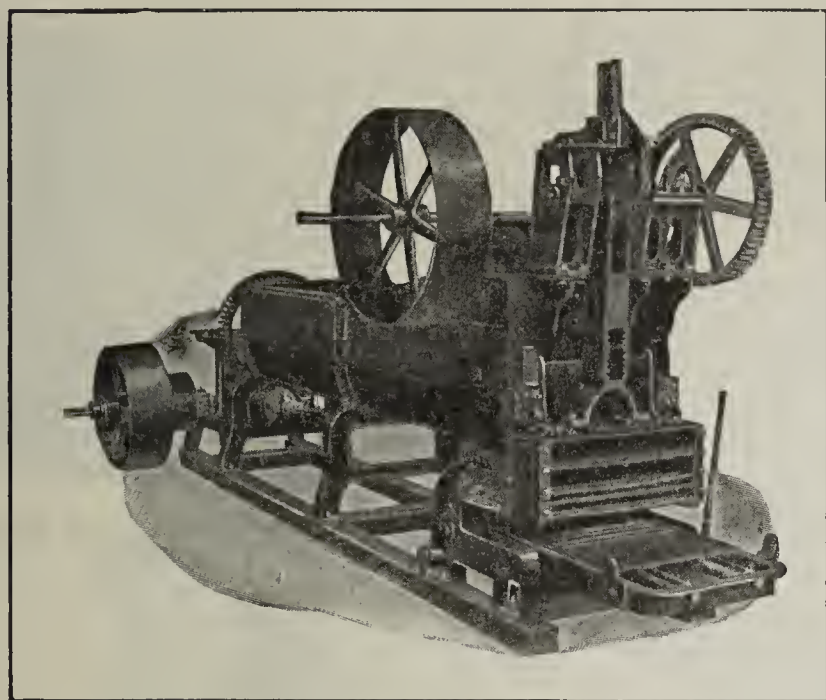


MACHINE MOULD
 STEEL LINED FULL DEPTH AT ENDS
 OF BRICK.



TRUCK WHEEL

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.

We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

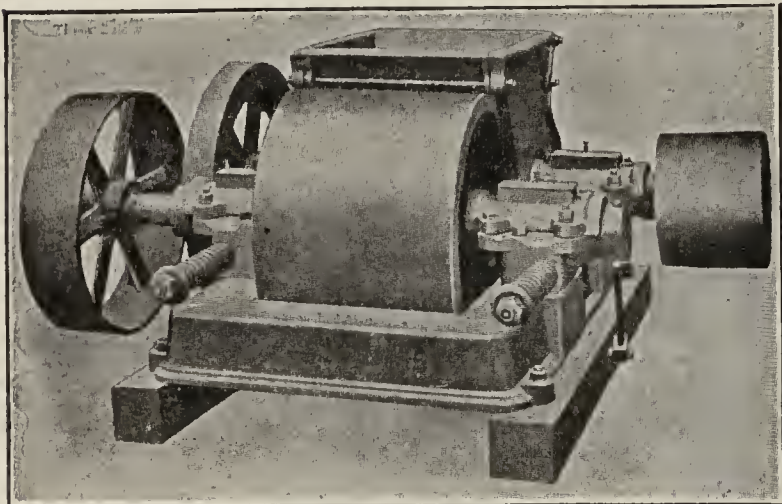
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



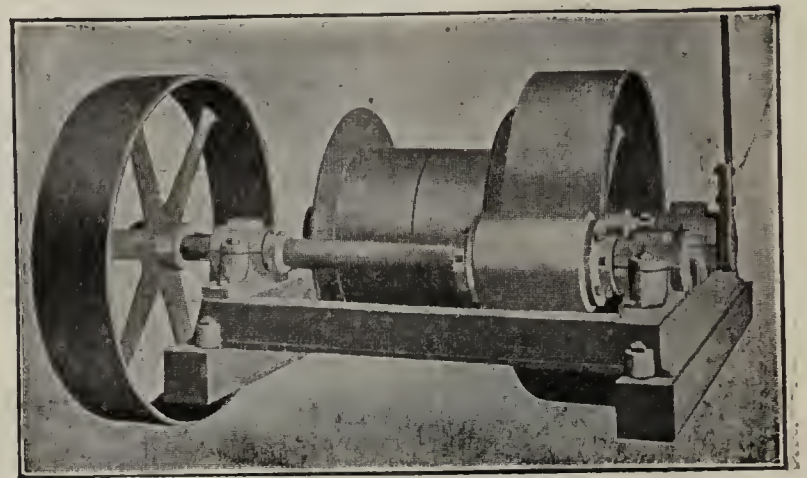
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

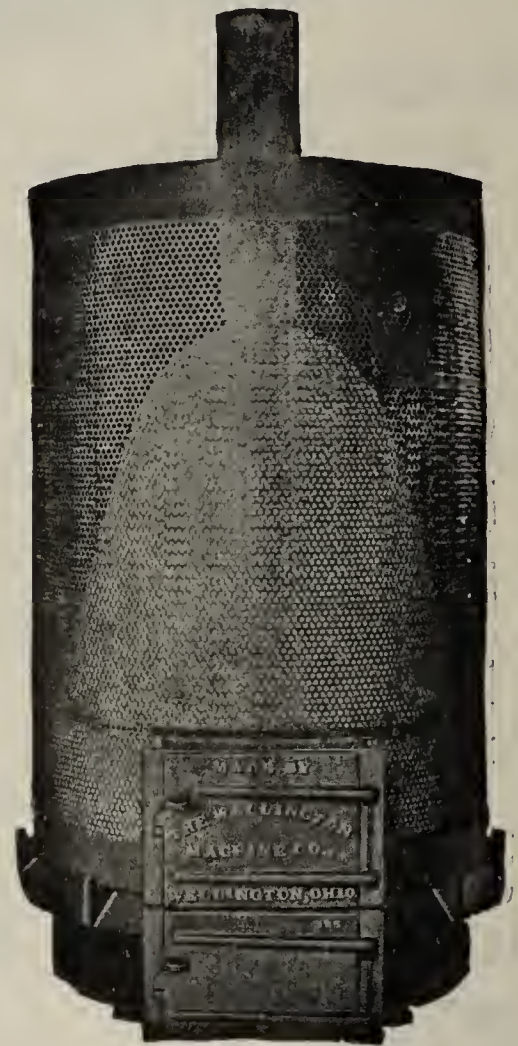
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1909 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

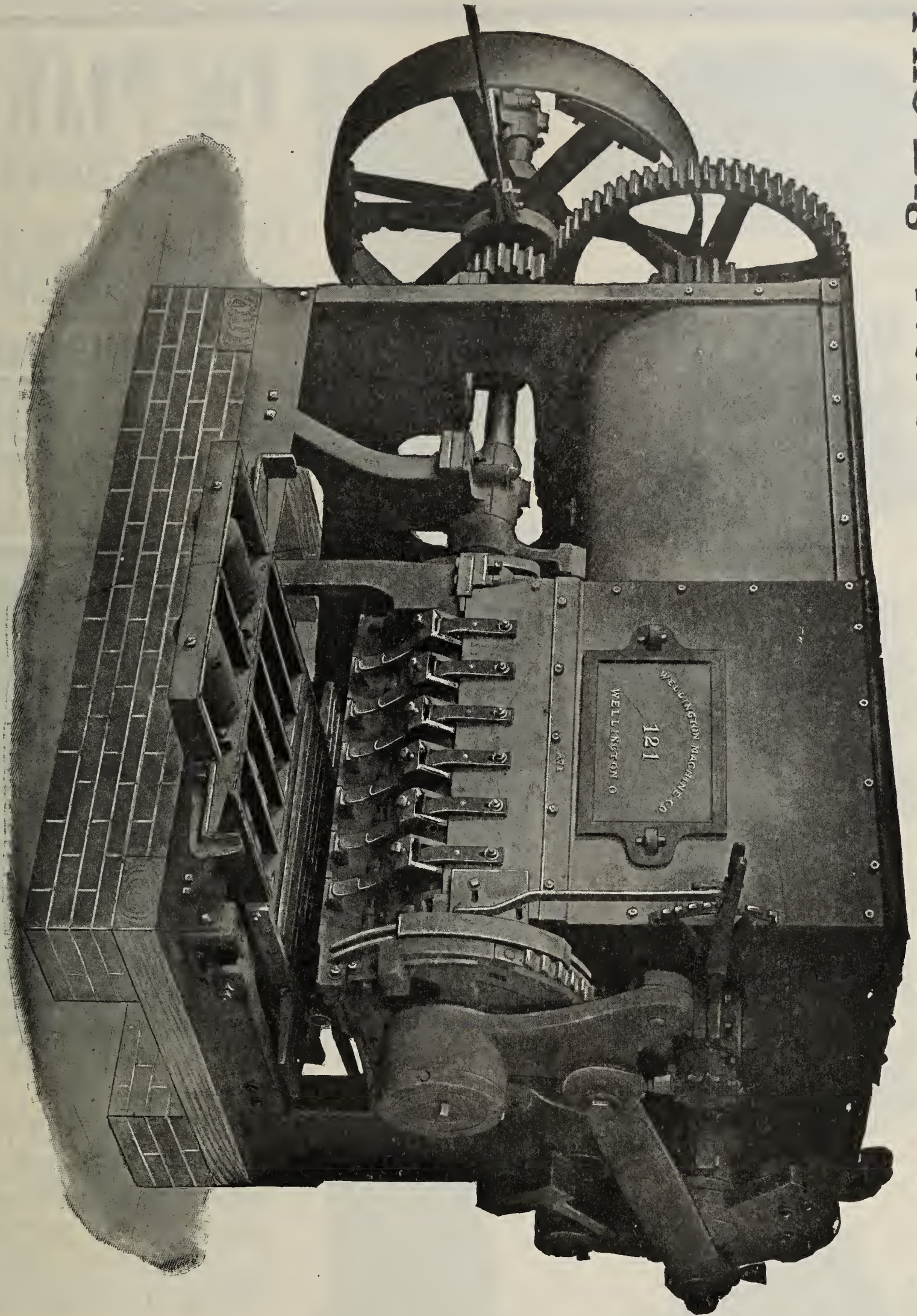
Indianapolis, Ind.

Mention The Clay-Worker.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

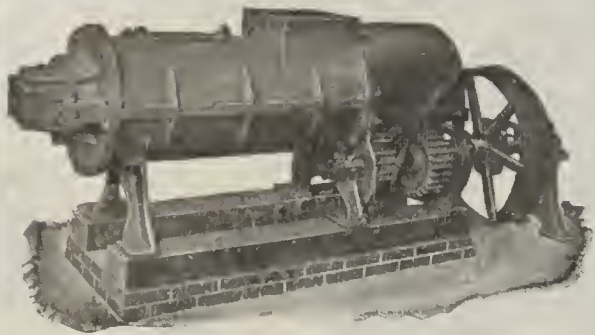
The Wellington Machine Co.,

WELLINGTON,

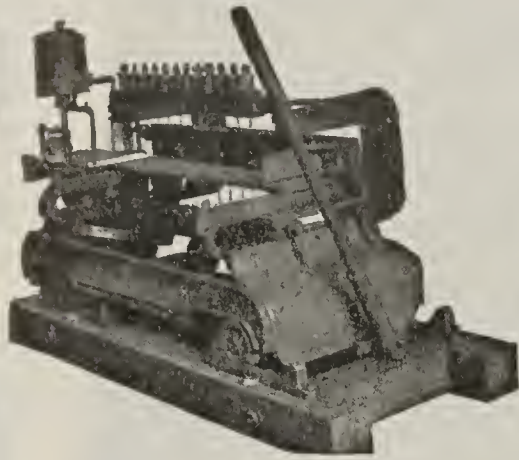
OHIO.

Send for Catalogue.

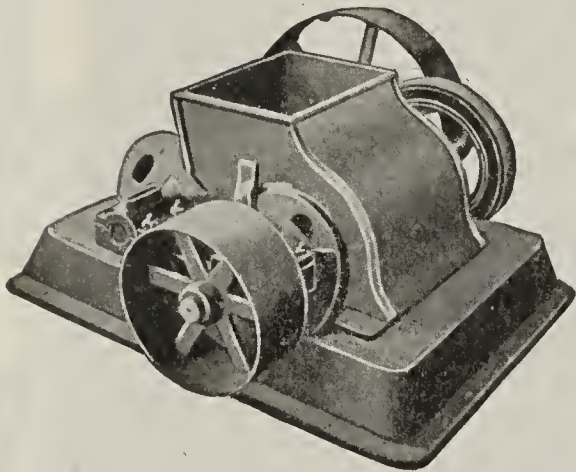
Mention the Clay-Worker.



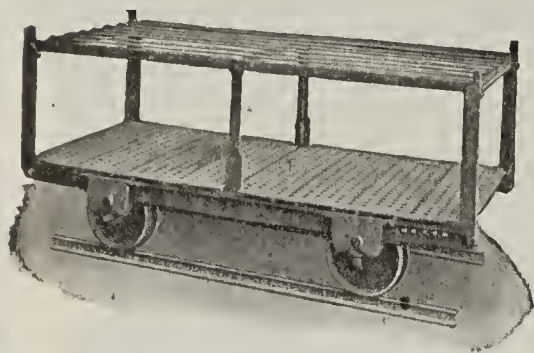
NO. 1 AUGER BRICK MACHINE



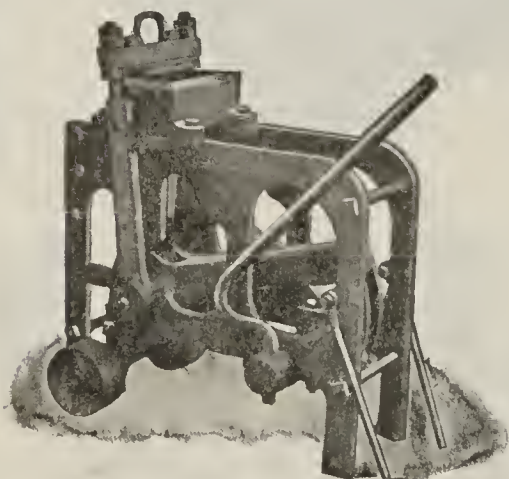
WIRE-CUT BRICK TABLE



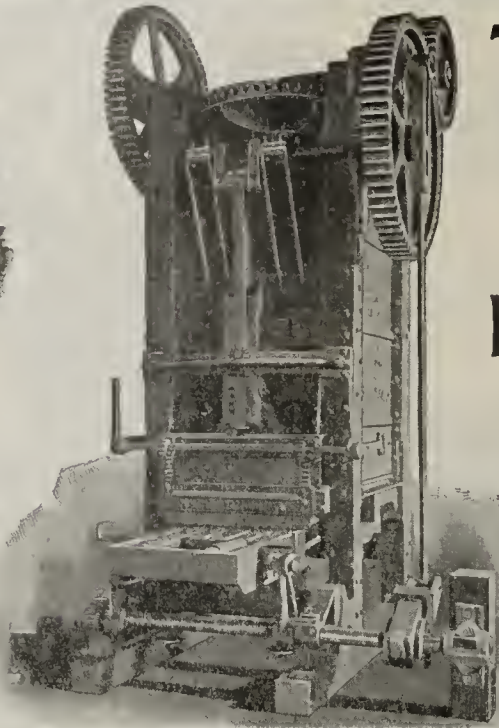
HIGH-SPEED CRUSHER



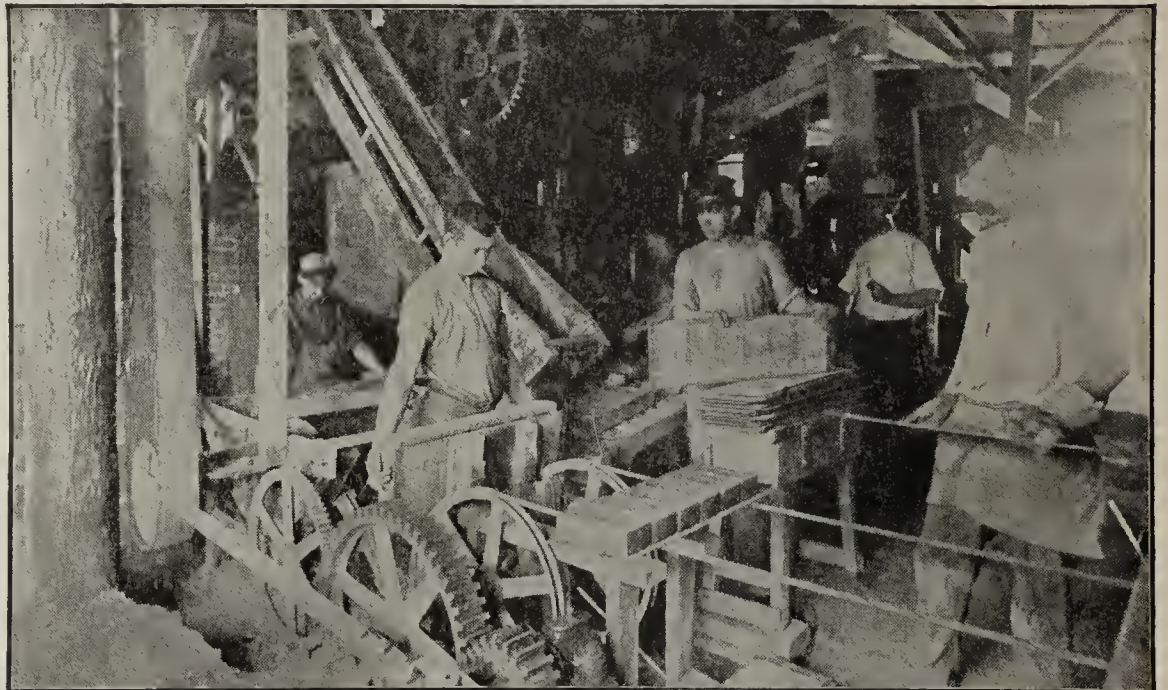
DRYER CARS



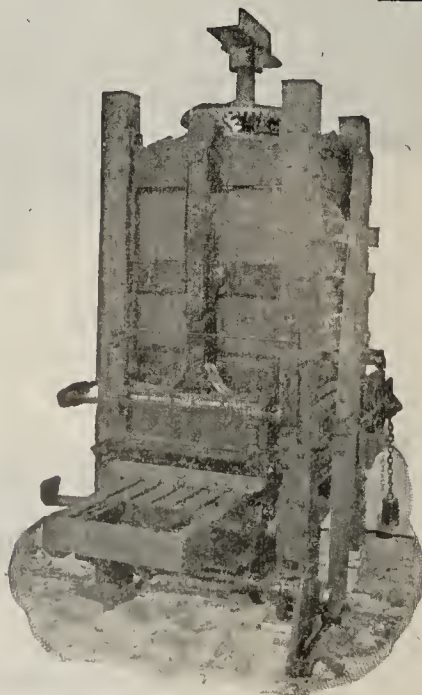
HAND REPRESSES



STYLE "A" BRICK MACHINE



HANDLING BRICK FROM THE MACHINE TO THE DRYERS.



HORSE POWER MACHINE

THE "MARTIN"

MACHINERY

IS FULLY GUARANTEED

TO MEET ITS

REQUIREMENTS

LET US FURNISH
YOU WITH A COMPLETE
SET OF DRAWINGS

LET US TALK OVER THE DRYER
QUESTION WITH YOU. THIS IS
NO EXPERIMENT BUT A PERFECT
SUCCESS. WE USE--NO CARS,
NO TUNNELS, NO FANS. DRYER
PRACTICALLY FIRE-PROOF.

WRITE FOR PARTICULARS
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD

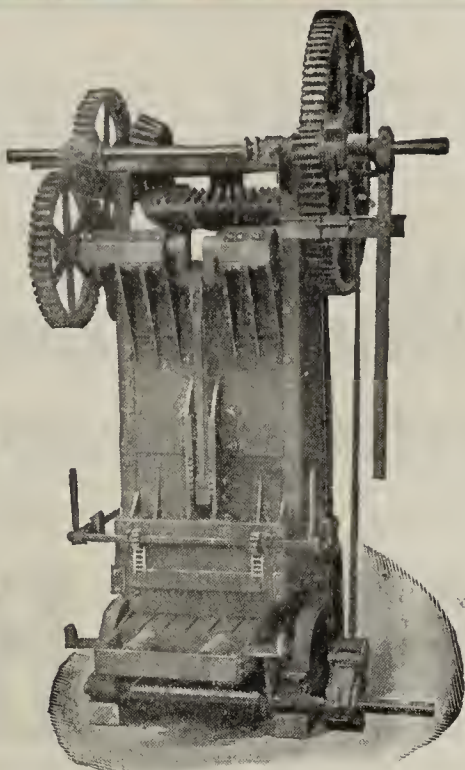
BUILDING BRICK

FULLY COVERED BY PATENTS

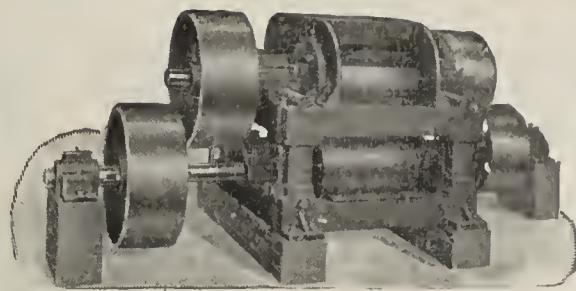
PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

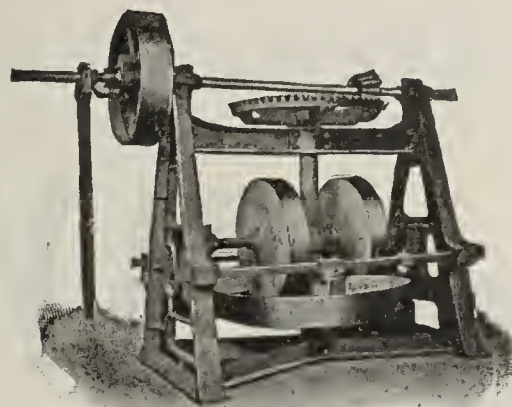
UNITED STATES & CANADA



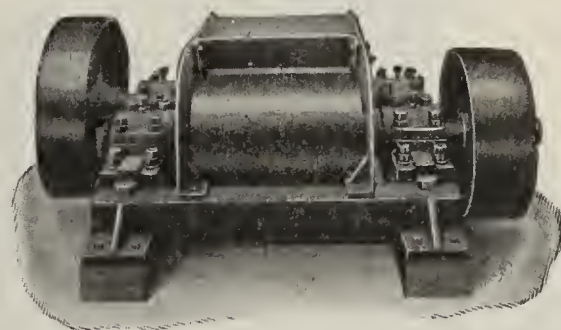
STYLE "P" BRICK MACHINE



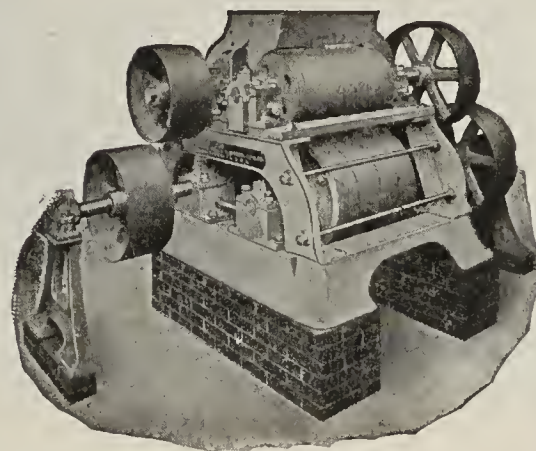
STYLE "P" CRUSHER



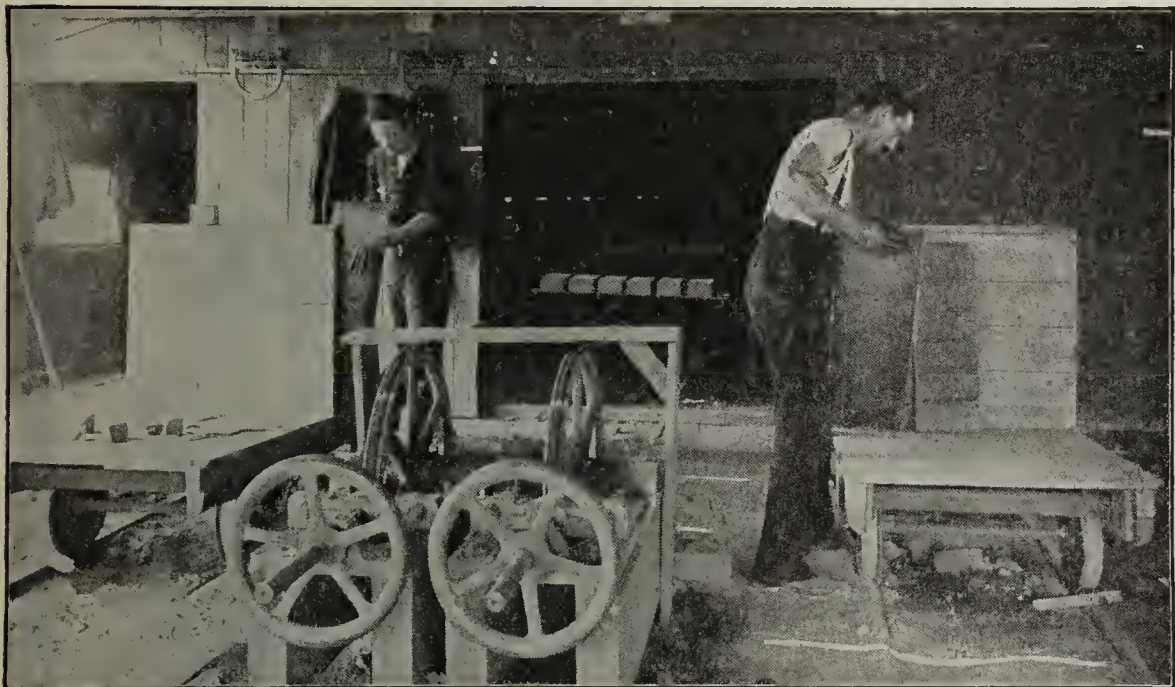
DRY OR WET PANS



DISINTEGRATOR



4-ROLL CRUSHER



THE BRICK COMING FROM A "MARTIN" PATENT DRYER

THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

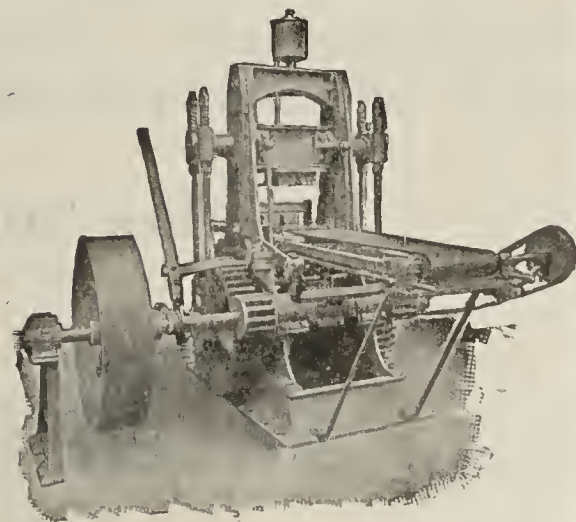
ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

WRITE
FOR
PRICES



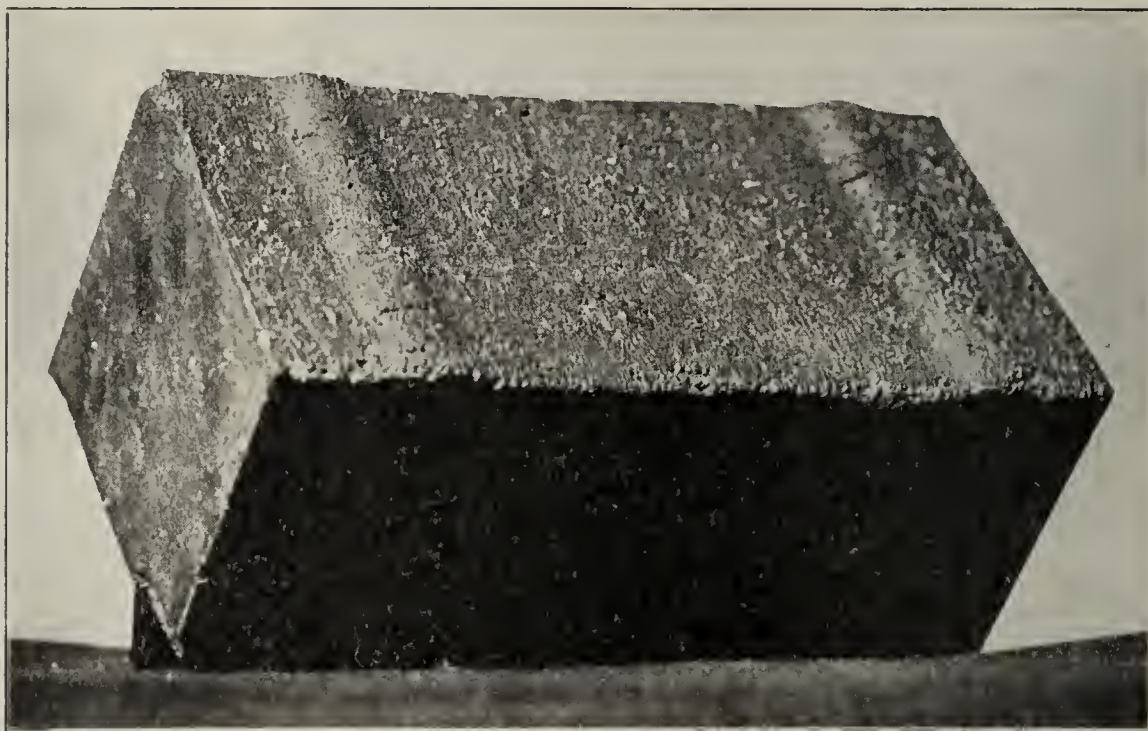
SAND DRYER



STEAM POWER REPRESS

If you have Clay or Shale
suitable for making a
strictly first-class

PAVING BRICK



Write at once to

FRANK B. DUNN,

CONNEAUT, OHIO,

For information concerning his

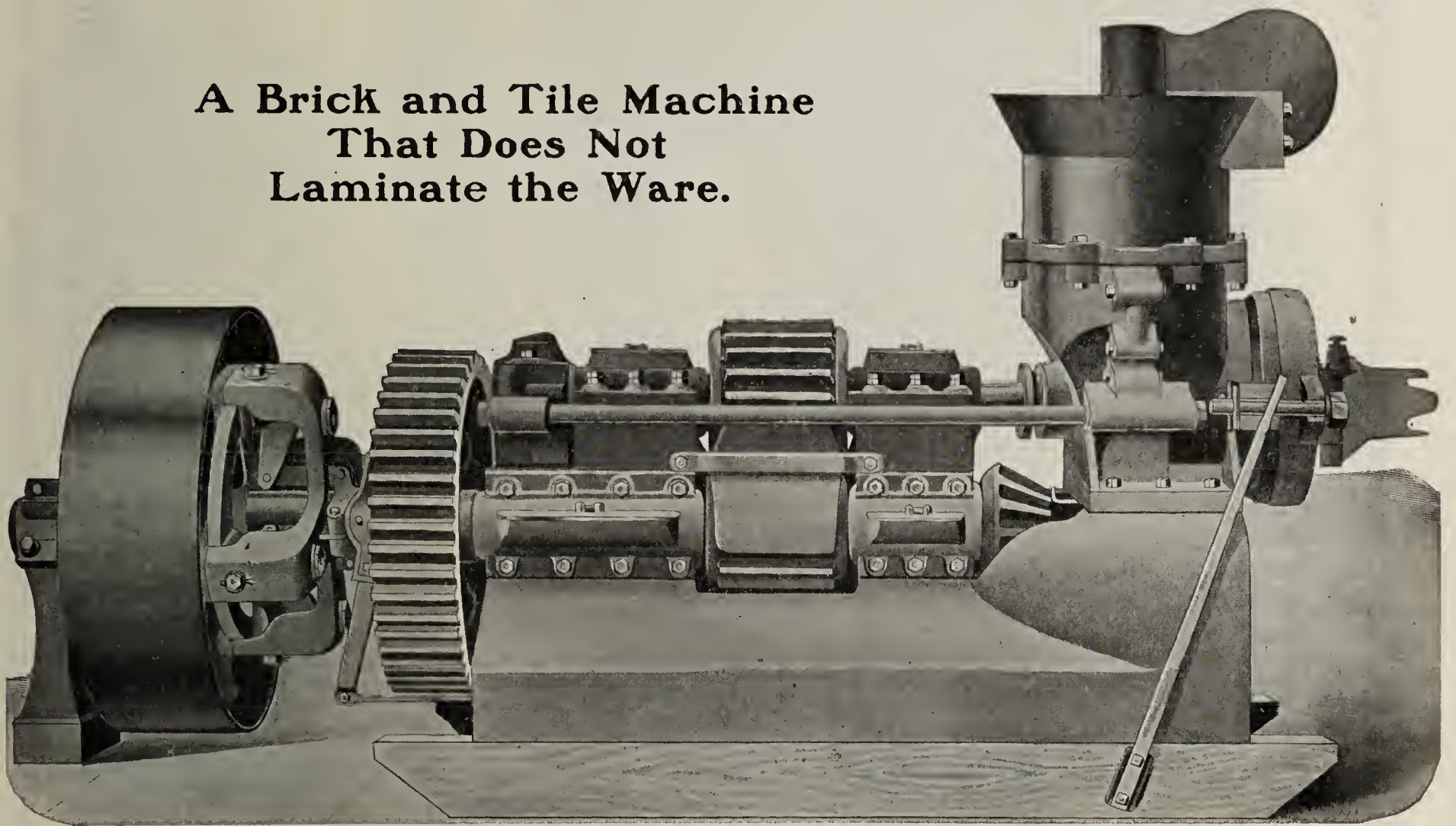
PATENT WIRE-CUT LUG BRICK.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

OUR NEW 1909 MODEL ANDERSON GIANT



Is positively the last word on Soft Mud Brick Machinery. A Giant in both strength and capacity, embodying the latest and most up-to-date improvements, it is the result of our thirty-six years' experience in the manufacture of this class of machinery. Write to-day for our illustrated booklet containing a full description of this new machine. "It is free for the asking." We also manufacture a complete line of Dry Press Brick and Drain Tile Machinery and yard supplies of every description. Write us your needs and let us figure with you.

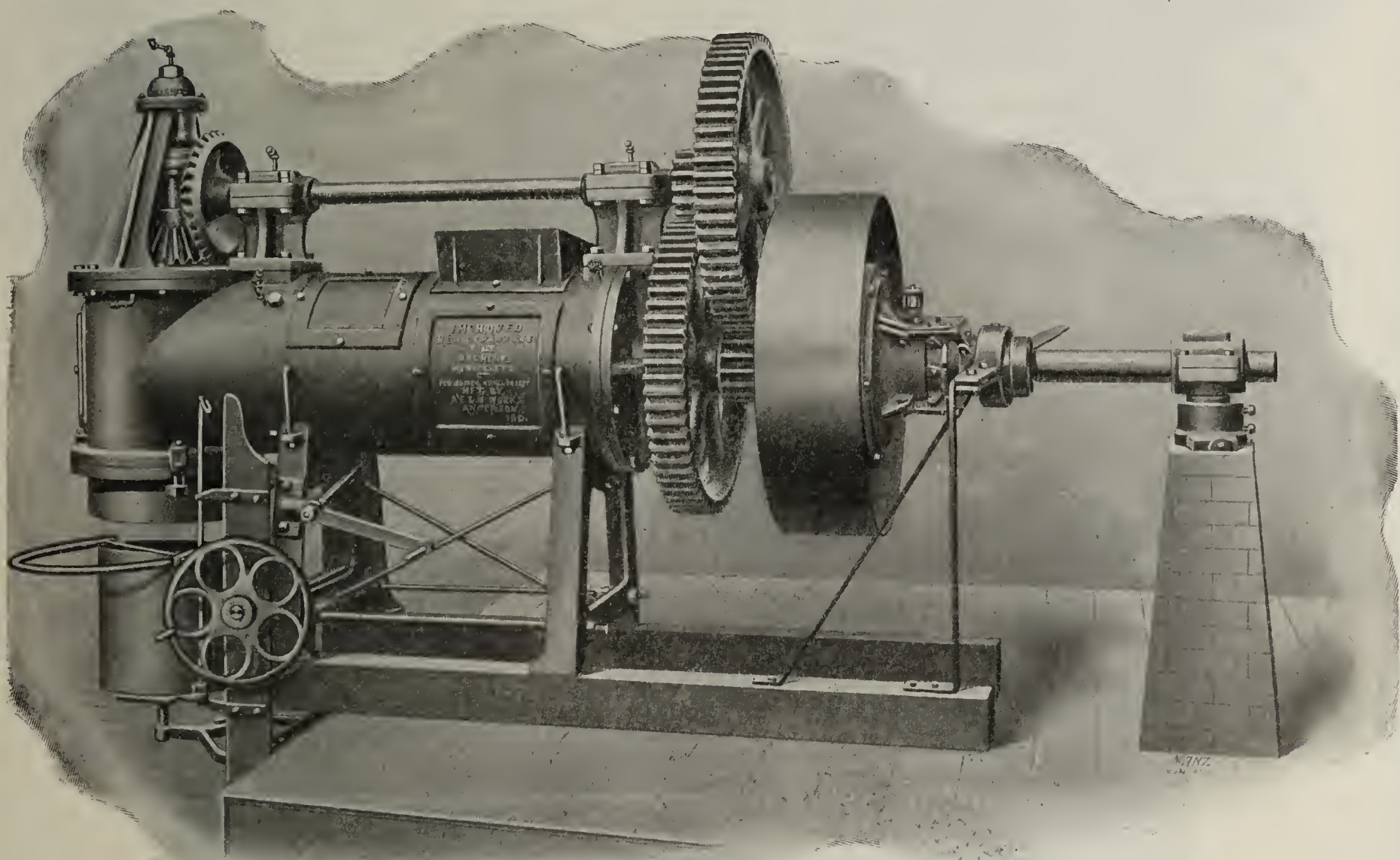
THE ANDERSON FOUNDRY & MACHINE WORKS,

Anderson, Ind., U. S. A.

Southwestern Headquarters, Wilson Building, Dallas, Texas.

1908 NEW DEPARTURE

**The Only Mill for
Making Successfully Tile from
3-in. to 24-in. Diameter.**

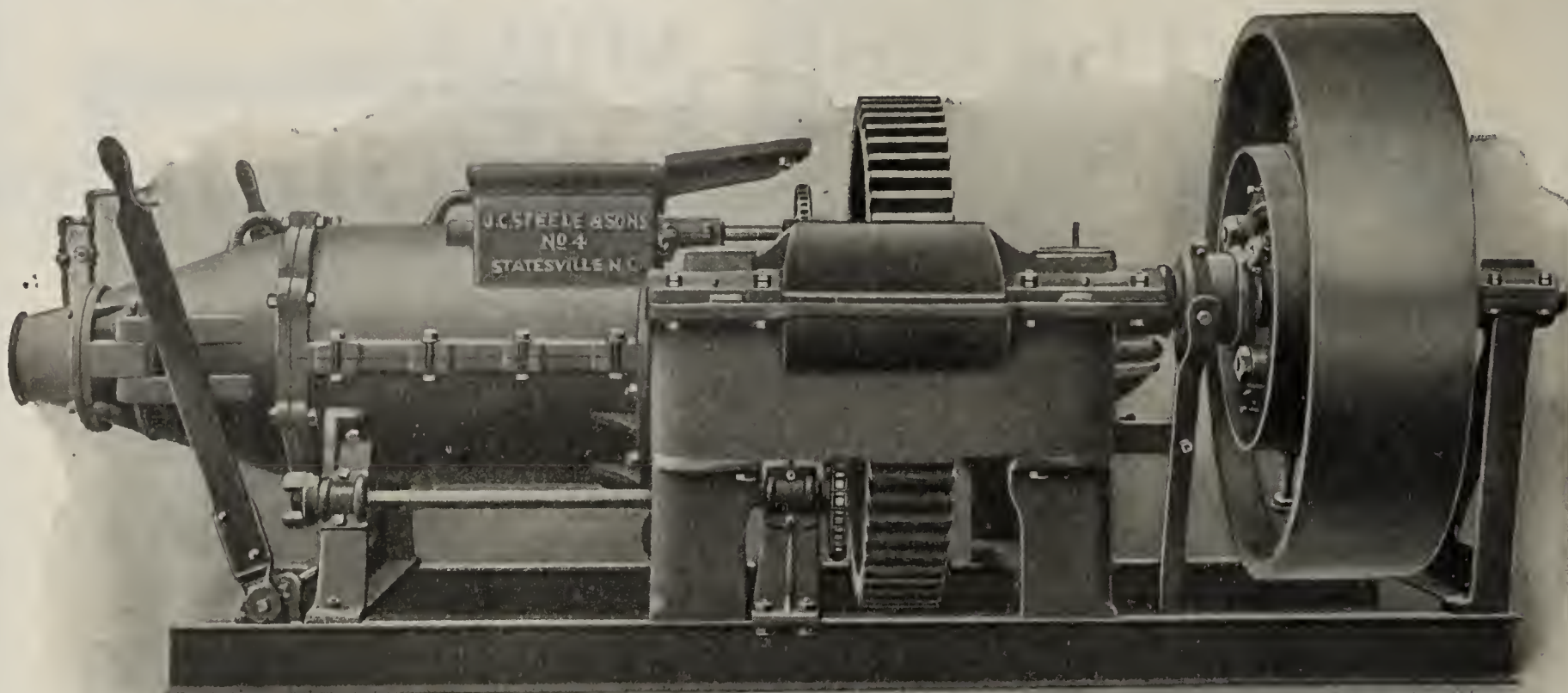


Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent. less than formerly. Write for new catalogue.

**The Anderson Foundry & Machine Works,
Anderson, Ind.**

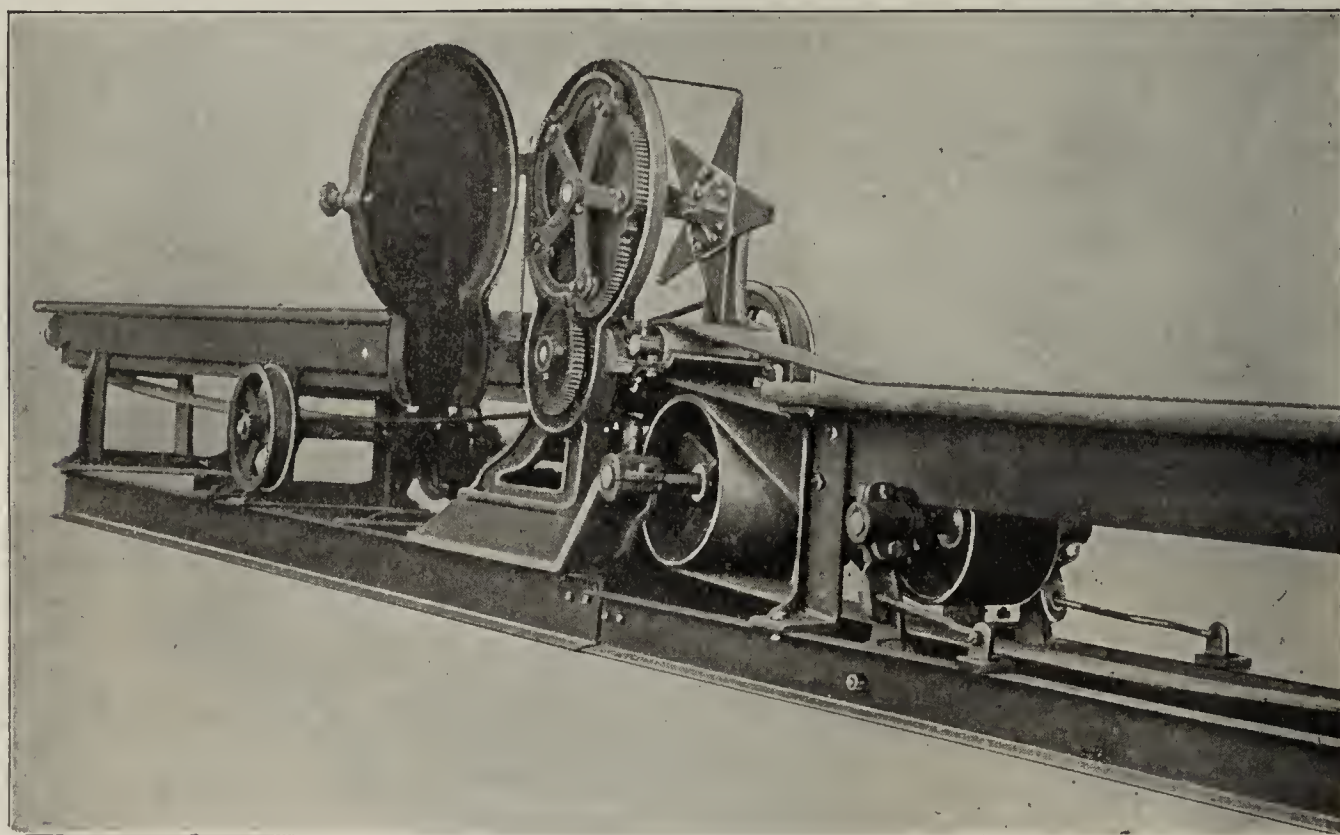
See ad on page 417.

Ask the Man Who Owns One.



No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

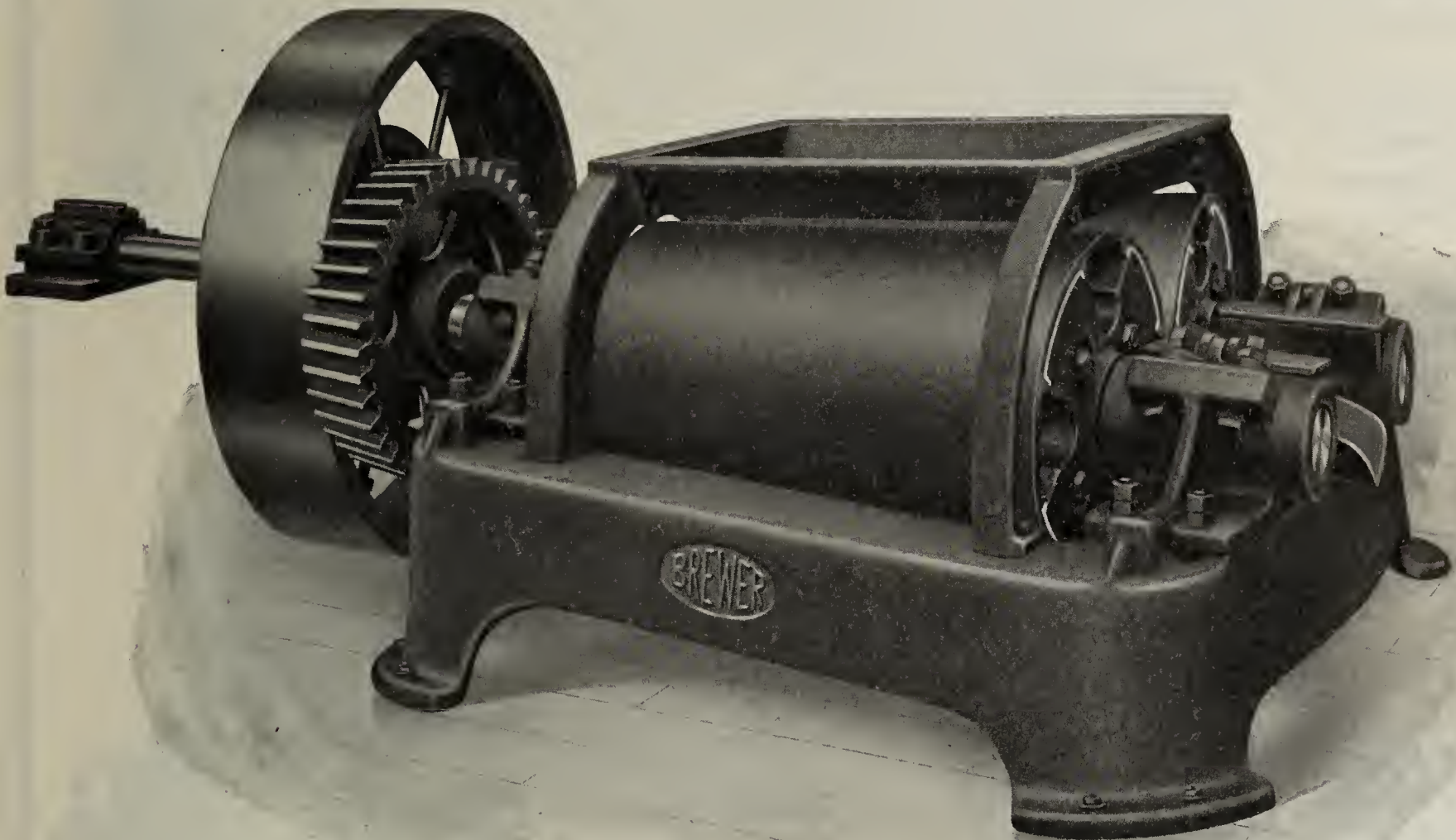
Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

J. C. STEELE & SONS

STATESVILLE, N. C.

CLAY CRUSHERS.

We can furnish whatever you require in the nature of a clay crusher. We have Conical Roll Crushers, Straight Roll Crushers, Beaded Roll Crushers, Disintegrators, Compound Disintegrator Crushers and Dry Pans. All in two or more sizes. All of high grade construction with white-iron removable wearing parts.



THE BREWER NO. 21

Is a conical roll crusher which weighs 6,000 pounds. The rolls are 32 in. long, tapering from 22 to 18 inches in diameter. The shafts are 4-in. diameter. The gears are 5½-in. face. The journals are 12 in. long. Frame cast in one piece. Wearing surfaces of the rolls of white iron, very hard yet strong.

We would like to send you our complete catalogue. Ask for it.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked



It's Good.

Modern Clayworking Machinery

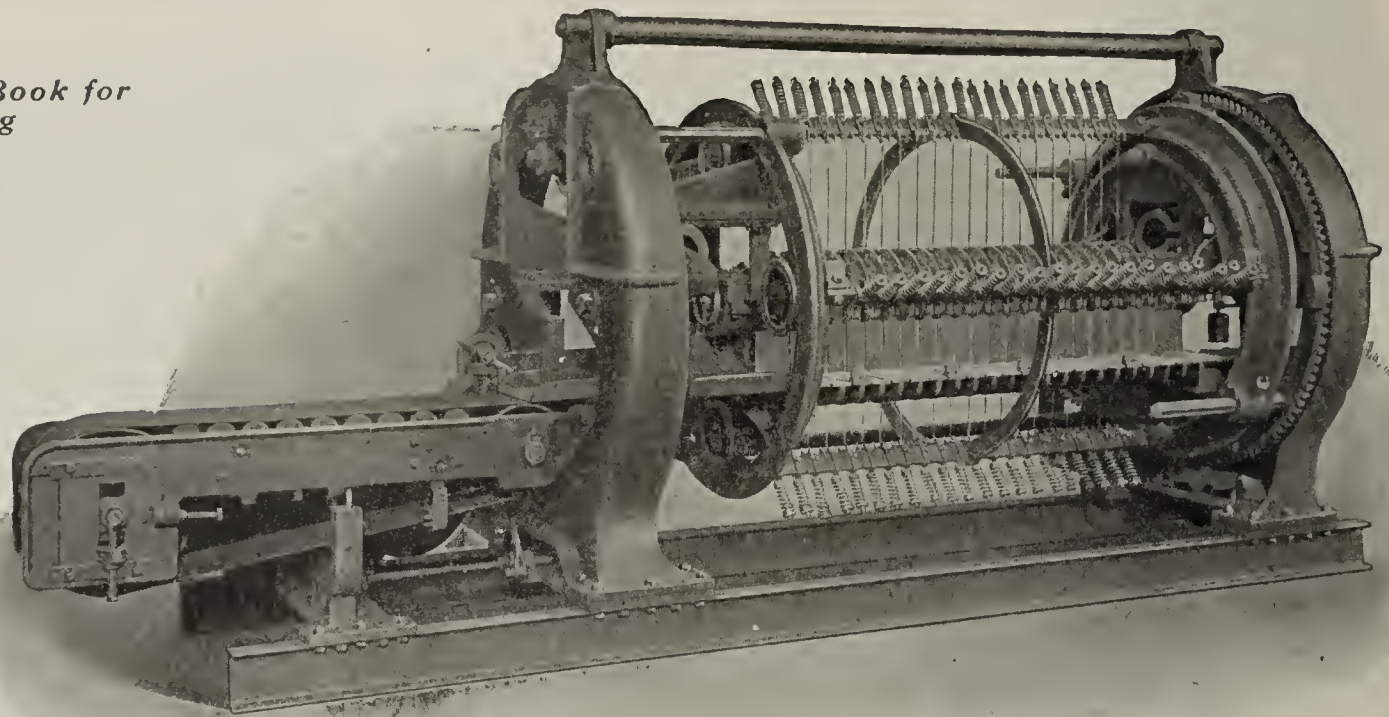
Complete Stiff-Mud Equipment

*Memorandum Book for
the asking*

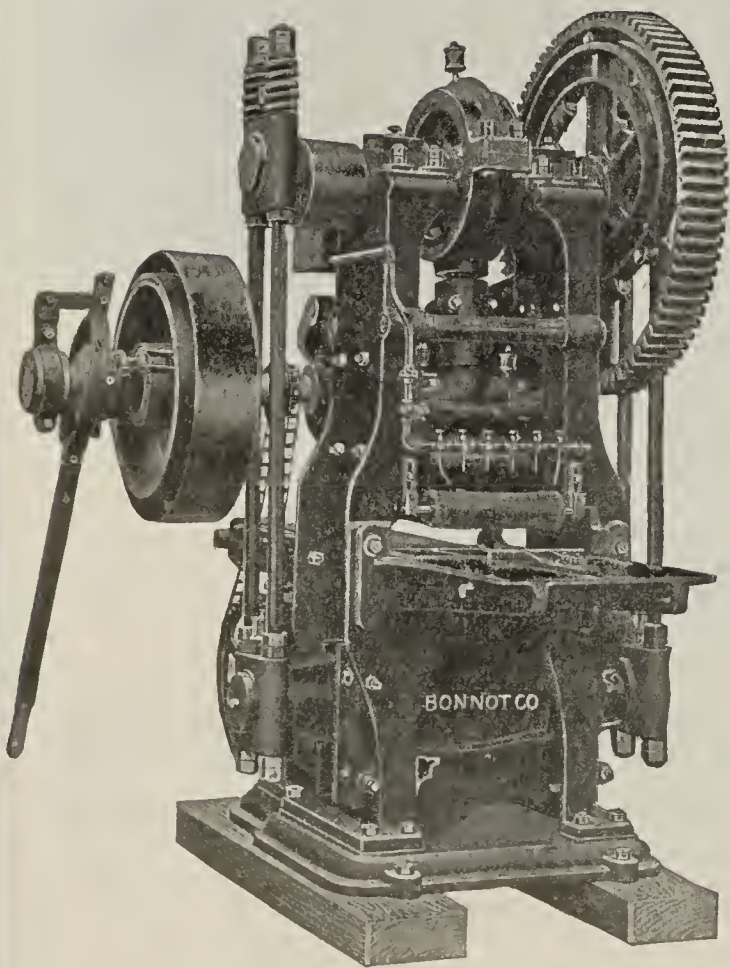
Self-Contained
Accessible
Simple-Cutting
Mechanism

All wearing
parts above
clay column and
out of dirt

Capacity
100,000 Brick
in 10 hours



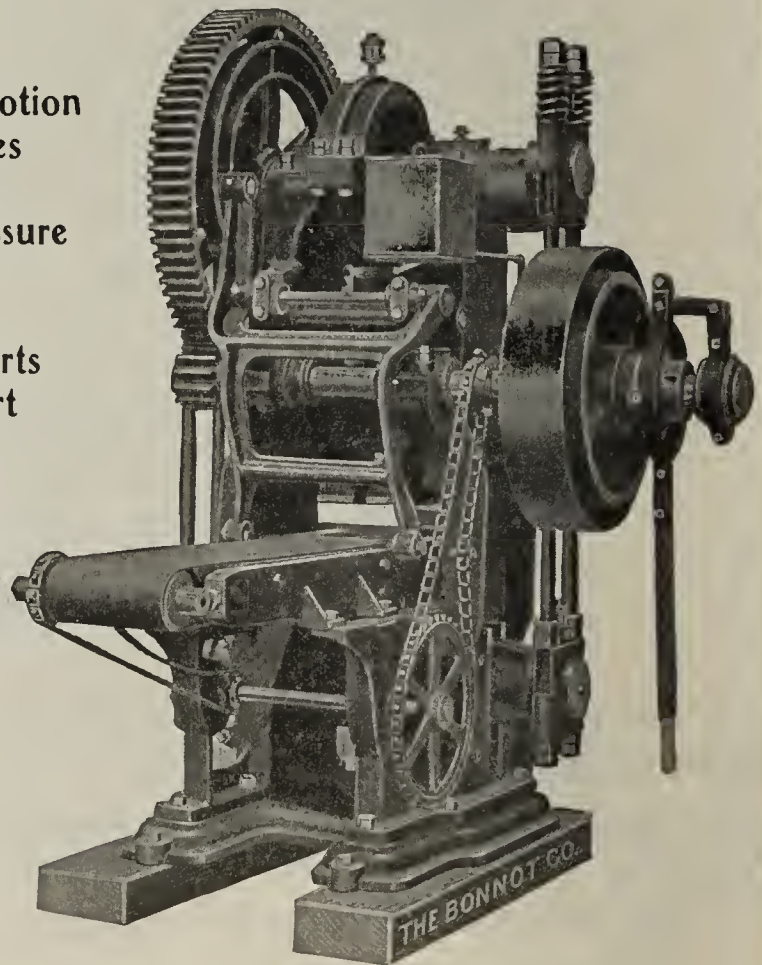
ROTARY AUTOMATIC CUTTING TABLE
Cuts Brick Within 30 Inches of Brick Machine Die



Continuous Motion
No Toggles

No High Pressure
Cams

Wearing Parts
Out of Dirt



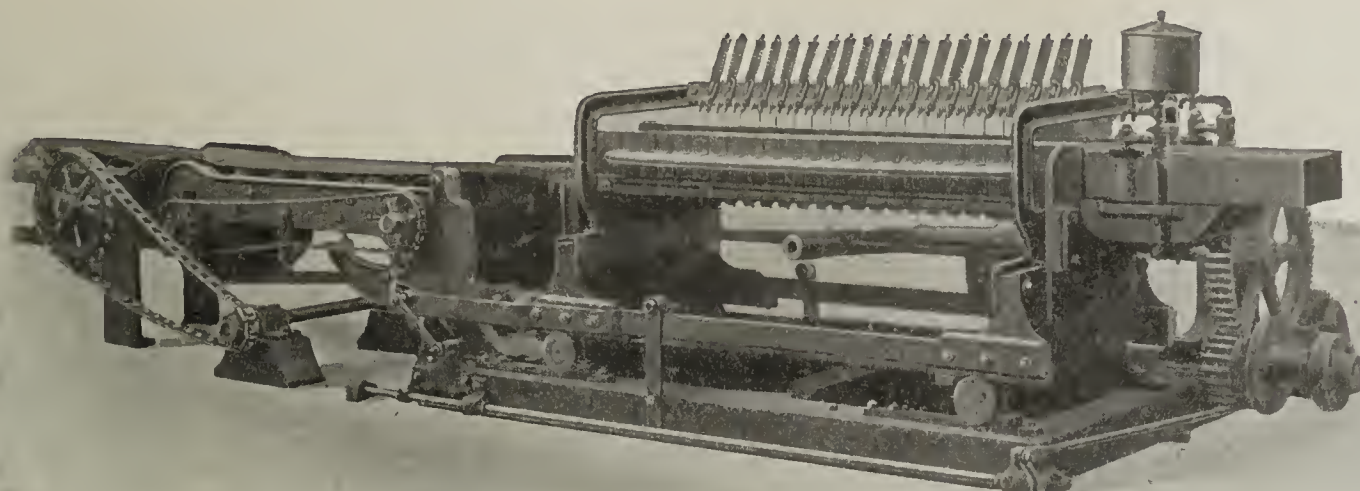
"CANTON" DOUBLE-DIE REPRESS

THE BONNOT COMPANY

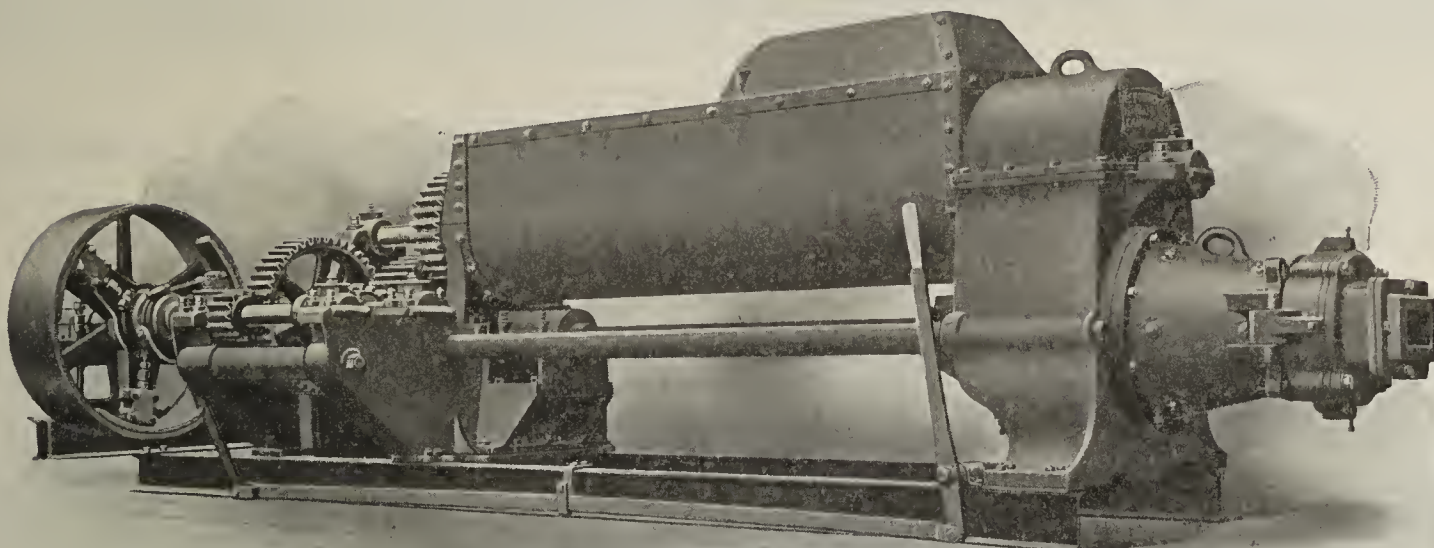
305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

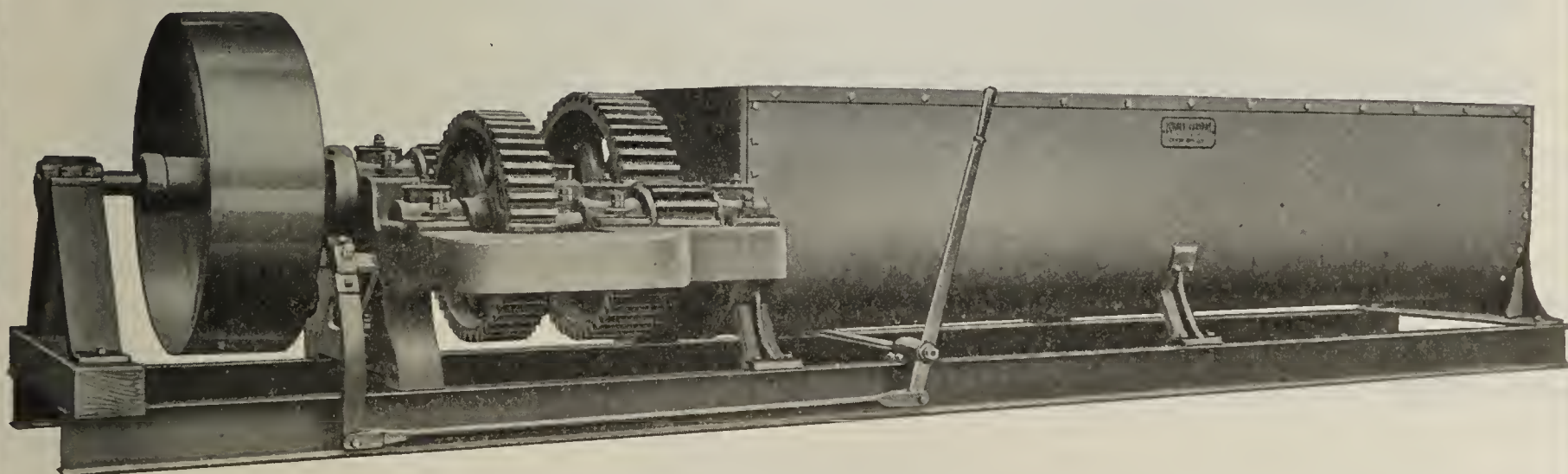
Modern Clayworking Machinery



Automatic Side Cut Table. Cuts Brick 26 Inches from the Die. Durable and Free from Trouble



No. 14 Combined Machine, 25,000 to 40,000 Capacity. We Have Combined Machines from 25,000 to 125,000 Daily Capacity



12-Foot Pug Mill for Heavy Duty

LET US FIGURE ON YOUR NEEDS. GET OUR NEW CATALOG. IT WILL INTEREST YOU

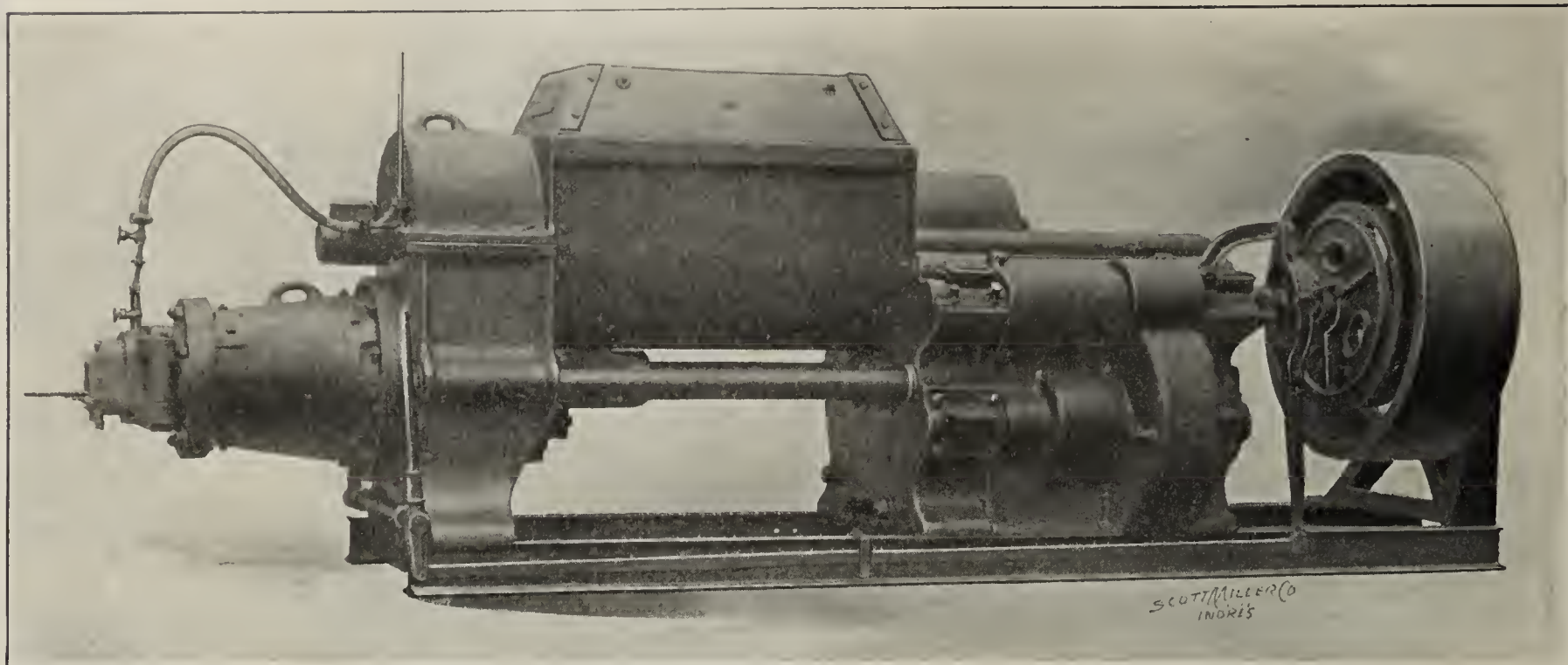
THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

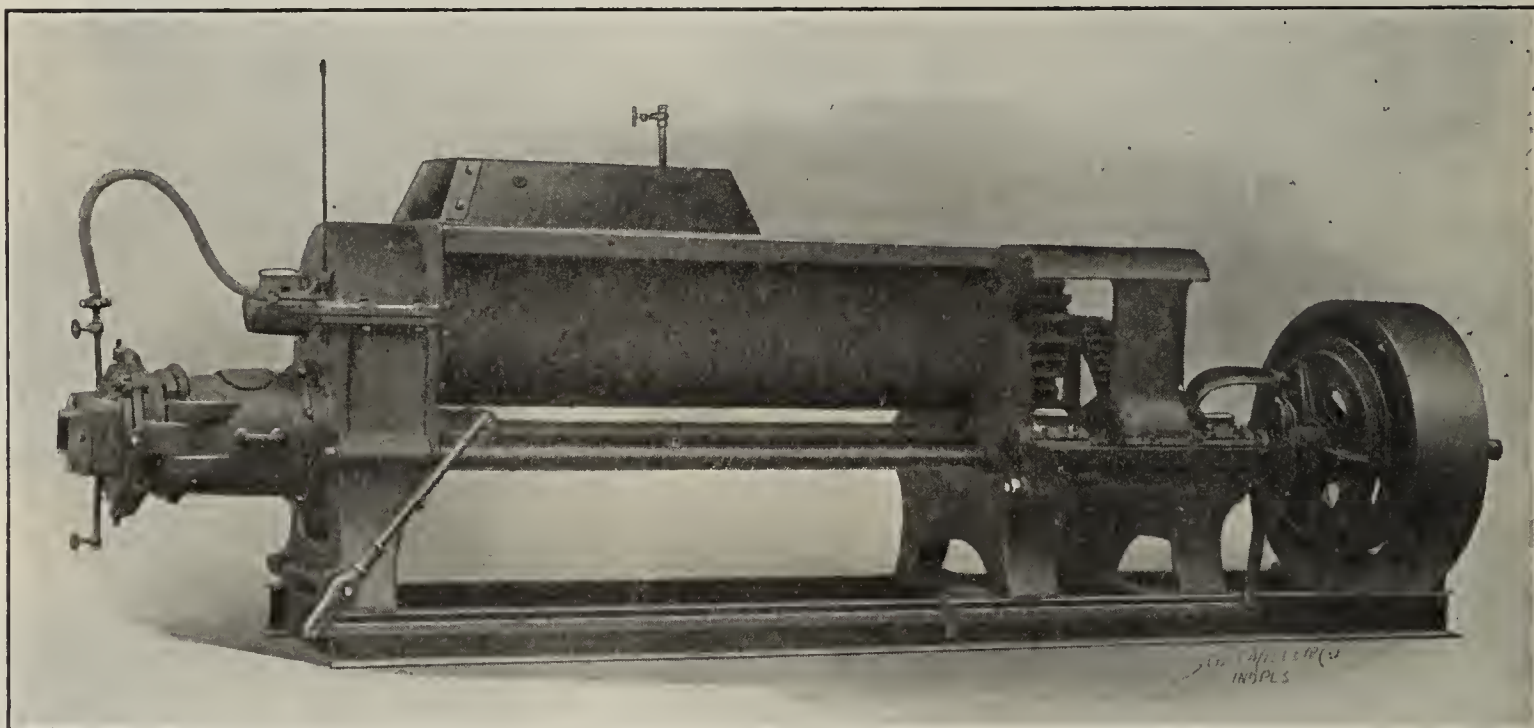
CANTON, OHIO

Mention The Clay-Worker.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.
Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

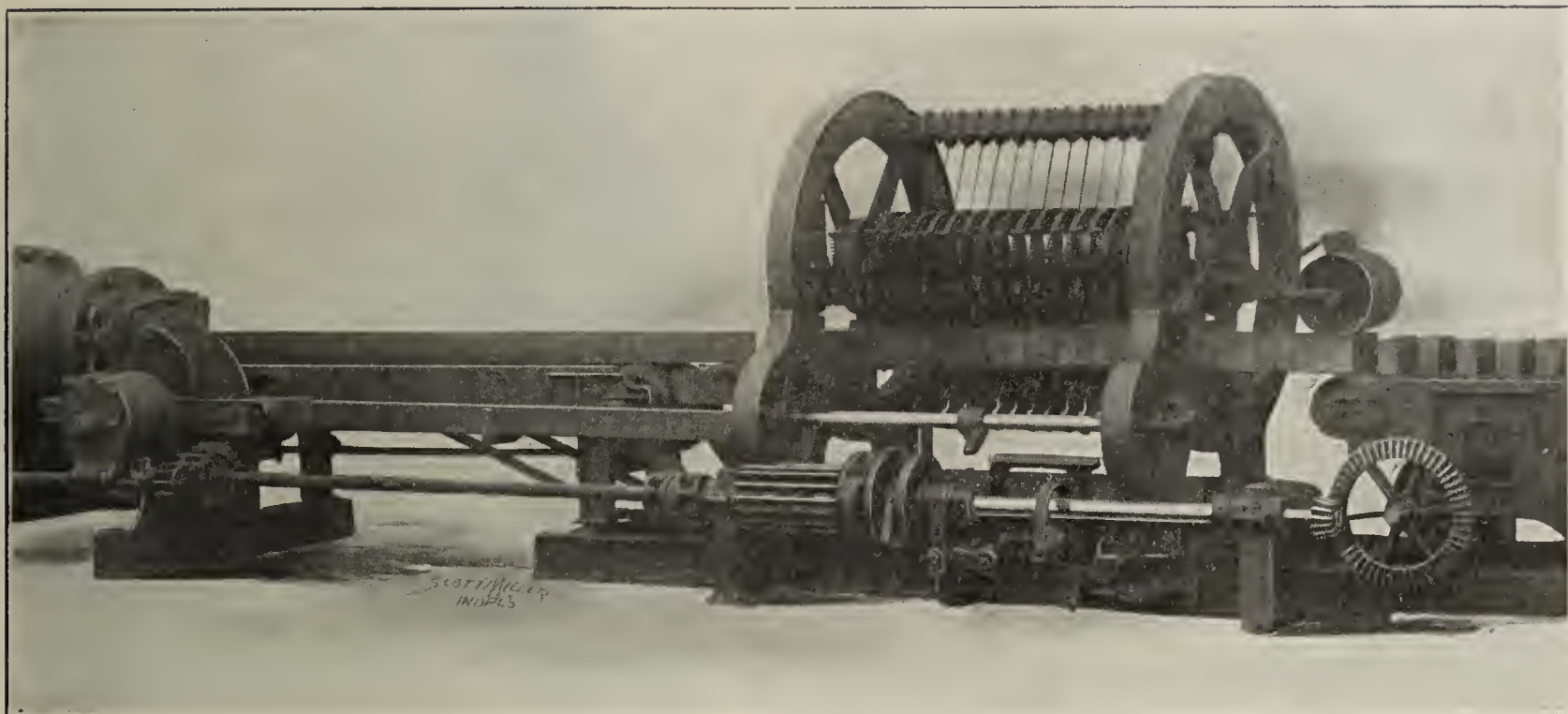
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

Write for Catalog.

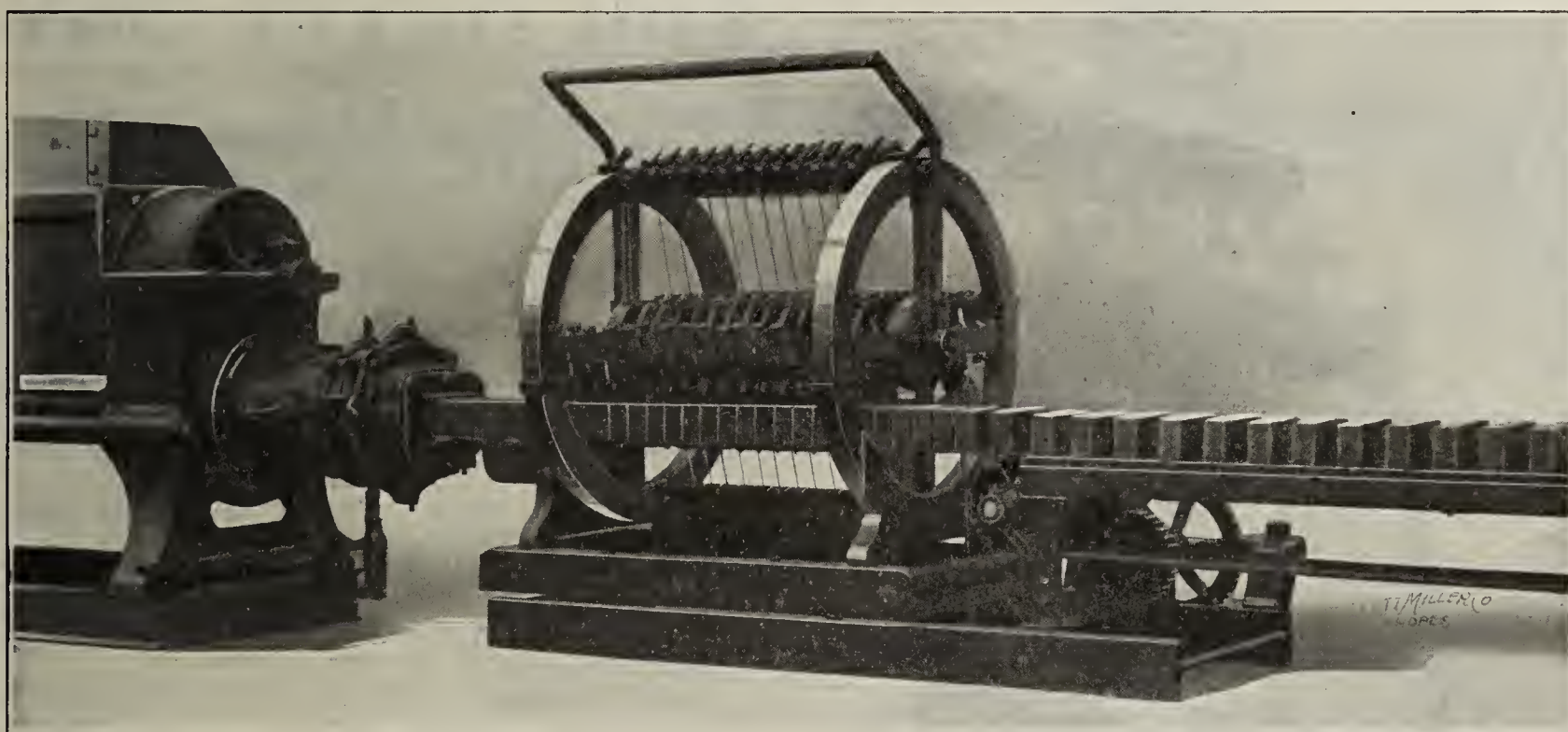
Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing.

Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

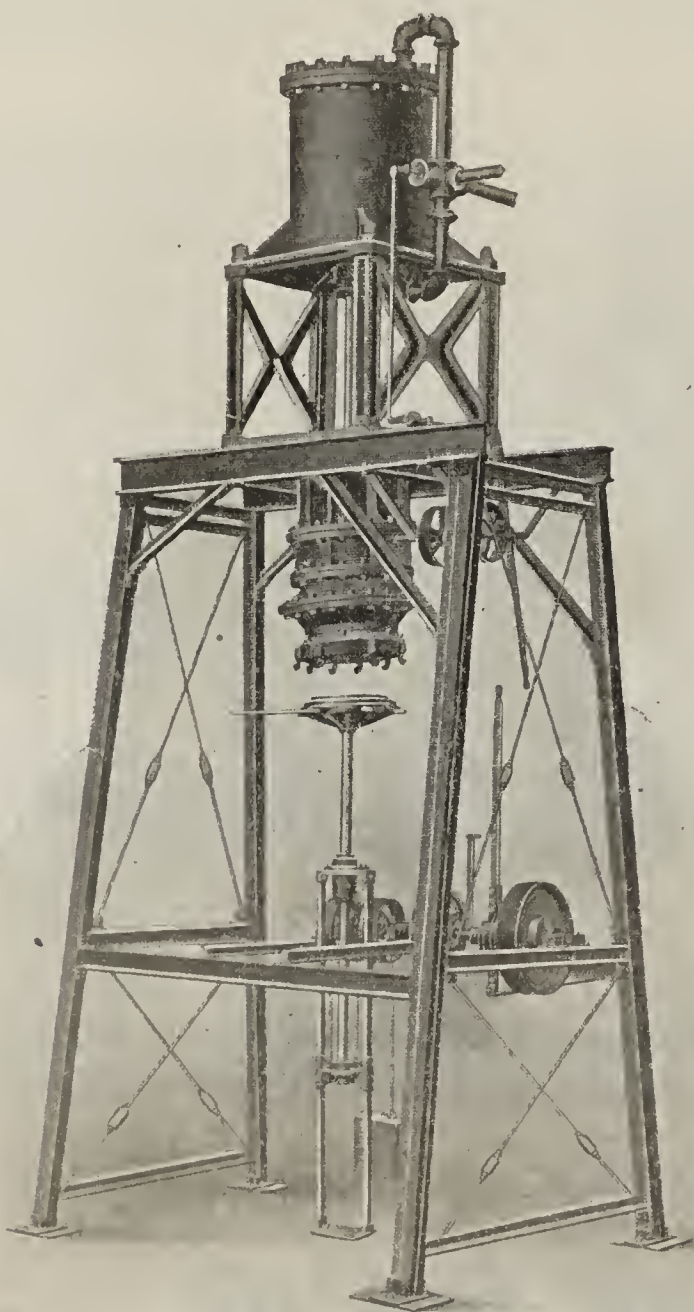
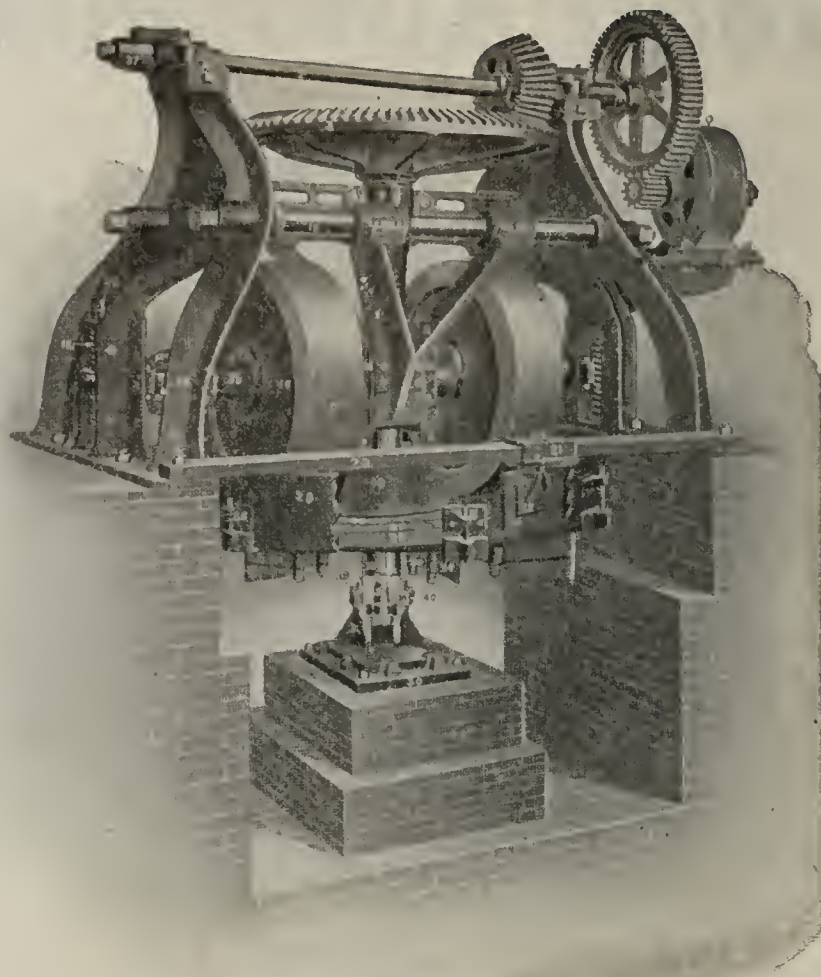
(Mention The Clay-Worker.)

Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

• You may never have obtained them from us. It would pay you to do so.

• There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

• There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

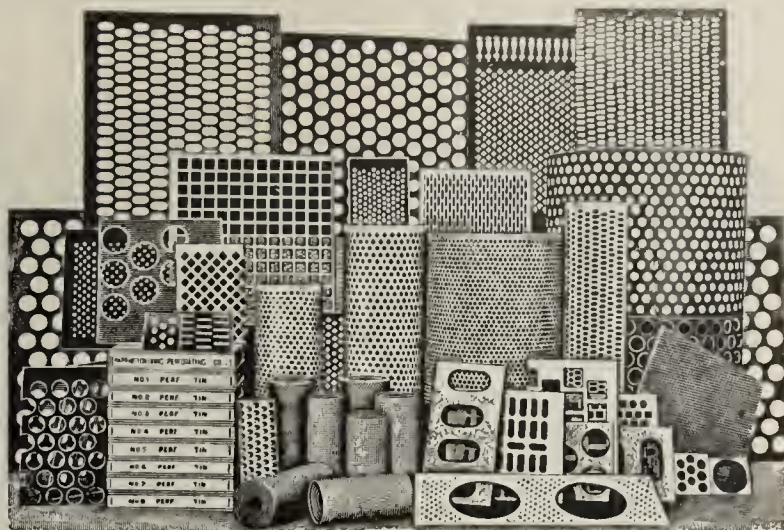
• We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

• You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

• Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

• With quotation we will send samples or Blue Prints.

• The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 231 North Union St.,
CHICAGO, ILL., U. S. A.



JUST MAKE A LIST

of the LARGEST MANUFACTURERS of the BEST BRICK, with whose names you are familiar,

THEN

JUST MAKE A FEW INQUIRIES,

regarding the process of drying employed by them, and just see if you don't find that about nine out of ten of the plants on your list are equipped with

Rodgers Waste Heat Dryers,

every one of which is absolutely satisfactory.

There's a reason, of course. It's simple too.

The FIRST Rodgers Waste Heat Dryer was a SUCCESS. Being designed for the plant in which it was installed, it produced the GREATEST NUMBER of brick for the LEAST MONEY and in the LEAST TIME the clay of which they were composed would permit.

As the first, so each succeeding Dryer has been designed with equally careful consideration of existing conditions, has accomplished equally successful results and proved our claim that the RIGHT DRYER will produce the RIGHT BRICK in the RIGHT TIME at the RIGHT PRICE.

JUST ASK—SOME ONE ELSE.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

108 LA SALLE ST.

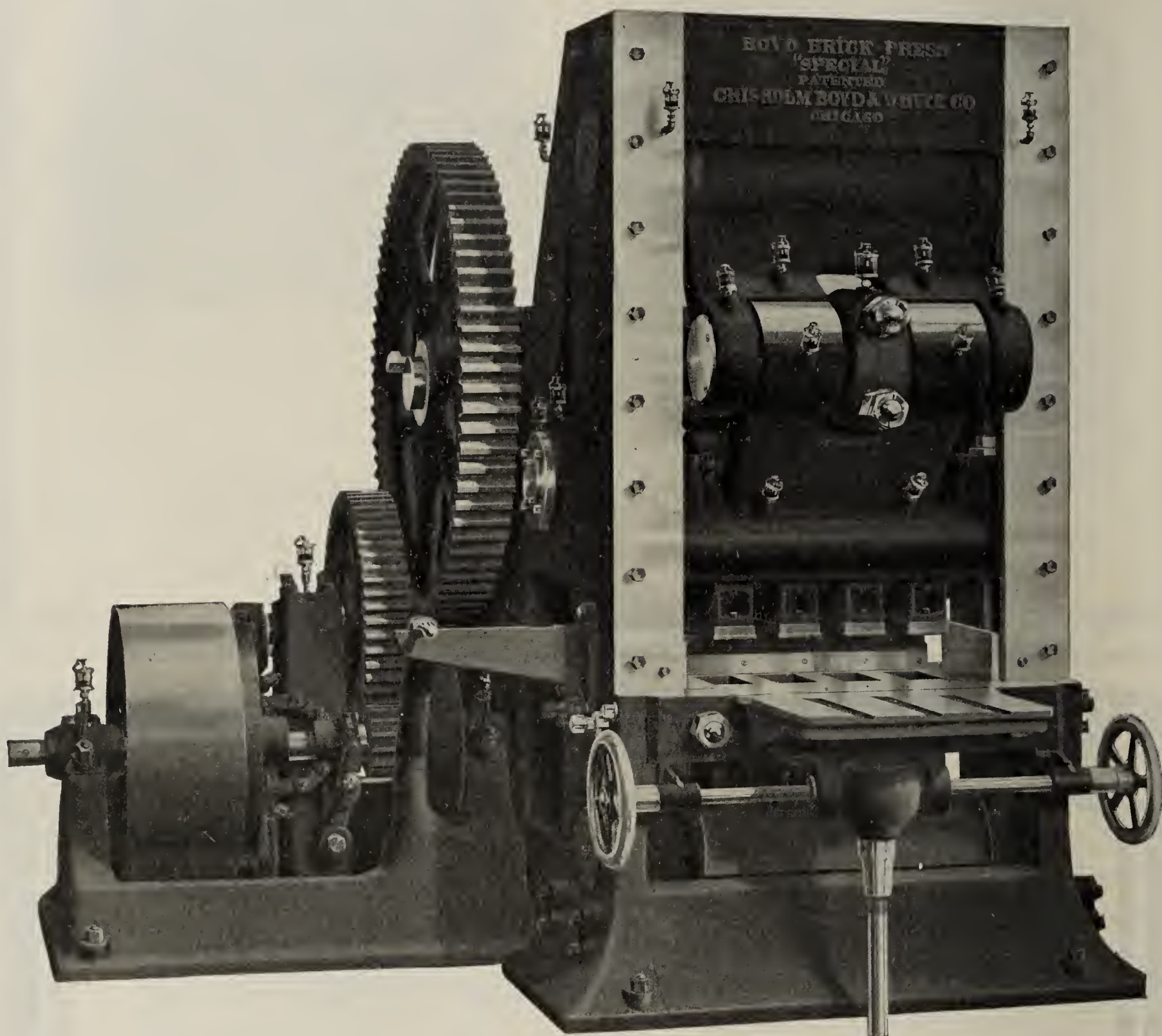
CHICAGO.



Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.

BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

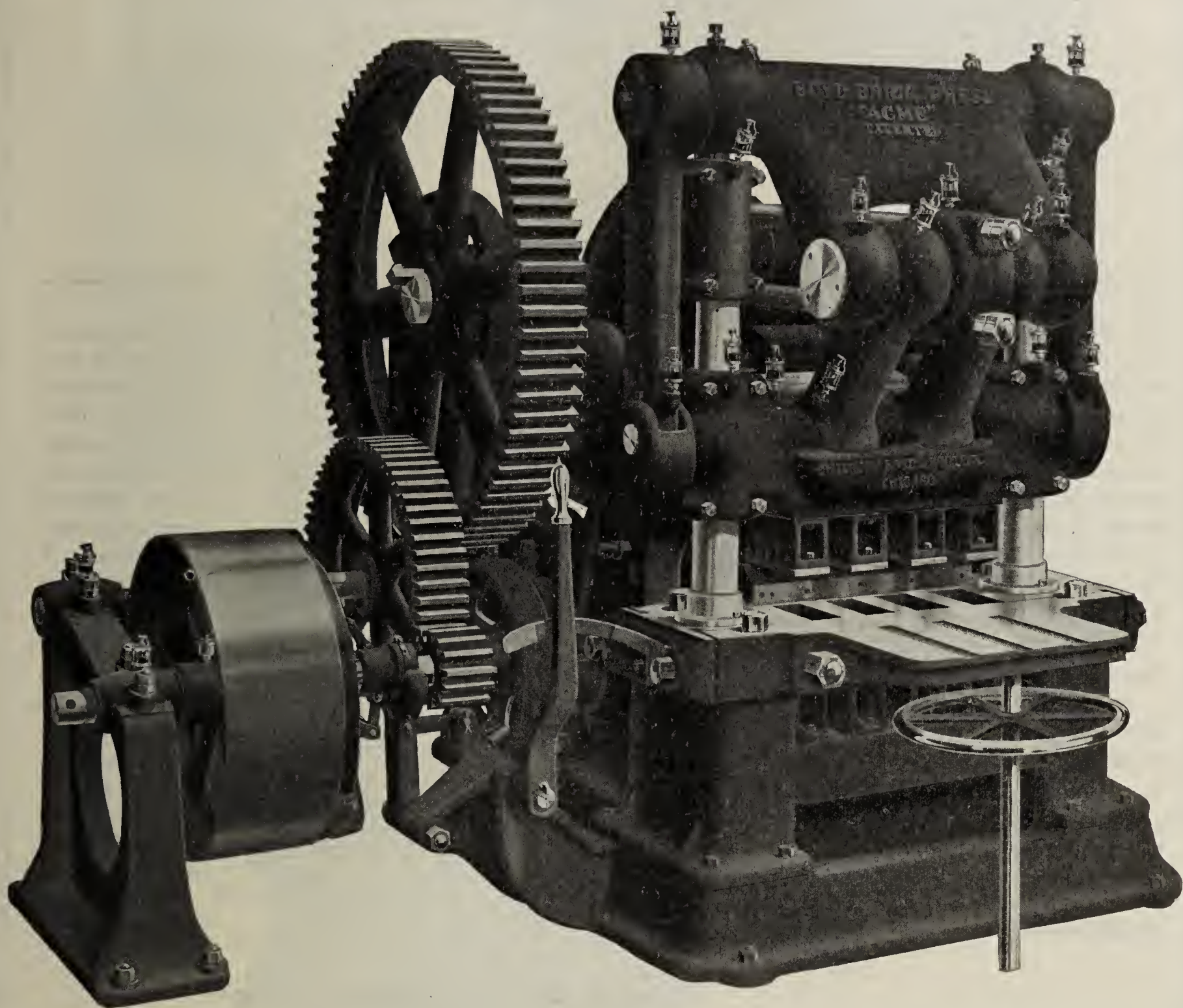
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

THE GRATH SPECIAL

Five-Mold Brick Press

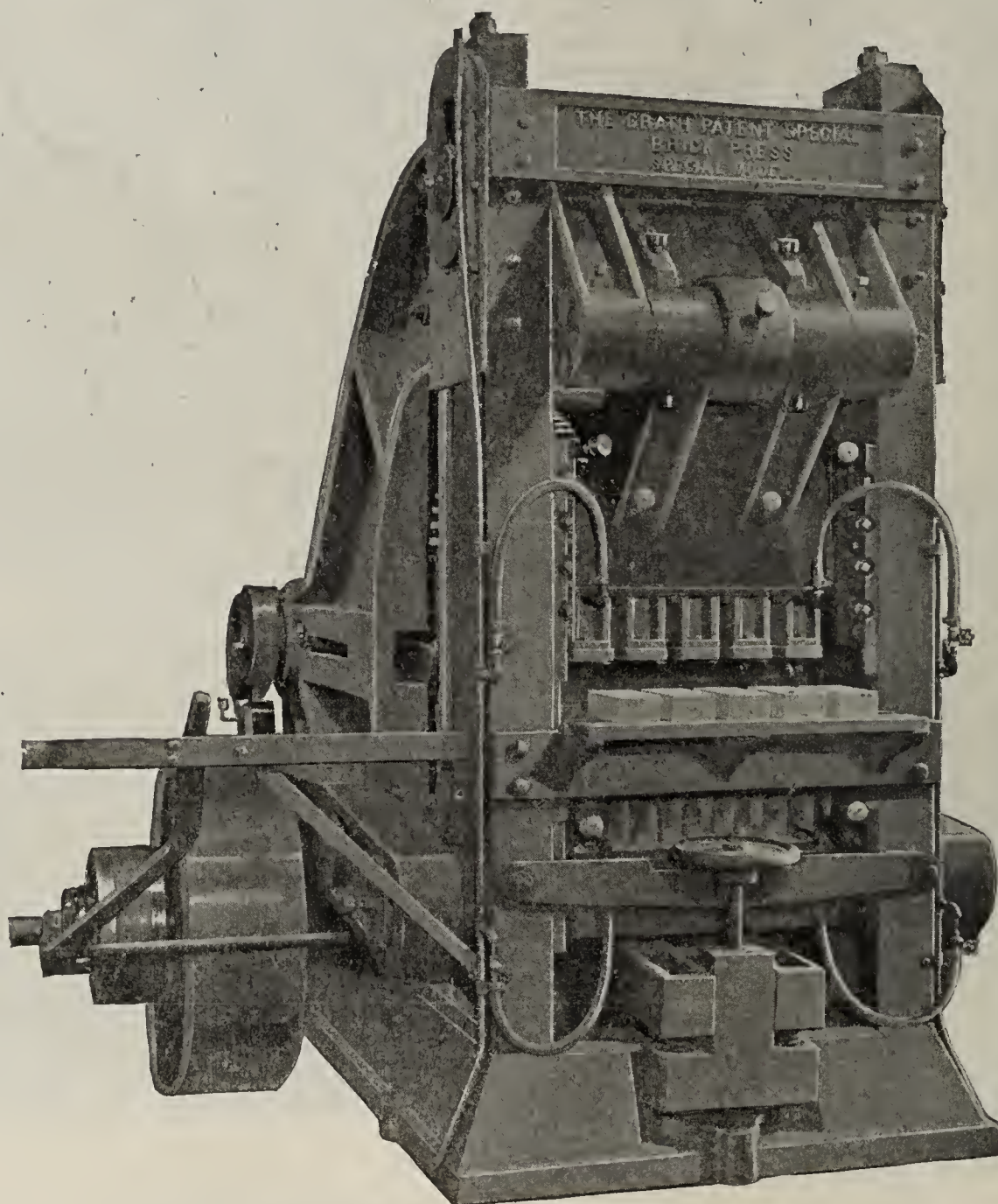
For Dry or Semi-Dry Clay Press Brick of Highest Grade

THE PRESS THAT MAKES THE PROFITS

You can not afford to make anything but the BEST brick; the kind that finds the market in dull times; the kind that gets the orders even though the other fellow bids under you. To make this BEST brick you must have BEST machinery.

That is why the **GRATH** has won its way into popularity.

The GRATH Special is built in two, three, four and five mold sizes.



It is built by experts. Embodies the most correct mechanical principles. Made from the best obtainable materials, and the best attention is given to every detail of its construction. It represents perfection in brick presses.

The **GRATH** presses equally from top to bottom. It is simple in construction and operation. Is strong, massive, indestructible and guaranteed against breakage.

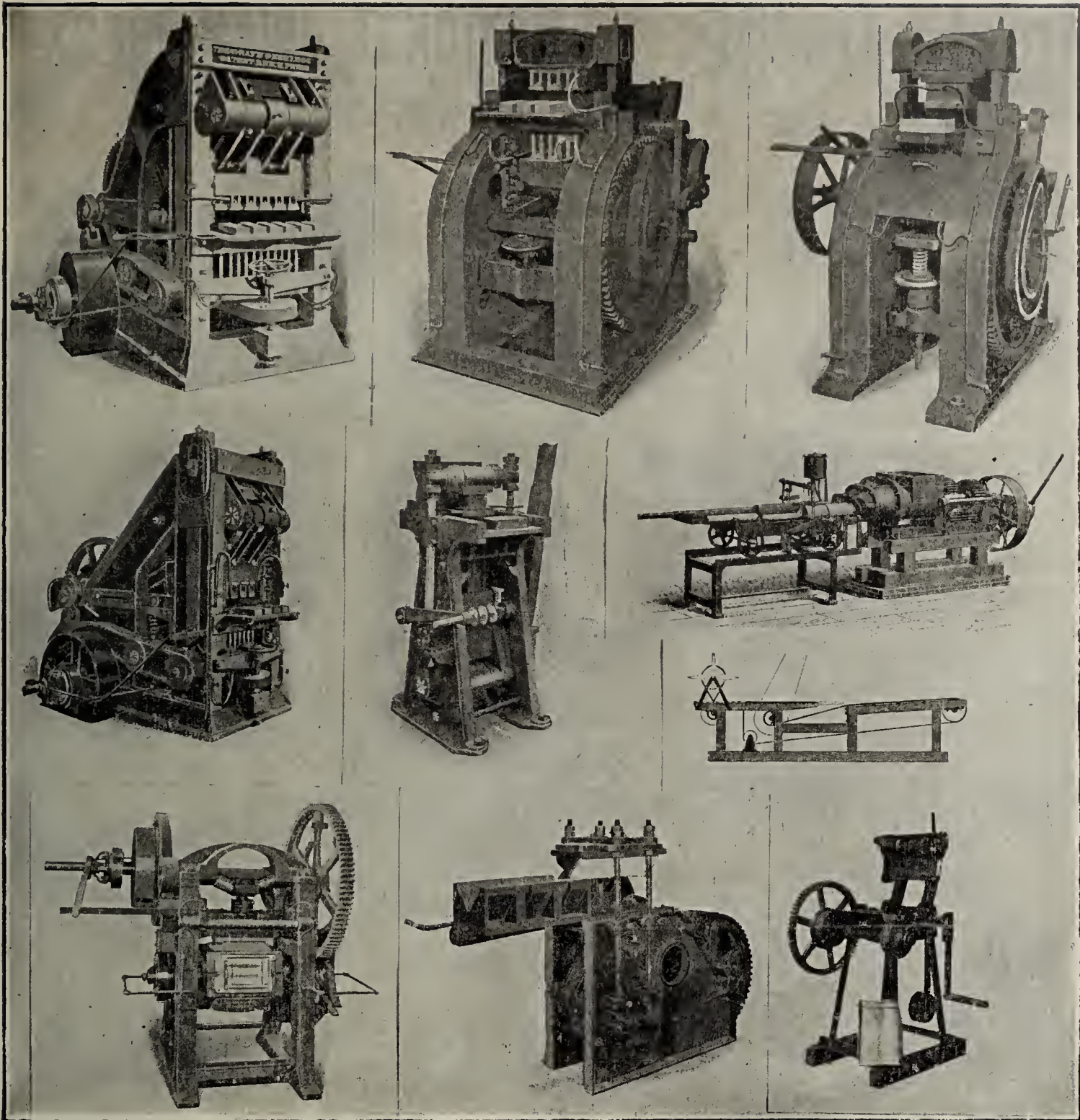
DRY PRESS BRICK

If you have suitable clay or shale, we can show you WHY and HOW you can make more money by making pressed brick than wire cut brick. If you are not sure send us a sample of your material and we will tell you.

Send for our "Treatise on the Manufacture of Dry Press Brick" and Catalogue.

Illinois Supply & Construction Co.,

CENTURY BLDG., ST. LOUIS, MO., U. S. A.



Press Brick and Roofing Tile Machinery. All Guaranteed Against Breakage and to Give Satisfaction.



Selling Agents for The
**SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be turned upward, downward or sideways. Most economical Steam or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

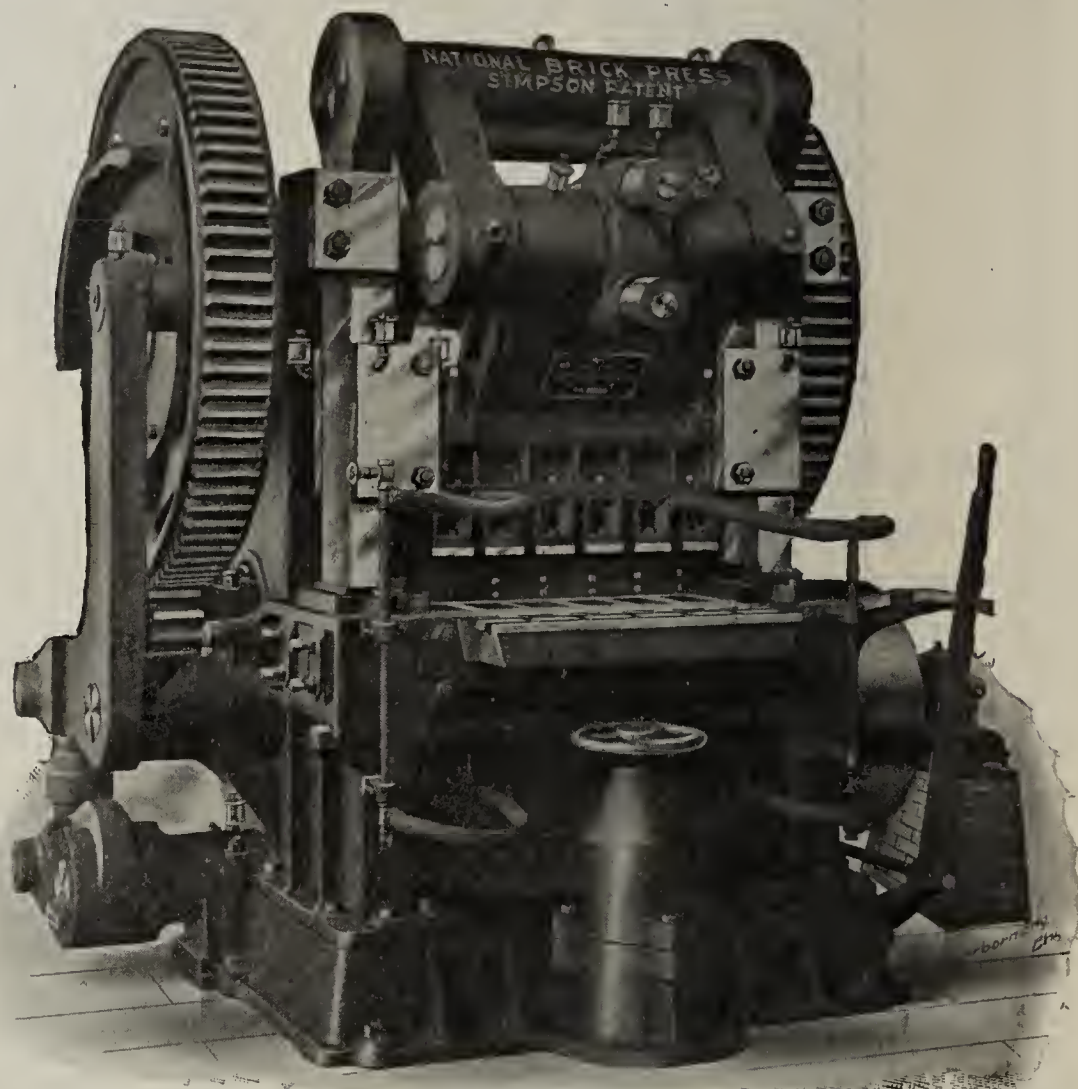
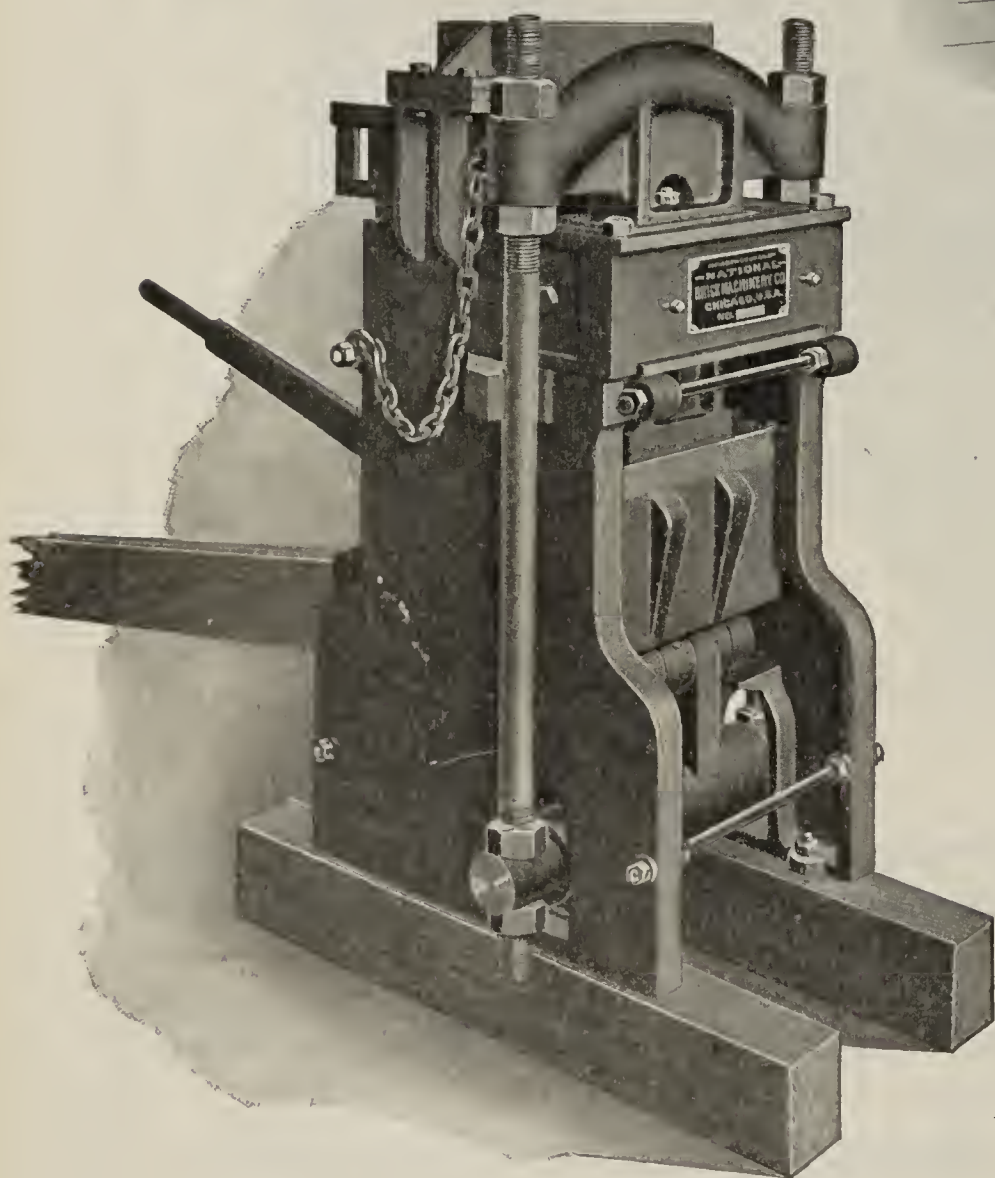
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

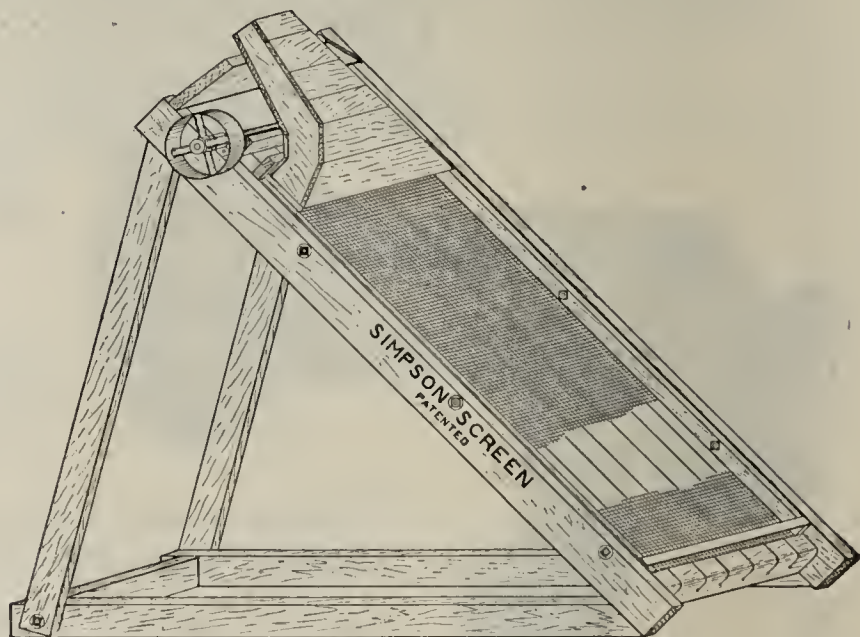
Write for prices on supplies of all
kinds for your yard.

Correspondence solicited.

SIMPSON HAND PRESS.



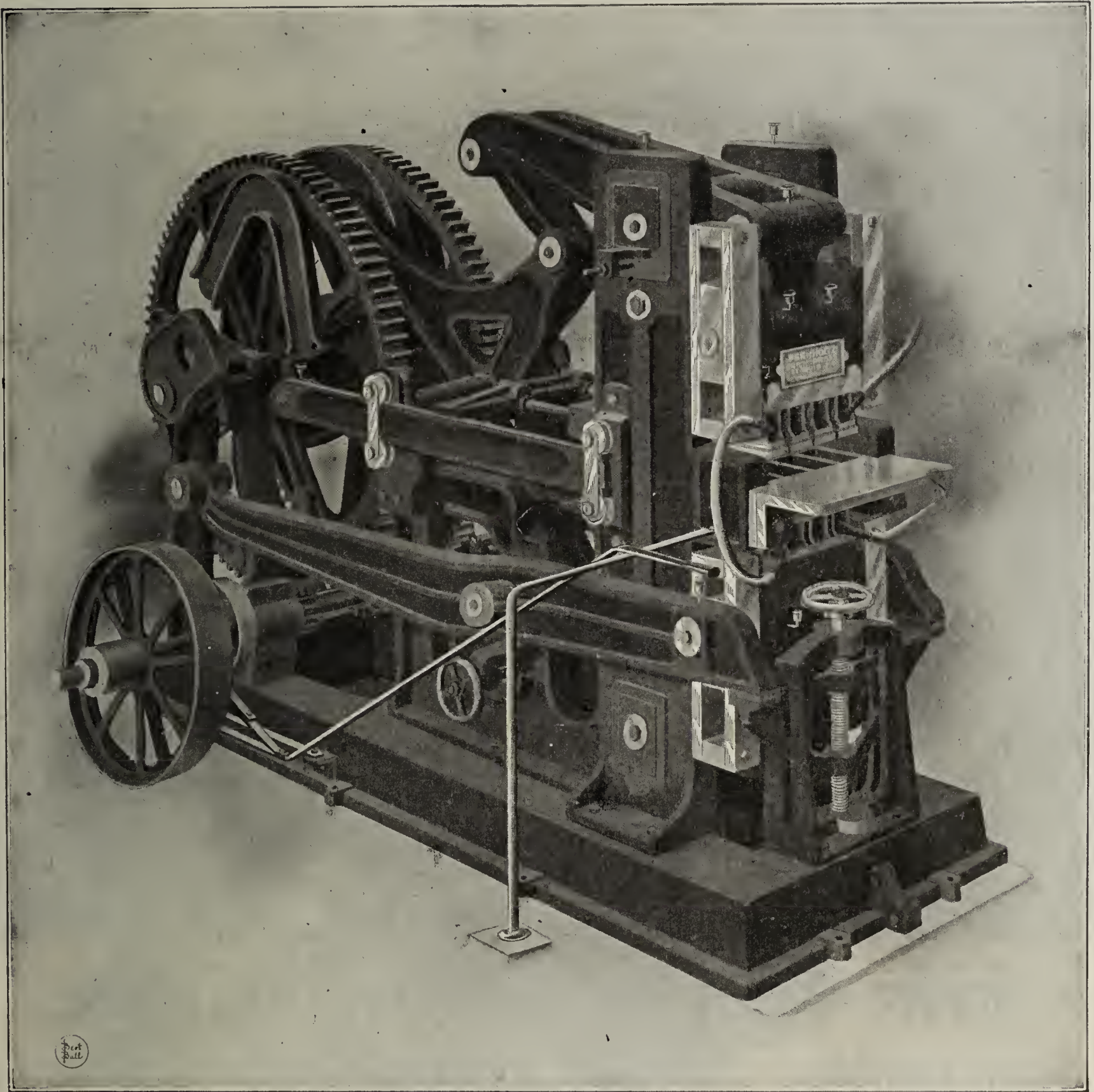
SIMPSON SCREEN.



National Brick Machinery Co.,
Chamber of Commerce Bldg. CHICAGO, ILL.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

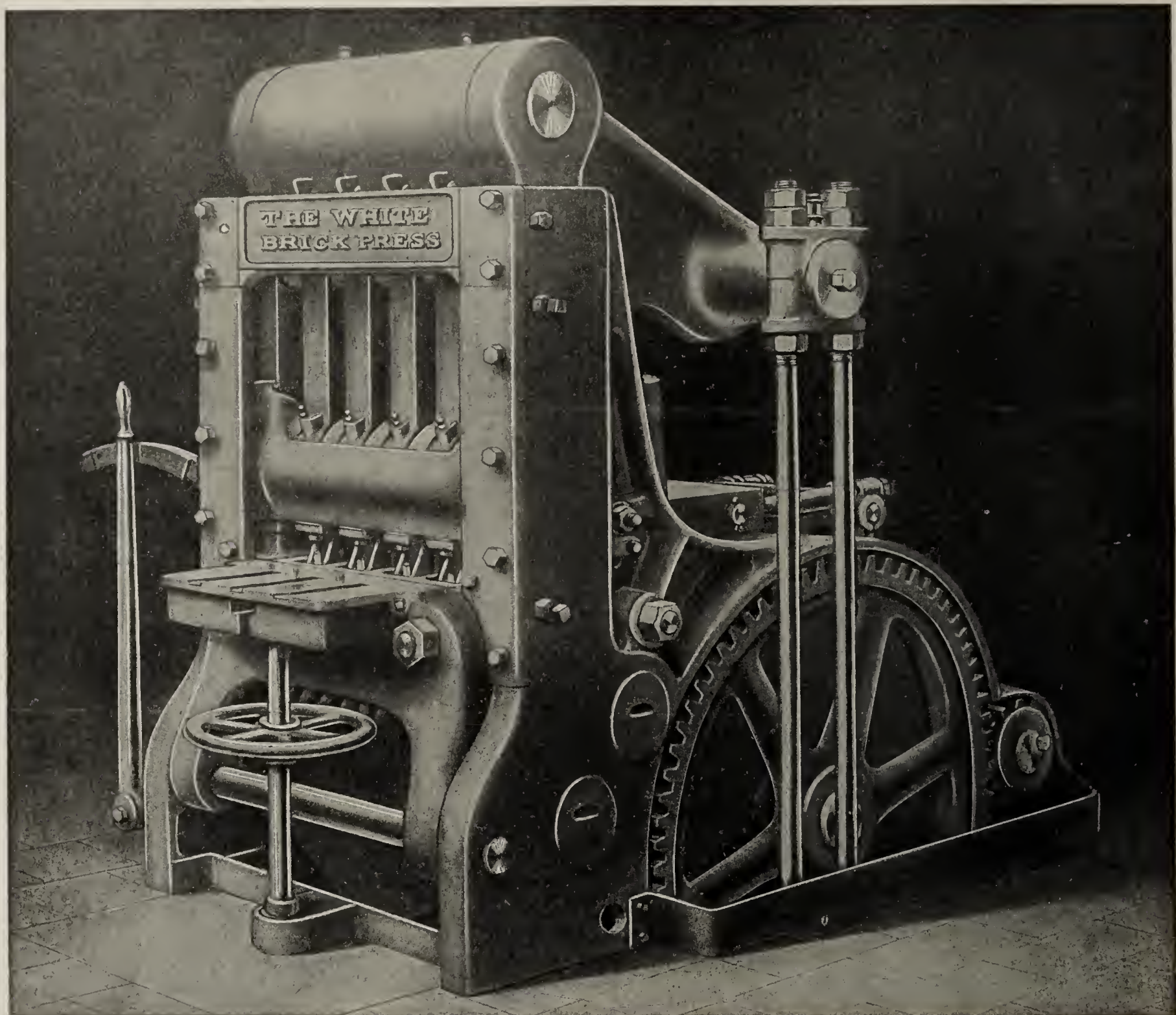


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

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**Always Worth More Than
You Pay For It**



THE WHITE BRICK PRESS.

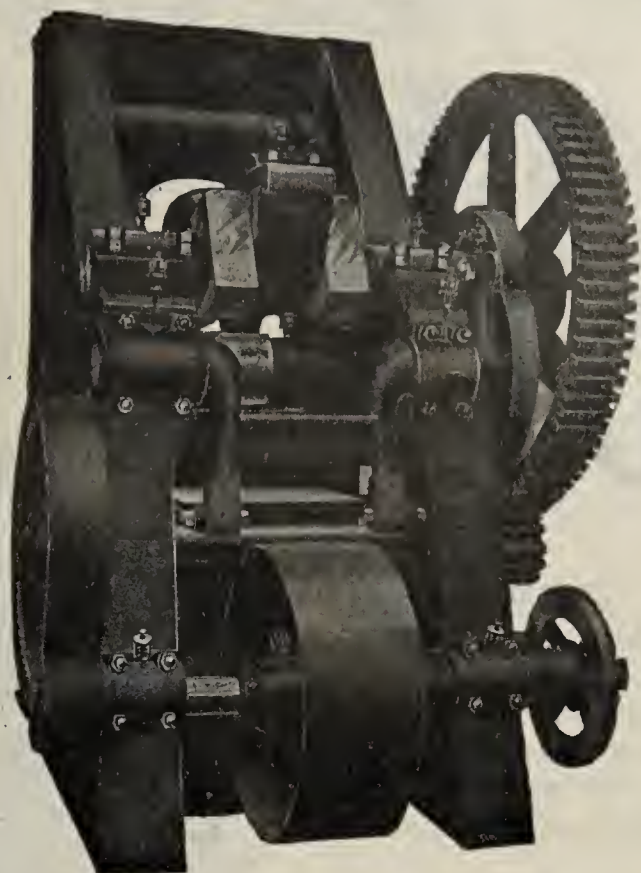
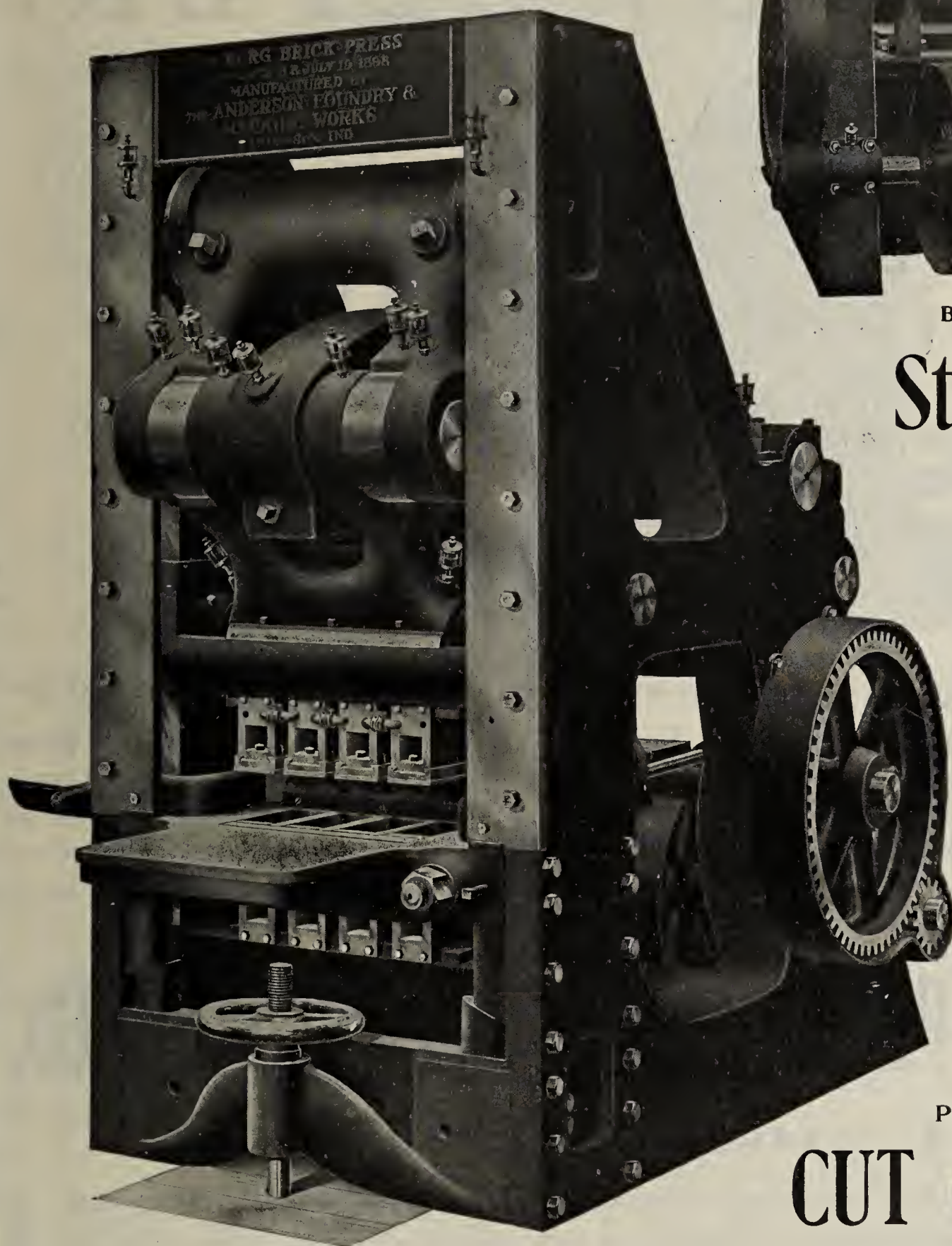
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

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Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



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Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

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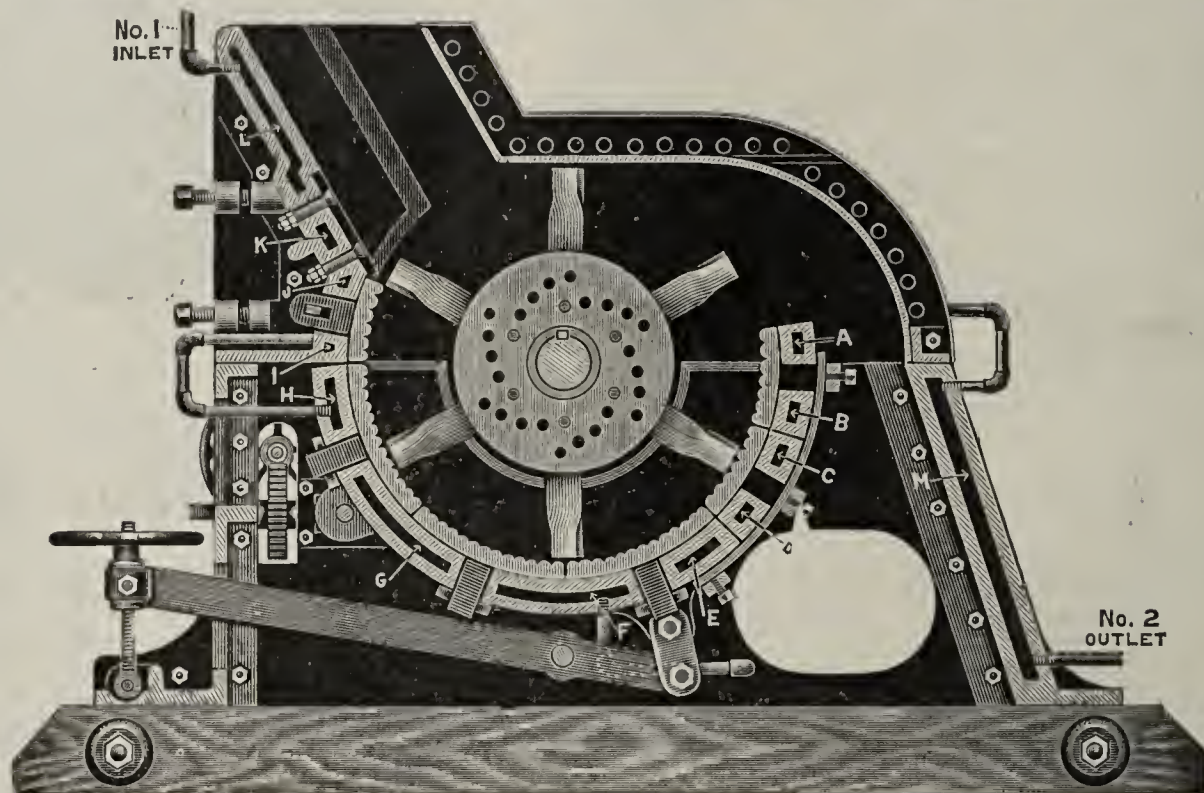
CUT GEARING

of either iron or steel, if desired.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,
ANDERSON, IND.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

San Francisco Office, 428 Monadnock Bldg.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO
Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untieing knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

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The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements."
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 "Why Vittrified Brick Street Pavements Are the Best."
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Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

PRESTON BRICK COMPANY,
 Manufacturer of

Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
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OXBLOOD RED FRONT BRICKS

DEVONSHIRES and REPRESSED
KUSHEQUA

Highly Vittrified by Natural Gas.
 Made from same shale as our well-known Kushequa Paving Blocks.
KUSHEQUA BRICK CO., Kushequa, Pa.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.
 Burned in Yates' Patent Kiln.
 Samples and Prices on Application.

Thurber Vitrified Paving Brick
 and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.
Arthur S. Goetz, Agent,
 Factory at Thurber, Texas. Ft. Worth, Texas.

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The Danville Brick Company,
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Danville Paving Block.
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Manufacturers of

High Grade Paving Brick.

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White—**CLAY YOU WANT**—Pink
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Paper, Furnace, Terra Cotta,
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Ready for shipment at all times lump or washed and
 bolted, free from grit.

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The Best
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Made

SIX FACTORIES
DAILY OUTPUT
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High Grade Vitrified PAVERS.

Samples Free.

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VITRIFIED PAVING BRICK,

Sewer and Hard Building Brick,

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Pres. and Gen'l Manager.

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

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Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

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Correspondence solicited.

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WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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BESSEMER BLOCK,

An unexcelled repressed shale paver.

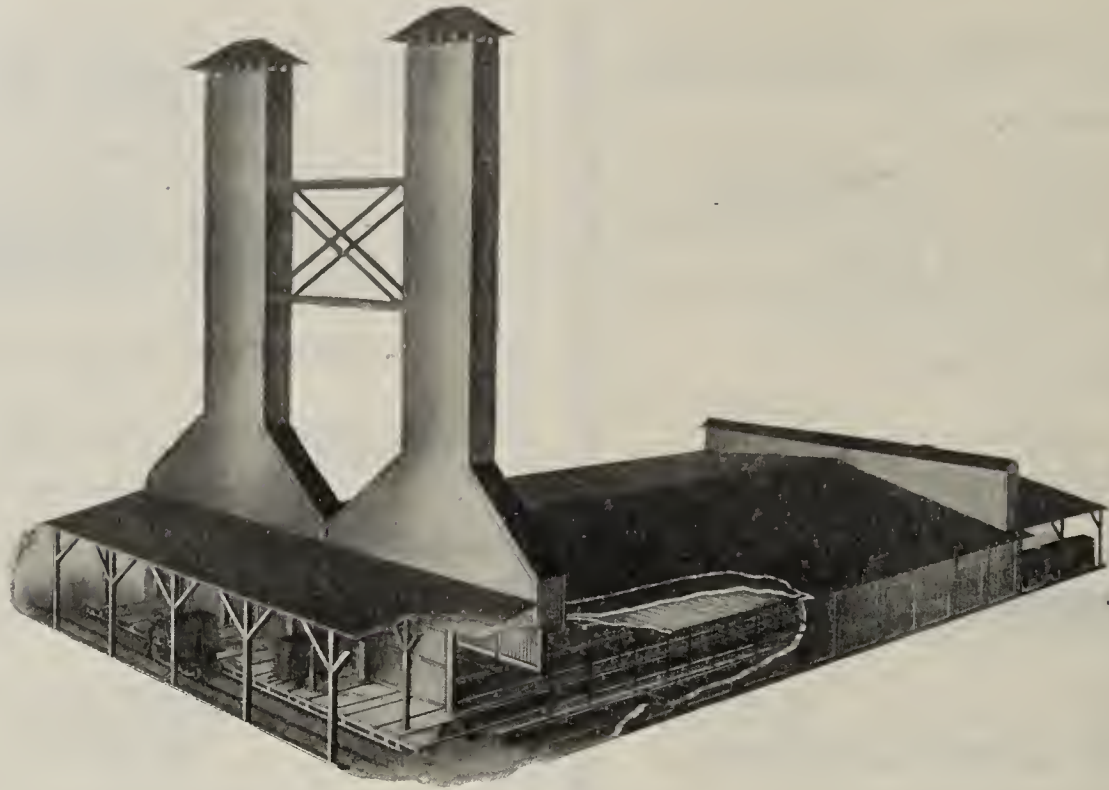
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HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

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One of the reasons why some brick manufacturers make more money than others is, because they use The Standard Drying System. Are you willing to read letters from users that PROVE this to be a fact?

Pretty nearly half of our new catalog is filled with such letters. They speak eloquently for themselves. If you get a copy of the book and read them, they will make you do some hard thinking—especially if your business is standing still instead of going ahead.

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647 South Pennsylvania St., Indianapolis, Ind.

Mention The Clay-Worker.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LI.

INDIANAPOLIS, IND., APRIL, 1909.

No. 4.

Written for THE CLAY-WORKER.

A NEW IDEA IN BRICK WORK.

BEAUTY AND STABILITY PRIME FACTORS IN DETROIT'S LATEST BUILDING FAD.

SOME VERY interesting examples of brick architecture, somewhat out of the ordinary, have recently been completed in Detroit. This style of bricklaying has attracted considerable attention among pressed brick men and has already found a name in the trade generally, being known as the "Detroit Idea."

Accompanying this article are shown a number of views of new brick buildings erected within the last year in this city and all embodying this new style of architecture. Its principal feature is in the use of the mortar, black in nearly every instance. The joints are made about three-eighths of an inch deep and the mortar is then raked out, leaving the wall with its peculiar appearance.

Chittenden & Kottling, architects, in the Penobscot building, Detroit, were the first to inaugurate this almost radical departure in bricklaying. This firm planned the elegant office building of the Detroit Stove Works, shown herewith, and specified the use of the mortar.

"We had considerable trouble with the mason, Martin Scholl,

Jr., of Detroit, when we told him just what we wanted done. Mr. Scholl at first thought it unsafe to lay brick in a mortar three-eighths of an inch thick and to then rake out considerable of this mortar. It had been the general custom, you understand, to make the mortar, for pressed brick, at best, not more than one-quarter of an inch thick and when this was raised to three-eighths it naturally caused some trouble.

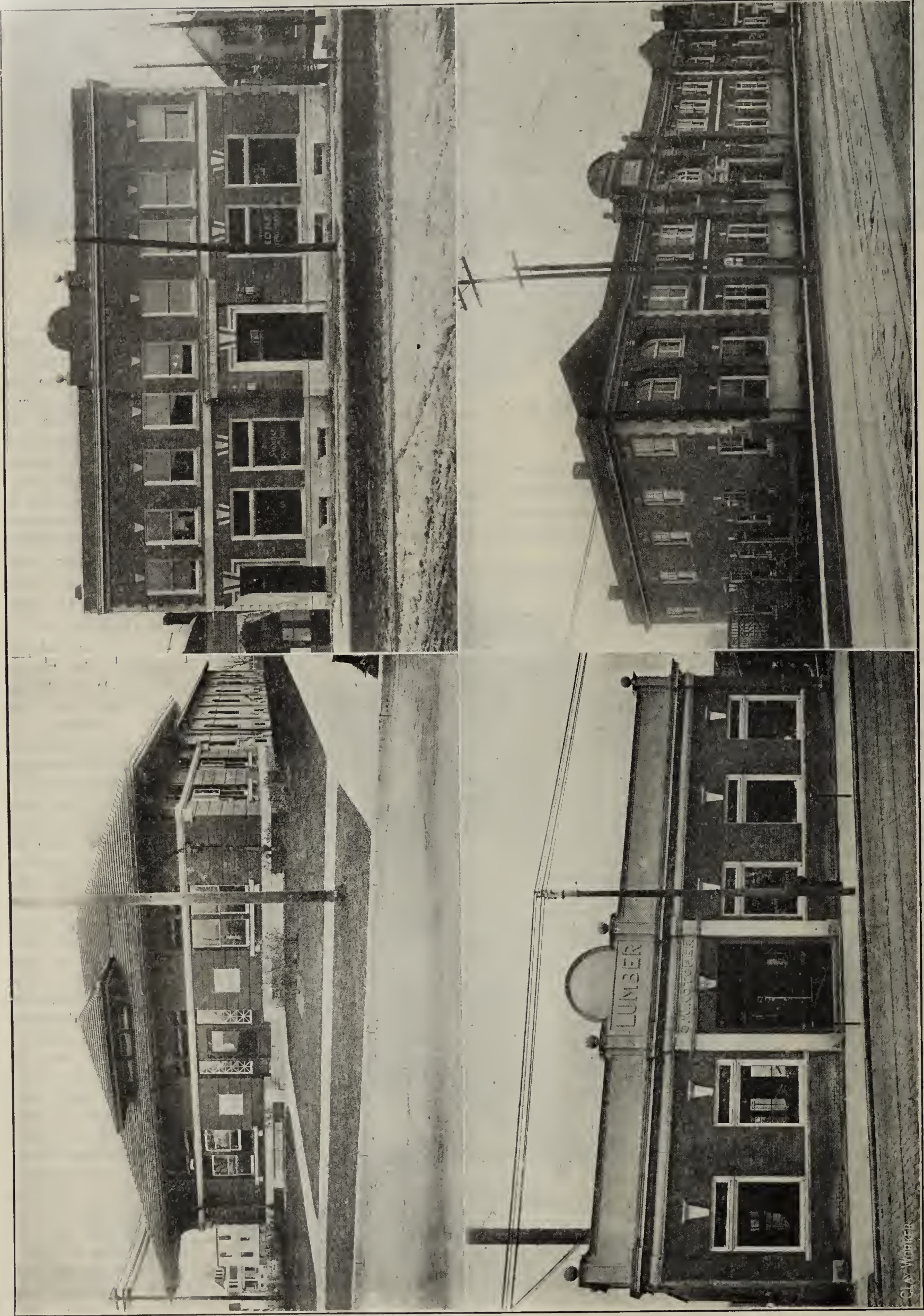
"Since the Detroit Stove Works building has been completed, many others similar in design have been erected in Detroit. Architects and builders from many other cities have also come to Detroit to see this new design and, altogether,

we can well say that we are very much pleased with our 'radical departure.' I should not advise, however, the use of this style of laying brick for any but office buildings. It does not seem, to me, suitable for residences and small structures."

Naturally, the erection of buildings under this style of architecture is a little slower than the regular method. Not more than four or five courses of brick can be laid at one time and the work must be done entirely around the building before the next series of courses can be begun. However, the architects have been fully repaid for their trouble in this connection, as the Detroit Stove Works building ranks as one of the handsomest of its kind in this city. It is situated on Jefferson avenue, near the Belle Isle bridge crossing, and every year attracts a great many



Beautiful Office Building of the Detroit Stove Works, Jefferson Avenue, Detroit, Mich.



A FEW EXAMPLES OF THE "DETROIT IDEA."

1. Detroit United Railway Power Station, Highland Park.
2. Home Savings Bank, Gratiot Avenue.
3. C. W. Kotcher Lumber Office.
4. General Offices of Detroit Stove Works, Fronting on Jefferson Avenue.

visitors. The Detroit Stove Works building was completed over a year ago. Since then the Detroit United Railway has constructed a handsome power storage station on Woodward avenue, in Highland Park, and a number of smaller office buildings have been erected in various parts of the city. They have all followed the scheme of the Detroit Stove Works building, although different architects have been employed.

Views of the various buildings in Detroit, types of this kind of brick work, are shown herewith. The office of the Kotcher Lumber Company has just been completed and shows this type of brick architecture in an entirely different style of building. Nevertheless, this building, small as it is, has attracted much attention, and has been the subject of many favorable remarks.

From views expressed by many builders it is probable that

Written for THE CLAY-WORKER.

THE SELLING END OF THE BRICK BUSINESS.



BRICKMAKING, LIKE any other manufacturing business, has two principal departments—making the product and selling it after it is made. We might say that these two branches are separate and distinct trades. Fortunate is the yard that is under a management that has ability in both sides.

THE CLAY-WORKER has, from time to time, published valuable articles on the making and burning of brick. These articles have been a direct source of profit to many brick-makers, and as the ground has been pretty well covered, the writer feels that it is not out of order to say a little



Attractive Brick Building, Southeast Corner Dubois and Gratiot Avenue, Detroit, Mich.

the "Detroit Idea" will be copied by other cities and will become a permanent factor in the erection of many structures.

PITTSBURG FIRM TAKES OVER VANPORT PLANT.

The Ohio Valley Brick Company, Pittsburg, Pa., which was recently reorganized by W. A. Buck and A. J. Kuhns, located in the Builders' Exchange, Pittsburg, has formally taken over the large brickmaking plant that was formerly conducted and operated at Vanport, Pa., by the Speer Clay Manufacturing Company. The new owners will place a high-grade mottled face brick with a buff background. Since the plant was taken over a trial kiln was run off, and was most satisfactory. As soon as practicable the entire plant will be placed in operation and operated about to its capacity.

something about the "selling end." The following experiences are based on facts such as many of us have experienced. Of course, the names are fictitious.

Windee & Co. are prominent distributors of face brick in their state. Honesty & True build a modern, up-to-date brick plant, costing around \$100,000. They had burned a kiln or two with results beyond their expectation. Their proposition was a good one. All they had to do now was to find their market. In looking over several journals devoted to building, they noticed in several places that Windee & Co. advertised in large type. They boxed up a liberal supply of samples and expressed them to Windee & Co.

Shortly after this they had a visit from Mr. Windee. He was a large, impressive man, one of the kind that knows how to wear a \$60.00 suit of clothes and has his speech well learned. He explained how Windee & Co. had the best

organization of trained salesmen in the field; how strong his connection with leading architects was, and indirectly led Honesty & True to think that it would be useless for them to attempt to introduce a new brick in his state except through Windee & Co. To make the story short, Mr. Windee went home with their agency in his hand. The price he agreed to pay was considerable less than Honesty & True had expected, but they realized the value of a connection with Windee & Co., and felt satisfied.

Every mail brought letters from Windee & Co., urging Honesty & True to get out all the brick they could. A few orders came and with them plenty of encouragement. Matters went along this way until fall. Honesty & True had a big stock. Again Mr. Windee appeared on the scene. He had his Speech No. 2 ready. He complained of business generally—competition had been keen, prices had been low. He had a place where he could use half a million brick, but the price would have to be very low. Honesty & True had the brick and needed money, so they finally sold him the half million brick at about \$1.00 per thousand less than it cost to make them. After closing this deal, Mr. Windee assured them that he had things shaped up for next year. The estimates he had out would take everything they could make, so, after a few hours' talk, he closed up a deal for their agency the following season.

Spring came and with it a few orders from Windee & Co.—very few. Things gradually changed. Windee & Co. commenced to complain about the quality of the brick. Every settlement had the profits cut off by deductions for shortage in count, bad sorting, chipped edges, etc. Toward the end of the second season, Windee & Co. settled their accounts each month with notes. Honesty & True didn't like this, but realized that the notes might be better than nothing. At the end of the season Honesty & True paid Windee & Co. a visit. They found Mr. Windee indifferent. They still held his notes for quite an amount and finally settled up, turning in the notes for 80 cents on the dollar.

Honesty & True were done with Windee & Co. On figuring up their transactions they found that they had filled a few small orders at a fair price; that they had been talked out of a half a million brick at less than cost, and that the deductions on accounts and allowances on the notes had amounted to a nice sum.

On further investigation they found that Windee & Co. held another agency for a brick similar to theirs, an agency that had to be treated right, so they awoke to the fact that Mr. Windee's whole purpose had been to keep them out of his territory. They were wiser, but they had lost two years' business.

Bright & Sharp started in to make pavers. Mr. Windee came to pay them a friendly visit—just stopped off between trains on his way from New York, etc. Incidentally, Bright asked Mr. Windee something about the paving contracts about to be let in Mr. Windee's city. Mr. Windee had never sold pavers because he had not been able to find a paver on which he cared to stake the reputation of Windee & Co. However, he was personally acquainted with the city officials, he liked Bright's paver, and if he could be of service to them he would be glad to put in their figures. This seemed like an act of Divine Providence to Bright & Sharp. They at once named their minimum figure to Mr. Windee and told him they would allow him a liberal commission. Mr. Windee went his way assuring Bright & Sharp that he could get the business. The contract didn't come. They afterward learned that Mr. Windee's object in visiting them was to keep them away personally. He had a deal with the other fellow and got his commission there.

Mr. Thompson built a house; bought the brick from Windee & Co. By the way, they were Honesty & True brick. Two years later, Mr. Thompson wished to build an addition to his house. He was informed by Windee & Co. that they

couldn't duplicate his brick because the firm that made them was out of business. About this time Mr. Thompson meets Mr. Honesty and finds, to his satisfaction, that he can get the brick he wants.

Windee & Co. sell brick made by Clay & Co. They send the factory an order for a large amount of No. 2 brick of a certain color, stating that they are to be used in a school building, and that it will be to the advantage of Clay & Co. to send good seconds as there will be a lot of this school work. Windee & Co. are paying Clay & Co. \$14.00 per thousand for firsts, and \$9.00 for seconds in this color. Freight to the job is \$6.00 per thousand.

Clay & Co. ship the brick. A few days later the contractor on the job arrives at the yard in anything but a pleasant humor, opens his grip and takes out a first quality brick. He says it is one of the samples submitted by Windee & Co., and that shipments are not up to sample in quality.

Clay & Co. see the whole situation. They understand why Windee & Co. sell so many seconds. On investigation they find that the brick for the school job were sold for \$24.00 per thousand, netting Mr. Windee \$9.00 per thousand.

Now I know you are ready to ask how the concern of Windee can exist. I'll tell you. I know because I have had a chance to study them. They pick a few agencies and treat them right. This insures them a certain standing they must have. On the brick made by these two or three concerns they make a small profit. They pick up the other fellows, squeeze them as long and as hard as they can and then throw them away.

The writer does not wish to be understood as complaining about sales agencies generally. There are good ones as well as bad ones, but I do think a bad selling connection is one of the worst things a yard can have.

Whenever a man comes after your agency, telling you that he is a personal friend of every prominent architect; that he has made it his business to take care of architects and contractors, and tries to make you believe he holds the brick business of a certain city or state in his hand, make up your mind that his chief asset is noise, and sell your brick to the fellow who has less to say—the one that never intimates that he is "in" with the prominent architects.

Windee & Co. exist and I imagine there are more like them. I know of no less than ten brick concerns, worth from \$50,000 to \$200,000 each, that Mr. Windee has bluffed out of from one to three years' business in his state. I do not mean that the brick concerns were all in his state, but that his state was naturally a market for them.

I have known Mr. Windee for several years, and am sure that he has never been able to show anyone a statement containing legitimate assets of \$5,000. MUDDY SHALE.

Silica Brick Manufacturing.—When the silica brick do not show much toughness, and have only a small ring, the defects of their manufacturing can be various. In the first place the mixture does not have enough lime to bind the body, provided, of course, that the machine has enough pressure to make first-class brick. It is a wrong idea to use a paste of flour and flourspar at the same time. The flour paste will only make the particles stick in green and dry state, but as this burns out in the kiln, it has no effect on the binding power after the brick have been burned. The flourspar, however, will flux at high heat, and will flux the silica or quartz particles together. It is necessary to dry the silica very fast, and brick should be perfectly dry in twenty-four hours. It is not very good policy to make a large amount of prepared material ahead, as the aging has bad effect on the brick. If an addition of lime will not produce the desired effect, a fire clay with low vitrification power can be added with the lime, but both ingredients should not be more than 5 per cent. of the total mixture. The heat at which the brick should be burned should never be low, and a heat between Cone 12 and 13 is the lowest to give the desired results.—Tonind. Z., No. 110, 1908.



ADVANTAGES OF TILING.

UNDERDRAINAGE is a lasting benefit to almost all soils, especially in humid regions, and land that has been well underdrained with tile and afterwards put into good husband-like cultivation, has frequently paid the cost of drainage by the increased crop yield in a single season, with the assurance that each added year will do the same. Underdrainage not only carries off the surface water, permitting early preparation of the soil for planting and seeding and early cultivation, but also provides for the entrance of air into the soil and the escape of the deeper surplus water, allowing the air to enter the soil through the drain.

This air coming from below makes the plant food in the underlying strata of subsoil available for the growth of the crops, and also promotes soil decay, by which deep-lying plant foods are taken up by the feeding roots of the plants.

The roots of plants growing in soil having only surface drainage are confined in the top soil and are easily injured by drouth or excessive wet weather and can not penetrate deeply for a food supply, and the excess of water below the roots excludes the air so needful for plant life and growth.

The roots of growing crops will feed most where the air is present in the soil, hence the lack of drainage will, in soils kept constantly in use for crop growing, soon impoverish the top soil, and only a small yield can be expected because the plant feeding area is limited.

The deeper the crop roots can penetrate for food with favorable conditions provided for by sufficient drainage, the heavier will be the crop yield.

In farming land it is desirable to have crops set and grow early in the season. It is injurious to the soil to work it when wet, and, besides, a wet soil is cold and the germination of the seed and the growth is retarded.

The stirring and working of the soil does it an injury, to the extent that it may be years before it recovers from it. It is so much better every way to underdrain sufficiently to secure the entrance of warm air to warm up the soil and thus secure early germination and growth. To do this the soil should be underlaid deep with drain tile large enough to carry away the excess of water quickly.

The deeper the tile, 3, 3½ or 4 feet, the further the drains will draw and the greater will the soil be benefited by the aerating effects. We have named 3½ or 4 feet as about the right depth to lay the drains, yet 5 or 6 feet deep is better, if there is no hard pan and a good outlet can be secured at the depth named.

In the application of stable manure and other organic matter to the surface soil in the early spring season, the decay will be greatly hastened by the warmer soil conditions, and the consequent waste of fertility occasioned by the surface washing of the land will be prevented by the underdrainage and the vitrification that must go on to liberate the plant food will be greatly facilitated. Of a truth it can be said that tile drainage, well done, is the base to build upon for the best soil conditions.

DRAINAGE AND ALFALFA.

Joseph E. Wing, of Ohio, in an address before a farmers' institute, said: "Don't ask me if you can grow alfalfa in a wet piece of ground; you can't do it. We have laid eighteen or twenty miles of tile drains to make our farm dry enough, and we have only 320 acres. The land must be dry."

WHAT WE WANT.

Looking forward to the future of our country, we want, and must have, smaller farms and better farmers—farmers who will see to it that all of their land that needs underdrainage is drained; who will see to it that the work is intelligently done. Then we want better tillage and better tillage will be easy after the land is thoroughly tile-drained. Then we want to see the average of crop productions brought up. At the present time our average yield of wheat is 13.9 bushels per acre; in Great Britain, 32.2 bushels; in Holland, 34 bushels. In both Great Britain and Holland they have been draining their land for centuries. We want to see the work of drainage so advanced in this country that the average yield of wheat will go up from 13.9 bushels to 25 or 30 bushels. It has been done in this country by a few men, like John Johnson and others, growing 40 and 50 bushels per acre on tile-drained land. And it is safe to say that what has been done can be done again with like or better conditions. A doubling of the wheat crops, an increase of 15 or 20 bushels in the yield of the corn crop, and an increased yield of other crops means a total of hundreds of millions of dollars and a tide of prosperity that we have not yet experienced and will not until we lay deep the foundation for the best soil improvement. We want to see this better condition of things, and want to see it very much. And if it comes it will have to come through better drainage and a better cultivation of the soil.

SOME INDICATIONS OF THE NEED OF DRAINAGE.

Mr. C. F. Brown, a drainage engineer, writing of the need of drainage for irrigated lands, says: "An excellent rule, adopted by Mr. Matthew Baer, is, 'Never allow wet spots to appear the second season.' The same rule, if applied to all lands which are in cultivation, would lead to more thorough drainage than is generally supposed to be necessary.

"So much for wet spots which come this spring. Our immediate concern should be for those 'wet spots' which came last year and the year before. It is not hard to tell even now where these wet spots are. They fail to dry, even though the weather is fair and the wind blows and the surface otherwise is dry enough to plow. After the breaking of the land and the planting is done, the corn blades will be yellow and with a little dry weather the blades will curl up. When such indications appear, it is high time to learn something about the conditions below the surface.

"It is surprising how few farmers ever think of digging a few holes in the ground, even confronted with the most certain indications of seepage and water logging. Test holes will reveal just what difficulties will be encountered if drainage is attempted. In many instances they will show to what depths drains must be put to carry the water away successfully. If a clay loam is underlaid with a strata of sand carrying considerable water, the drains should cut into it; if, on the other hand, the soil is underlaid by hard pan or impervious clay, there is no need to cut through it.

"In many instances the open ditch is chosen, as one may think, of necessity. While this method has the advantage of cheapness of first cost and may be made from no outlay of cash, it is always more costly in the end. The greatest objection to open ditches in this latitude is that they are likely to partially fill by sliding, due to frost and other agencies in the early spring, when they should be most effective. They require considerable land and are liable to promote the growth of weeds, briars and bushes, and are likely to become an 'eyesore' to the farm and a great inconvenience in using machinery on the farm, to say nothing of the waste of time and labor in breaking and in the cultivation of the land.

"Covered drains, though expensive to construct, are the most efficient and satisfactory. An enterprising farmer who puts his open drains underground and finds that the advantages of so doing are so satisfactory, has every reason to congratulate himself for his enterprise and good sense in progressing with the undertaking."

Written for THE CLAY-WORKER.

BURNING PAVING BRICK WITH NATURAL GAS AT COFFEYVILLE, KANS.



STANDARD VITRIFIED Brick Company, of Coffeyville, Kans., was organized in January, 1905, by business men of St. Joseph, Mo., who recognized the value of natural gas as a fuel and wanted to make use of it. Like so many others, they chose the brick plant as the best proposition. The officers of this company now are: Huston Wyeth, president, St. Joseph, Mo.; L. C. Burnes, vice-president, St. Joseph, Mo.; L. C. Hamilton, secretary, St. Joseph, Mo.; W. H. Shepard, treasurer, Coffeyville, Kans., and George May, manager, Coffeyville, Kans.

The paid-up capital of this company is \$70,000, and, like nearly all the other Kansas gas belt brick plants, they originally had a good deal more cash than experience. They have been fortunate, however, in getting George May in as manager, and thus balancing up the establishment, as his experience is putting the capital of the company to good use.

The original selection of the site for this plant was especially fortunate, as Coffeyville is in what might be termed the center of a vast gas-producing country, and the supply

with a plant having a daily capacity of 100,000 paving brick, or 75,000 paving blocks, and since that time they have been entirely unable to take care of the demand for their output. Their change to paving brick was especially opportune, for the demand for pavers the last year was enormous, and instead of having to get out and find a market for their product, the market has really been in search of their product. The experience of the past year seems to only be the beginning of this condition, as the future seems to have even a greater amount of paving in sight, especially in the territory which it is easiest for this plant to supply.

To the present time it is stated that Oklahoma brick-



General View of Shale Quarry, Showing Incline and Bridge to Machine Shop.

at hand is sure to last for a long period. The wells now being used are showing no signs of any decrease in the amount of the flow, and many wells have been drilled and are now capped and standing idle, because they are not yet needed. As soon as there is any decrease in the flow of wells now in use, these capped wells will be opened up and put into use. This gives an assurance of plenty of gas for all purposes in this particular section of the country for a long period to come, even without any more new development, and new development work is going on all the time.

Besides the gas, which is a big item in a brick plant, entirely covering the fuel question, Coffeyville has a fine grade of shale for the manufacture of a good, tough paving brick. This shale is plentiful, but the Standard Vitrified Brick Company located its plant in just the right position to get a bountiful supply, and to use gravity to bring the shale cars the greater part of the distance from the pits to the plant. They really have an entire mountain of this shale, and are now just cutting off the top of it, using both a steam shovel and hand work in mining it.

This plant turned out its first brick in July of 1905, the capacity then being 100,000 building brick per day, and the plant was devoted to the production of building brick until September, 1907, when the work of remodeling was begun, and they were again ready for operation in January, 1908,



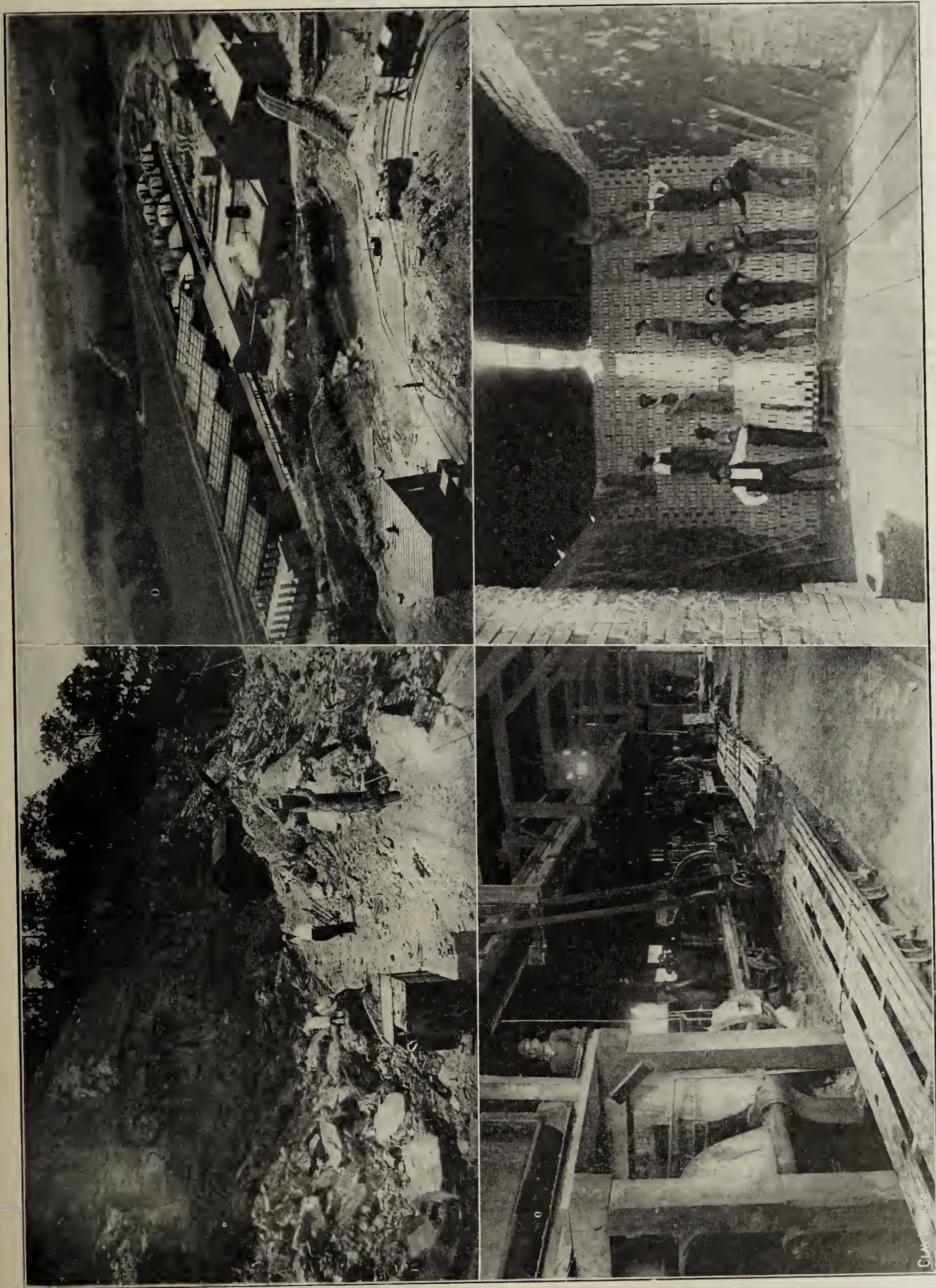
Shale Pit of the Standard Vitrified Brick Company's Plant at Coffeyville, Kans.

makers have been unable to find any large deposits of shale which are best for making a paving brick, and the same complaint comes from Texas, and as Coffeyville is just across the line from Oklahoma, it goes without saying that for direct shipment to this great section of the country it holds a considerable advantage over competitive points in Kansas.



Yard Office, Machine House, Power Plant and Dryer of Standard Vitrified Brick Company.

especially when its railroad facilities are concerned, for the plant of the Standard Vitrified Brick Company has connection with three different lines of railroad—the Missouri Pacific, the Atchison, Topeka & Santa Fe, and the Missouri, Kansas and Texas, and all of these lines cover big territories in the two states to the south, and give connection with everything in that direction. There is another feature to this railroad connection which is particularly agreeable to the plant located on competitive lines, as this one is. There is very rarely any trouble about getting all the cars need for making shipment. If the plant was located on a single line the railroad would feel that the orders could



SCENES IN AND ABOUT THE STANDARD VITRIFIED BRICK COMPANY'S PLANT, COFFEYVILLE, KANS.

1. Steam Shovel at Work in Shale Pit.
2. Birdseye View of the Plant.
3. Machine Room, With Auger Machine, Cutter and Table
4. Interior View of One of the Updraft Kilns.

wait their pleasure, but when they know there is a connection with other lines, it makes the traffic department of the railroads feel that if they do not have cars on hand when needed that they will lose business, for shipments can be made on the other lines.

Oklahoma and Texas as a field for paving brick could hardly be beat at this time, and the demand is just beginning. In Oklahoma the towns have been waiting for statehood before development really struck them. Many were handicapped up to that time because they could not issue bonds for improvements. Now they are making up for lost time by doing a great amount of paving, and a great deal of it is with brick, that being the favorite material in this state. In Texas the cities are just beginning to use a large amount of brick for paving purposes, and it has been a question only of being able to get the material for some time.

Besides Oklahoma and Texas, where the location of this plant gives it an advantage in shipping, it has an equal show and sells brick regularly to points in Arkansas, Missouri, Kansas, and even up in Nebraska.

The power plant consists of one 200 h. p. Corliss engine

responsibility is not divided, and the man in charge is sure to get results if he is competent.

The brick go direct to the cars from the kilns, the loading facilities being of the best.

The accompanying illustrations tell the rest of the story of this plant much better than could possibly be done with a word picture.

HEARD IN NEW ENGLAND.

While winter still lingers in these northern latitudes, there are indications of spring, and builders are beginning to consider the proposition from a practical standpoint. The outlook about Boston is better than it was last year. Perhaps it is better than it has been for a number of years. The situation has improved marvelously during the winter, and capital is coming out of its hiding to be invested in operations which have been partially projected heretofore, but were abandoned because of the scarcity of money last year.

The Massachusetts brick plants have not yet started, nor will the weather be suitable for another month. Very few yards have anyone working about them, though here and there a maker has some employees busy preparing for the coming spring movement. The forces to be employed this



—*Courtesy Improvement Bulletin.*

From a Painting by Gerome, Showing Appearance of Colosseum in Days of Nero.

and three 150 h. p. boilers, and an electric light plant of their own is operated. Of course, the only fuel used for the operation of this plant is natural gas, and it is in every way meeting the needs of the operators.

The machine house includes two 9-foot dry pans, one 16-foot pug mill, one Giant auger machine, one No. 20 automatic cutter, four Eagle represses, one Dunlap screen and three elevators, all made by the American Clay Machinery Company, of Bucyrus, Ohio.

The dry sheds have a 300-car capacity, and are heated by the waste heat from both the boilers and kilns, having a good, even temperature, so best results are assured.

They have eleven down-draft kilns, with a total capacity of 1,200,000 pavers, and six up-draft kilns, with a capacity of 1,800,000 builders. Of course, all the burning is done with natural gas, and Manager May is very enthusiastic over the fuel as a producer of good paving brick, claiming that it is absolutely superior to anything else that can be used, as the heat can be regulated to exactly suit the views of the burner as to what is right, and that so few men are needed to take care of the entire job of burning. Thus the

year will be larger than last, and the output will probably be quite up to the average for the state. Some plants which were not operated at all last year will reopen this season with a full force. The supplies which these yards had on hand have been exhausted, and the demand has compelled them to prepare for active business the coming season. To what extent this will be the case throughout the state it is impossible to say, but in the main the outlook is considered good.

In New Hampshire considerable development is anticipated as the result of improved demand and probably increased building operations, not alone in New Hampshire itself, but in Massachusetts as well. Conditions are so much more favorable that the makers are considering whether they shall develop their plants or make what they can with the old plants operated to their capacity.

The outlook in Vermont is not essentially different from what it is in other states, though Vermont has recovered more slowly from the effects of the business depression than any other New England state. Where the effects have passed, however, development seems in order, and considerable structural work of various kinds is promised for this season.

HIRAM.

**Brick
2000
Years
Old.**



**Taken
From
Roman
Colosseum.**

HOW DID YOU EVER GET IT? This is the question I am always asked when I show my most treasured of all relics, a piece of brick taken by myself from the walls of the Roman Colosseum, built A. D. 80, by Vespasian, in the ancient gardens of Nero's Golden House, says Harold Johnson in the Improvement Bulletin. Well, it

—is in fine preservation, the molded members being true as machine work. The tool marks can easily be seen, as also thousands of ragged holes honeycombing the rear surface, which, on investigation I found to be holes for the iron clamps used for bonding purposes. These clamps had been carefully dug out in the middle ages for the sake



—Courtesy Improvement Bulletin.

Present Day View of the Roman Colosseum, Built A. D. 80.

wasn't anything very easy to get, for the old ruin is faithfully patrolled by gendarmes who keep a sharp lookout for the vandal. Being with a party of friends, and absolutely determined to get a piece of this precious masonry, like many a man before me, I hid behind a woman's skirt and so completed my act of felony.

The photographic reproduction gives a very good idea of this brick, which today, after 1,800 years of hard work and exposure to the elements, is as sound as ever. What a tribute to the clay product! To the builder, the Roman Colosseum is the most interesting of all the sights of Rome. It is justly called the King of Ruins, and with its length of 700 feet, its width of 500 feet and its height of 160 feet, it makes us wonder if our twentieth century twenty-story buildings are so very wonderful after all. To climb to the highest tier of ruined arches, as can be easily done by means of wooden staircases provided for the purpose, and to look down 150 feet as into the enormous center of a dead volcano, is truly a most awe-inspiring sight.

The state of preservation of the old building is surprising, the cut stone masonry of the front of the walls with its three columnated orders—Tuscan, Ionic and Corinthian

of the highly valued metal, not a single piece being left. The backing up is of brick work, the famous Roman brick, from which our brick takes its shape and name, but the Colosseum ones are made as long as 24 inches, most of them 18 inches, and herein the Ancients beat us, for 12 inches is the longest we can make, that is to say, if we are to get them straight and true enough to keep the architect good natured. The famous arch of the Roman is seen here in all its glory, mostly made from these 24-inch long Roman brick, well bonded, well built and with mortar joints today as hard as adamant.

It makes one pause and wonder how long some of our contract brick work, at so much per thousand common brick measure, will last, and if it will look as well in 180 years, to say nothing of 1,800 years. But it is not on record that the ancient Romans enjoyed all the privileges and advantages of the contract system. Perhaps they worked on percentage.

Gigantic as the Colosseum is, almost two-thirds of it has disappeared. For years it was looked upon as a legitimate quarry from which to extract building materials, probably beating many an honest building material builder out of

an order, and a large part of modern Rome is built of its time-enduring masonry. If the Government of Italy had not finally come to the rescue, Rome would doubtless be without its greatest attraction today, and nothing but a pile of rubbish would be left. As it is, the walls have been scraped and cleaned of the accumulated vegetation of centuries, and kept in a presentable condition for the enjoyment of the public.

The photo shown gives a good idea of the destruction that has taken place. There is a story told regarding the buttresses of brick work at the ends of the high walls, that many years ago a political offender sentenced to death, came before his judge with a plea for his life, stating that being a mason he had noticed the fact that the old walls were crumbling away gradually, and were unsafe, that, being an expert brick and stone mason, he would, on conditions of his life being spared, devote all the rest of his days, without expense to the state, to building up with good solid brick work the necessary buttresses to stay the ravages of time. The authorities seemed to appreciate the gravity of the situation, and his life was spared on his own condition. The story has it that the mason worked all alone on his task for several years, till his death took place from natural causes, and his work can be seen and its good results appreciated to this day. Since then the state has done likewise and in many places it can be seen where new brick work has been put in, buttresses built, etc., so as to preserve to posterity this conquerer of time.

Twenty feet or more below the floor level can be seen the moldering remains of immense foundations, corridors, areas, cells, etc. The dens of the wild animals are pointed out with chases in the walls still extant where the iron gratings slid to allow the hungry monsters to rush up the inclined ways into the arena, where, as shown in the picture, groups of helpless martyrs awaited their coming with no other means of self-protection than the hymns and psalms they chanted to the heartless crowds of Romans, 80,000 or more who had gathered to witness their sufferings.

Close to the Colosseum stands the remnants of the Forum, famed in song and picture, but that's another story, and will have to wait till some of your readers can take the trip and admire the beauties of its impressive ruins for themselves.

Written for THE CLAY-WORKER.

CONCRETE LIGHTERS A FAILURE.

There were some flowery reports in our consular returns not long ago about the use of concrete in barges, lighters, etc., which made it look like there was a great future before the cement industry in this class of work. There is an entirely different song now, however, and the tune to that song is "Failure." Consul-General James A. Smith, of Genoa, Italy, now says that some months ago a number of experiments were made with a view to testing the adaptability of reinforced concrete in the construction of barges for use in the Italian port, for handling coal and other merchandise. Contrary to what was expected, these lighters were not a success. It was found that it did not possess the necessary elasticity to resist the bumping and squeezing to which they were often subjected alongside steamers engaged in discharging cargo. After a short trial, in which some of them were badly broken or cracked, the experiments were discontinued. So another concrete bubble has burst, and in this case, as in many others, the only pity is that they did not carry out their experiments before giving such wide publicity to their expectations. It is the great things claimed for concrete before demonstrations are actually made that lead people into unwise experiments, and, eventually, we will get over all this. Meantime, a lot of good energy and money is being wasted because of extravagant claims which advocates of concrete are unable to back up. This characteristic of the concrete advocates should be well enough understood by this time, that people will take all the claims made for it with a grain of salt and await actual developments.

Written for THE CLAY-WORKER.

NEW JERSEY CLAY STATISTICS.

THE "STATISTICS OF MANUFACTURERS," just issued by the New Jersey Bureau of Statistics, contains some interesting information regarding the clay industry of the state. These statistics are for 1907, and are naturally largely for the period preceding the business depression, which exerted such a considerable influence upon brick manufactures, though its influence upon other branches of the clay industry was less marked.

The number of establishments making brick and terra cotta is given as sixty-seven, with a total capital of \$15,213,635 invested, compared with \$14,782,792 the previous year, an increase of \$430,843, or 2.9 per cent. Fifty establishments were making pottery, with an investment of \$8,894,113, compared with \$8,371,124, an increase of \$522,989, or 6.2 per cent. The average amount of capital per establishment in brick and terra cotta was \$227,069, and in pottery, \$167,882.

The value of stock used in making brick and terra cotta was \$2,665,918, compared with \$3,174,594, a decrease of \$508,676, or 16 per cent. In pottery the value of the stock used was \$1,987,916, compared with \$1,804,673, an increase of \$183,243, or 10.1 per cent. The value of goods made in



View No. 1.

brick and terra cotta was \$7,425,172, compared with \$9,541,745, a decrease of \$2,116,573, or 22.2 per cent. In pottery the value of the goods made was \$6,678,734, against \$7,044,765, a decrease of \$366,031, or 5.2 per cent.

The number of persons employed in 1907 in making brick and terra cotta was 6,759, compared with 7,419, a decrease of 660, or 8.9 per cent. In pottery the number employed was 4,947, compared with 4,833, an increase of 114, or 2.5 per cent. The average yearly earnings in the brick and terra cotta industries were \$462.26, compared with \$469.02, a decrease of \$6.76, or 1.4 per cent. In pottery the average was \$619.27, compared with \$629.95, a decrease of \$10.68, or 1.8 per cent.

The cost of raw material used in the manufacture of brick and terra cotta was reported as \$2,665,918. The value of the manufactured product was reported as \$7,425,172. In pottery the value of the raw material was placed at \$1,987,916, and the finished product, \$6,678,734. To make this brick and terra cotta required the services of 6,759 employees, and in pottery, 5,071.

The statistics show that the business depression injured the brick and terra cotta industry severely, and that 33 per cent. of the employees were laid off within a month, and gradually all were virtually laid off. This stopped manufacture, and the slow demand of last year had a tendency to reduce the quantity held. Now the sheds are virtually empty, and the manufacturers must make a fresh supply to satisfy the requirements of the season's demand.

THE LIFE OF PORTLAND CEMENT.*

THE FACT that concrete disintegrates is no longer questioned by anyone, and many explanations of concrete failures are given. Some of these explanations are reasonable and correct. Others are mere opinions and valueless. Various explanations of failure under varying conditions show that there are various agencies which attack the integrity of the concrete by uniting with or removing the lime from the Portland cement. These investigations of Portland cement by scientific men are matters of accepted record in Portland cement literature. We desire to confine our further studies now to a particular class of construction for a particular purpose. These studies will be conducted in a fair and correct manner. We will inquire the cause of failure in cement tile in northern Iowa.

This is a study of the power of water, and especially slough waters, to attack and remove Portland cement. Pre-

we did not show any examples of cement tile failure from near Emmetsburg. That was a premature criticism. Do cases like this show that our criticism of cement tile overstate the case?

View No. 3 shows some of the rejected tile thrown in the ditch to dispose of them. New tile are used to lay in the drain and are down below these scrap tile.

We have presented these facts partly in defense of ourselves, but mainly as a continuation of our study in disintegration. A continuation of our correct studies in the nature of Portland cement makes all the defense we require. Now we want to know the definite reason in this case. The engineering department at Ames is making an investigation of the facts in this case and inquiring the cause of failure. I may say that no one can be more critical in getting the facts than my brother and myself, because we know that we are digging a sort of grave both wide and deep for ourselves, if we present a cause that can not be upheld. As students



View No. 2.



View No. 3.

vious to this we have discussed the importance of the crystallization theory in the setting of Portland cement and have shown that this theory may be and is in part true, and will account for the redissolving of part of the Portland cement. We have shown also that this is not sufficient to explain all the changes which have been observed in concrete.

To continue this study, let us examine the results of cement tile use in northern Iowa, and the conditions which brought about failure in these tile.

This photograph is of a piece of tile from the Ormsby slough, on Ditch No. 2, Palo Alto County, Iowa. Note the heavy encrustation. We need to know the nature and cause of this encrustation. Forty or fifty rods of tile were rejected at this point. After handling these pieces of tile they broke up, as shown in View No. 2. The tile crumbles back to sand and gravel easily. We were once severely criticised because

of scientific facts, we have set out on a course of scientific investigation, and we offer only facts and conclusions which will bear the closest investigation. I have not a lot of new truths to offer, but some old and reliable geological and chemical truths about materials which carry lime as a constituent.

We studied the conditions surrounding these tile and decided that carbonic acid forming from the several inches of peat in the pond could and did hasten the decay of the tile, and cause the formation of these encrustations. Water and organic acids had dissolved the cement out of this concrete. We will return to this soon.

Tests of the tile made by this same manufacturer, now deceased, show that his work is as satisfactory, I believe, as any work that has been sent to the experiment station at Ames. The tiles on each side of this slough were placed in the ground. The photo has too little contrast in shade to show up good in a cut.

This photograph merely shows a crack in a sidewalk, which has been healed like a crack in forming of marble

* Excerpts from a paper by G. G. Wheat, read before Iowa Cement Users' Convention, Ames, Ia., January, 1909, and discussion following same.

heals by the substance of the nearby material dissolving and running into the crack, there crystallizing the crack full. This is another case of solvency for further study.

This photograph, No. 4, is a piece of well-cured cement tile which has lain out on the tile yard a few months. This piece was broken out of a strong, good tile—see the white split pebble in the largest piece of the broken tile, the pebbles split at that time. This piece was subject to the action of water percolating through it for 350 hours in a soxhlet extractor, and a total of 12.24 per cent. was dissolved out of the concrete. It is our belief that nearly all of the soluble elements secured come from the cement.

The five little vials show the amount of material secured from the piece of tile. This is another unquestionable case where water has dissolved out of Portland cement.

Chemical analysis of these soluble elements we give at once, and they are very interesting.

The encrustations of No. 1 are:

Silica	3.16
Alumina and iron.....	2.00
Calcium (lime) carbonate.....	90.00
Magnesium carbonate .....	.....

The materials from the healed crack in the sidewalk are:

SiO ₂	16.17
Al and Fe.....	.17
Lime carbonate	78.20
MgO	.67

SOXHLET EXTRACTION.

SiO ₂	21.1
Fe and Al.....	.9
Mgo	.7
Lime carbonate	75.8

These analyses are virtually the same, except in the amount of silica; this varies because it is not the soluble element, rather it gets trapped into the other materials as they form, and the amount of silica or fine sand that we find in these cases is controlled by the conditions which existed while the encrustations were forming.

Now since the analysis of what we know we dissolved out of the concrete corresponds with the other, we are justified in saying that the encrustations could come from the concrete wall on which they formed, by being dissolved out by the water. In the case of the sidewalk material, it is very evident that it is derived by dissolving out of the walk and forming in the crack, and in the case of the tile it looks not only possible but highly probable that the encrustation was derived from and is a part of the original tile. This seems true also because the original tile has become so rotten, and it certainly has lost much of its original strength, and can be crumbled in the hands. And again we have dissolved out of pieces of tile just the same substances.

Now Messrs. Larned and Sherman have tried to show that Portland cement was not soluble more than a very few per cent., and that the limit of solubility was reached after about thirty-five days of soaking. These gentlemen entirely failed to grasp the real problem. They used a briquette which they made up and cured in the laboratory and then tested it. They completely overlooked the fact that concrete which does decay does so under entirely different conditions. These examples we now use are cases which are subject to the natural weathering conditions and to the water and acids of nature. All Messrs. Larned and Sherman's work is of absolutely no value in the study of the cement tile problem.

Need we stop here to state that we have been our own most severe critics, and that we welcome any helpful criticism? Mr. Layton Gouldin, assistant to Dr. Knight, who did the work of extracting the cement from the piece of tile, has questioned the reliability of his own work done on a concrete tile as being open to the suspicion that contamina-

tion might result from the sand and gravel which forms from two-thirds to four-fifths of the body of the concrete. He therefore made tests upon various samples of cement which had no sand or gravel. The results show clearly that the Portland cement is by far the more soluble part of the concrete, and that we are justified in believing that the elements of the sand and gravel are practically insoluble as compared to the Portland cement.

One other point in the study of solubility of the cement in a drain tile is worthy of attention. Some critics endeavor to argue and some endeavor to show by tests that the amount of cement which will dissolve grows smaller each succeeding time, thus trying to show that it will eventually cease.

The records of this case show that

First period of seventy hours yielded 2.34 per cent.

Second period of seventy hours yielded 2.55 per cent.

Third period of seventy hours yielded 2.41 per cent.

Fourth period of seventy hours yielded 3.04 per cent.

Fifth period of seventy hours yielded 1.90 per cent.

This shows that the rate is continuing about the same, even increasing a little, but even if it stopped short now and not a bit more would dissolve, it has already dissolved



View No. 4.

out 12.24 per cent. of the whole piece of tile. This coming largely from the cement means that a large part of all the cement has been removed, and this is further proved by the fact that the tile is crumbling badly and would not stand much strain.

When this piece of tile was removed from the extractor and gently laid in the palm of the chemist's hand, he desiring to dry it, it broke of its own weight into several pieces which you see in this photograph. This piece of tile upon drying became harder again. This is the way that calcium carbonates behave when they are porous and have been thoroughly soaked in water for a considerable time. The significance of this to the user or maker of cement drain tile is this: A tile which might stand up under a severe strain when entirely dry would break down much more readily when thoroughly soaked in water. This would be even more emphatically true if the water contained a considerable amount of carbonic acid. This which we have just stated is true concerning the tile in which the cement bond has deteriorated to a calcium or lime carbonate.

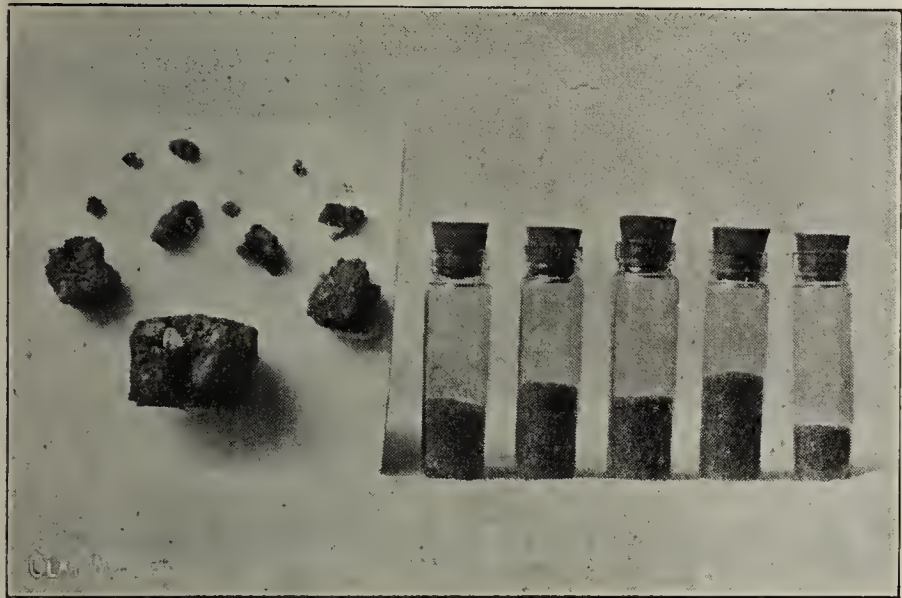
Now one year ago we stated that the explanation of why concrete decayed in the cases which we showed was because the cement was soluble in water. This explanation is and was correct. But we were not at all satisfied at that time as to just what process or change the lime silicate and the mixtures of lime aluminum and iron went through in order to pass into the solution in the water.

Let us now examine this process. Observe that the lime is all a carbonate and the magnesia when found is also a carbonate. A carbonate is formed by a combination of carbonic acid with the lime. Now if the lime silicate of the cement can change to a lime carbonate and free silica or sand under the action of carbonic acid, this is a very interesting and satisfactory explanation.

Let us see if this is the correct explanation of what has taken place in the cases we have been studying, and we will call in the men who have criticised Prof. Orton and us to help us to decide.

Mr. Spencer B. Newberry states: "As to the action of carbonic acid and other acids derived from decay of organic matter in the soil, it is well known that *dense impermeable concrete* effectively resists weak acid for a very long time." This implies that carbonic acid does have an effect on the concrete. (The italics are ours).

Mr. Richard K. Meade says: "It is probable that in some



View No. 5.

localities there are substances in the soil which would attack the concrete if the latter were made very porous."

Messrs. Larned and Sherman discuss the process of how water containing carbonic acid carries carbonate of lime inward into concrete and closes the pores.

We agree with all these gentlemen and freely admit that dense impermeable concrete will effectively resist weak acid for a long time. Also that in large masses of concrete, water may carry the soluble lime carbonate into the minute pores and close them.

They in turn will undoubtedly agree with us that cement tile are not dense impermeable concrete. They will further agree that with the water passing through the porous tile or across the face of rough porous concrete the conditions are right for the carbonic acid to have access to the cement, and to form carbonate of lime; also when and where carbonate of lime has been formed it can and will be dissolved, and it will have no chance to close the pores in the thin-walled porous tile, but will be carried away in the solution.

The whole question depends on the nature of Portland cement, and the nature of Portland cement depends on the nature of lime, its chief constituent. Carbonic acid does have a very definite and steady power over lime or calcium in practically every combination in which calcium is found. There are a few compounds like gypsum in which the lime

is strongly held by a powerful acid, but silicic acid is not a strong, powerful and active acid.

As long ago as 1854 French chemists and engineers wrote like this concerning the lime cements: "The affinity of carbonic acid is sufficiently powerful in the presence of water to separate its full equivalent of lime from combination with the other ingredients of these silicates, leaving the said ingredients, whether combined or not, simply mechanically mixed."

Carbonic acid does prove its power in nature by the fact before alluded to, that practically all the lime of the earth to which we have access, is now a lime carbonate or common limestone, the few exceptions being gypsum and the phosphates. Of course, a great amount of lime is still combined in the granite and granitoid rocks. This lime is one of the chief causes in the decay of these rocks.

The substance of all we need to say further on this point now is simply this: Carbonic acid does unite with the lime of Portland cement. Our tests show that it has united with so large a percentage of the lime in the cement tile that when all of the lime carbonate is dissolved out together with all the other soluble elements of the Portland cement, that there was not sufficient strength left in the tile to stand, and it broke down easily without any force being applied.

It will be useless for any critic to say we are offering any different explanation than last year. We have simply continued and made it more complete, and explained how in this particular case the lime became soluble and was removed by the surrounding waters.

Now the importance of this fact of the lime of the cement changing to a carbonate under these conditions becomes more clear when we learn what carbonic acid is and how it occurs. Carbonic acid is one of the simplest and most frequently found acids of nature. It forms by a combination of one atom of carbon and two atoms of oxygen, uniting with water. These atoms of carbon and oxygen, commonly called carbon dioxide, form wherever any vegetable matter decays, or where gases formed by the breakdown of any organic matters escape into the air. Carbonic acid is thus very prevalent in all rich soils, especially in black humus and peaty soils; it is found in all rain water and snow water. The reason why these tile just examined decayed so rapidly was from the large amount of carbonic acid which forms from the rich soil and peat from this slough.

This point is of value for this reason. The question is raised on the interaction between water solutions and minerals, and this subject is of prime importance in the study of the deposition of ores. There is such a thing as selective quality in a material, and a solution coming in contact with some substances will deposit its mineral, usually in a different chemical form. Usually there is an interaction between it and the material upon which it rests. There are cases where it is merely a deposit. It is essential to know that this encrustation upon the tile was not a material which had been selected from the water that was in contact with it. It is also essential to know whether it came from the body of the tile or from the water.

Let me pause long enough to say that carbonic acid is by no means the only substance which may attack and destroy the integrity of the Portland cement. This Bulletin 69 of the Montana Agricultural College experiment station at Bozeman, Mont., explains some serious failures of cement sewers and even massive foundations of buildings, these failures being found to be due to the alkalis of the soil and ground waters. These alkalis are prevalent in many other sections, especially so in parts of the Dakotas, also found in very noticeable amounts in sections of Minnesota and Iowa. The importance of this should not be overlooked. However, we are limiting ourselves today to a study of the action of carbonic acid.

What drainage interests demand and will have is the satis-

factory assurance of the durability of materials in the manufacture of drain tile used in drainage; this guaranty they expect the manufacturer to furnish. It must be admitted that many of those in charge of drainage are not doing their duty by demanding and securing any guaranty; especially is this true of those who are in charge of public drainage.

We ask formally today a question of great public interest. If a tile drain fails after a few years' use, what recourse has the taxpayer, what can be done about it under the law?



View No. 6.

The manufacturers of cement tile have not been able to furnish any satisfactory assurance of the durability of the tile. The committee on technical research have not been able to furnish any scientific assurance that cement could withstand the weathering agencies, and investigation of the places where cement tile were used in years past furnishes no practical assurance of the lasting qualities. On the contrary, evidence is arising constantly that cement tile are all that we have explained them to be—unsafe, unsatisfactory and unreliable. A few instances that we will now present are not offered as proof of our arguments, but they will assist the reader whose time is limited to see the results of cement tile use.

Our attention was called to a long ago failure of some tile at Rochelle, Ill. The particulars are substantially these: The tile were laid on David Huston's farm, five and one-half miles west of Rochelle, Ill. About 320 rods were laid, some cement and some clay tile. When clay tile were not procurable cement tile were laid, the system thus being mixed tile. The ditch did satisfactory work for about two or three years. The cement tile was removed at the end of about five or six years; not one cement tile was relaid. When dug up the cement tile would be found crushed flat for a distance then a few might be standing, but on taking hold of them they would crush and crumble in the hand. Almost the entire 320 rods were dug up; all the cement tile were removed. These tile were laid about fifteen or sixteen years prior to 1908, and were removed about ten years ago. The son who gave me the facts just stated above remarked, "Why I'd rather have an open ditch filled with nigger heads (boulders) than a cement tile ditch, for the stones would let the water run around through."

Anxious not to deceive ourselves at any point in this matter, the maker of the tile was sought out at Ashton, Ill.

He was deceased, but finally the man who superintended the manufacture of the tile was found. The tile were made with excellent clean sand and a fair proportion of the best Portland cement. It is an acknowledged fact among all users of cement that a good aggregate with the voids filled with cement, even though the percent of cement is small, is better than a coarse open aggregate with but partly filled voids, though the per cent. of cement may be much greater. The reasons are most obvious; the cement gets a chance to bind the particles together, the amount of cement used can not be definitely known, though it was planned to use one to six.

Any cement tilemaker knows that it is difficult to get a tile to stand up during manufacture when clean sand is used and to endure carrying away from the machine with too small a per cent. of cement, and also that clay in the sands makes it possible to use less cement and get the tile to stand up in manufacture.



View No. 7.

Now, as the superintendent tells me that the tile stood up well during manufacture and the sand was very clean, a fair amount of cement was used. We present herewith several photos. The photo No. 6 shows one of the tile of this Ashton (Ill.) plant which has escaped entire destruction. The ends of two tile are shown. The tile on the left marked "A" is a cement tile, the wall is close and dense and well packed, the voids well filled, and is much better body than the great majority of the machine made cement tile now being used in Iowa.

The tile on the right marked "B" is a clay tile found among the refuse of the same sixteen-year-old ditch. Photo No. 7 also shows pieces lying on top of the tile. The pieces showed close, dense structure. The tile marked "A" shows how the wearing has left the pebbles projecting very noticeably; the whole surface of this tile was crumbly, but seemed still solid in the case. Photo No. 8 shows the inside of the two tile, the cement "A," and the clay "B." The clay tile was in every respect perfect and the cement tile as described—very much disintegrated.

We have no way of knowing that these tile were ever in the ditch, but it is very plain that they have endured the same conditions of weathering; the clay endured well, the cement rotted steadily.

At the same town, an ex-road commissioner was interviewed and his experience in removing the concrete tile cul-

verts tallies perfectly with the foregoing; the tile appeared to dissolve where the water got to them.

An ex-supervisor of Palo Alto County tells me of his nephew, an ex-road supervisor in southern Wisconsin, who, visiting him in Palo Alto County, Iowa, saw some of the cement tile lying beside Ditch No. 2 when they were first placed there. The nephew inquired, "What do they intend to do with those cement tile?" His uncle replied, "Make a county drain." The nephew said, "Well, they'll lose out on that." Then he told of his own experience with concrete tile road culverts in southern Wisconsin, and how they all crumbled and decayed. It is noteworthy that some of the tile in that very ditch should have decayed so badly before they ever got into the ground. These cases we know about and have examined and verified. Many other instances have been reported from Illinois and elsewhere, but not having been verified by personal examination will not be mentioned at all.

As a further word in proof of our statements that Portland cement is not a constant, that when perfectly set is not at a state of rest, we may mention that in many cases already observed by tilers and land owners known to the writer, cement tile have been found to "grow together" at the ends and form one continuous pipe, tile laid in sections becoming one long pipe. Now nothing but the moving of the cement has caused this.

Another singular and very noteworthy recent development



View No. 8.

is observed near Lake City, Iowa. The formation of encrustations has begun in the bottom of a large 20-inch main, and in connection with this we would present a photo of the inside of some water mains of California, where city or irrigation water supplies are sometimes conducted through cement pipe.

The question has been asked by some of the cement tile advocates why these mains used for eighteen or twenty years in the West have not decayed, if water has the power to cause decay. The reason is this: The waters collected in great reservoirs and from a vast water shed pass over a great deal of soluble matter, and soluble lime is present almost everywhere. A great deal of evaporation takes place from these reservoirs and the water in the reservoir soon has its full load of soluble matter and can no longer take up lime. This is clearly shown by the fact that when this water is in motion, running through the pipes, the load is

partly precipitated out of solution. Carbonic acid is everywhere present in some degree and is plentiful in rain and snow waters. This enables the water to carry a heavy load. Carbonic acid is easily released from water in motion, for example: Stir a glass of soda water (carbonic acid) and watch the bubbles escape. When the carbonic acid escapes, the lime which it held in solution precipitates whether the water be in motion or still. Furthermore, these encrustations of pipe in California may be other materials mixed with lime carbonate. We have not examined them. I offer this as an explanation. You can not dissolve out lime when you are already carrying as much lime in the water as it is able to hold in solution. With just enough lime, there would not have been any destruction of the tile or a deposition of material.

Ask yourself the question, can we afford to use a tile which will lose a large part of its carrying capacity in a few years? The tile at Lake City two years in the ground has fully one-ninth as much encrustation as that shown in Photo No. 8 from California. The examination of the encrustation shows that it is a very considerable part fine grit and silt which is cemented together by lime carbonate into a mass, not rock-like, but altogether too hard and cement-like for any worm or chain sewer pipe cleaner to remove it.

Some one of the opposition may rise with the humorous question, "Why, how can the water dissolve the tile and water also deposit the same kind of material on the same kind of tile?" This is quite possible, the conditions varying at the two different places. An Indian ate at the table with a white man. The latter blew his breath on his hot soup. "For why white man blow on soup?" "To make it cold," was the reply. Later the white man blew on his ice cream. "For why white man blow on pudding?" "To make it hot," was the reply. "Ugh!" said the brave, as he jumped up



View No. 9.

from the table, "Injun no eat with man blow hot and cold with same breath."

We are studying the question of equilibrium of conditions. When you get equilibrium of conditions you can expect to stand indefinitely. If there is no disintegrating influence it will stand indefinitely, of course, and we are stating the conditions that do make an attack.

We present only one main proposition—cement when set is not at a state of rest; it is not a constant; the concrete is not absolutely permanent. The cement will move under

conditions which allow access of water and the organic acids.

Let us add once more. No critic has any right to take any statements we have made and try to twist them into a general condemnation of the use of concrete. We have before this mentioned large fields of usefulness for Portland cement, but the use of Portland cement concrete as a material of drain tile is altogether unsafe, unreliable, and will prove utterly unsatisfactory.

Now a word about tests of partly rotted tile crushed in a test machine while dry. Sandstone with a bond of calcium carbonate will crush under a very light strain when wet, but this is not so true when it is dry. A porous rock held with a bond of carbonate will obey the same law. A test of samples when dry is not the same as when thoroughly soaked. Suppose we were to soak the bonding material in a solution of carbonic acid, the water containing CO_2 , and incipient solution then begins and the whole mass will become partly dissolved and crush easily. The same would not be true when dry, for then it comes back to the original strength.

Bulletin No. 330 of United States Geological Survey.

"Meteoritic waters (rain waters) carrying free carbonic acid are probably the most powerful agents in the solution of rocks, although their chemical activity is neither violent or rapid. Being continually replenished from the storehouse of the atmosphere, their work goes on unceasingly over a large portion of our globe. The calcium which they extract from the rocks is carried by the rivers to the sea, and is finally deposited in the form of limestones."

Lots of clay tile could be put to those conditions and there would not be a trace of them at the end of fifteen years. We are not trying to hide that fact.

We are hesitant about printing the letter below because of the ungentlemanly, unwarranted and unkind attacks which were made upon Prof. Orton. The writer of this letter assured me that he would stand for any use we saw fit to make of the letter, except that it should not be used as the basis of a rabid attack upon cement in general. The letter from Prof. Orton got into print without my intention. He has demonstrated that a thorough investigation of this subject is in keeping and would certainly be a good thing. Prof. Bleininger wrote me before he entered the Geological Survey, as follows:

UNIVERSITY OF ILLINOIS.

March 22, 1908.

I consider the use of Portland cement drain tile advisable only when they are made practically impermeable, so that no flow of water takes place through the pores of the walls. This is necessary since any flow of water, especially water charged with organic acids, will tend to leach the cementing materials, thus gradually weakening the structure.

It is my candid opinion that Messrs. Wheat are pursuing their investigation in an impartial spirit and are endeavoring to arrive at the real facts of the case.

(Signed) A. V. BLEININGER.

We have the courage to go ahead with our work when the men who stand highest in the study of Portland cement say this about us.

President Carlon: Before we go, I should like to say that I think all those who have heard Mr. Wheat's paper should be here and hear the other side of the question this afternoon. As interesting as his paper has been, yet it is susceptible of discussion from the other point of view. Everyone come out this afternoon and hear the other side of the question. I would like to ask Mr. Wheat to be with us also this afternoon.

The afternoon session was devoted for some time to a discussion of the question, "The Life of Portland Cement." The entire discussion may be summarized by saying that

no satisfactory reply, not even an effort to reply to the main proposition of the discussion, was made. No one made a word of direct reply to the morning's showing that carbonic acid would and did act upon Portland cement and change the lime silicate and lime aluminates to lime carbonates, leaving the free silica and free alumina separated from chemical combination with the lime, and the further showing that this lime carbonate would readily dissolve out.

Mr. Dieckman, a head chemist in a Portland cement plant, said, "The gentleman here this afternoon was able to dissolve cement by the action of acids. I want to ask you in all fairness: Could you put a clay tile under the same test and have it stand up?"

Mr. Wheat: I have subjected clay tile to the same tests and got nothing out of it with hydrochloric acid other than lime and the alkalies.

Mr. Geo. Dieckman: I am talking about the solubility in water and in Hcl (hydrochloric acid). You have found 24 per cent. dissolved in a short time. Some years ago I had occasion to test a brick subjected to the same apparatus as you have shown. After forty hours I found a considerable amount of soluble silica from this. I would be willing to guarantee that I can do the same with clay tile as you have done with cement. You can go to any of the piers in the power dams, and when the power is shut off you will find that the Portland cement piers are not affected at all. It is utterly unfair to take the results of such tests as yours. Mr. Anderson's tests, read to us this morning, showed an increase in his tile. You are the only man in the whole world who has shown that cement is soluble, and you alone have discovered this grand fact. From your remarks one might possibly construe that you are not as you intimate—a friend of Portland cement.

President Carlon at this juncture insisted that the regular program for the afternoon be taken up.

A brief reply to Mr. Dieckman we insert here, because we were so pressed for time that in the brief time allowed us later on we neglected to do so. The weakness of Mr. Dieckman's position was so apparent that it is apparent to any chemist that he was merely throwing dust to blind. Now neither Mr. Dieckman nor any other man can make hydrochloric acid dissolve an appreciable amount of porcelain; a good clay tile is porcelain; a burnt clay tile contains a small amount of impurities. These are lime and the alkalies. These will dissolve out, and if any silica or alumina happened to be combined with them it will dissolve out also. NEITHER MR. DEICKMAN NOR ANY OTHER MAN CAN SHOW THAT THE BOND OF BURNT CLAY IS SOLUBLE IN WATER; THAT FUSED ALUMINUM SILICATE WILL DISSOLVE OUT UNDER THE ACTION OF WATER AND CARBONIC ACID AND LET THE BURNT CLAY PRODUCT ROT LIKE PORTLAND CEMENT DOES—CHANGE TO A CARBONATE AND DISSOLVE OUT UNDER THE ACTION OF WATER AND CARBONIC ACID, AND LET CONCRETE ROT IN EXPOSED SITUATIONS.

Mr. Anderson showed that by bailing pieces of concrete, he could increase their weight. A variety of causes might produce this increase in weight. First, it is well-known that much of the Portland cement is too coarsely ground to act readily with the water bailing, which could cause this coarser part of the cement to hydrate and weigh as much more as the water it took up. Second, it is very difficult to check accurately the weight of a piece of concrete and get it to tally. It is very difficult to get it to uniform dryness each time it is weighed after being wet. We always weigh both the material we derive from the cement by soaking, also the cement pieces itself, thus double checking.

After the program was finished, Mr. Wheat was called upon to continue his remarks on the life of Portland cement.

Mr. Wheat: I want to say first that we did not endeavor

to convey the idea that Portland cement is largely a carbonate. Calcium carbonate is a large constituent in the manufacture of Portland cement. By a combination of calcium and silica, calcium and alumina, calcium and iron oxide properly mixed and fused, we get cement. After cement has set, which it does by a process of hydration, and is exposed, the carbonating process will take place and the lime reverts to carbonate form. In the instance of the Emmetsburg tile, those on other parts of the ditch were apparently all right. This is an example of reversion. I contend that any tile or any piece of concrete made porous and then placed under such conditions will show the same results. An interaction between carbonic acid and lime will take place under every opportunity. We plead a good deal of ignorance in regard to Portland cement, and we insist that that ignorance is quite general—it is not confined to us alone.

A large reservoir in Germany was attacked by carbonic acid and was practically destroyed. It has cost an immense amount of money within the last eight to twelve years to save it. It was saved by three coats of magnesium silicon fluoride. The encrustation which I showed was not a white efflorescence, Mr. Humphrey, but was largely a carbonate. The efflorescences are sulphates.

Mr. Humphrey: I did not state that the white coating was due to a lime. After leaching out, the CO_2 in the air has a chance to combine and will make a carbonate of lime. I did not contend that that was the same as the efflorescence from brick.

Mr. Wheat: Tests in laboratories are not subjected to the same conditions which we used. Briquettes of neat cement in laboratories are not expected to dissolve like sugar. They will be soluble in water only under certain conditions. It is presumed that tile under ground subjected to continuous percolation of water are under extreme conditions. Porosity is not an advantage in any case.

The Roman aqueducts and various concrete structures lasted a great many years. Yes, but we can not reason by comparison with them. The Roman aqueducts are under different conditions than obtain in this climate. The obelisk brought from the Nile Valley, where it stood unimpaired for 2,500 years, disintegrated more in twenty-five years in New York City than in all time previous.

Again, with regard to the rejected tile at Emmetsburg, there were not a mere 250, as one speaker has stated, there were 40 rods or 640 tile at least rejected. None of the tile that lay on the peat were laid in the ditch for drain. The destruction was not due alone to frost, but was due to porosity and rotted bond of the cement, aided in the final breakdown by frost.

I could talk as much about the future of Portland cement as any other man if you cared to listen to it, but bombast is cheap. Bring up your strength in your Portland cement and keep it from showing weakness, and make it so it does not go down under the conditions I have shown. It's up to you to do it. The life of Portland cement is governed by the conditions which it meets. Under certain conditions its life is practically unlimited, but under other conditions its life is very short. Excessive conditions will surely bring about destruction, and when a piece breaks down we consider it a legitimate cause for inquiry.

Mr. Humphrey: I have investigated the reported failures in sea water, and in every case it is the action of the frost on the green concrete. I never have found a thoroughly hardened concrete in bad shape in sea water.

Mr. Wheat: I will reply to you merely this, Mr. Humphrey: The Germans are second to no other people in their technical and chemical skill. They have brought out a cement which they claim is free from destruction by sea water. It has less alumina and more iron. I rest my sea water case on the indisputable fact that the Germans found

it necessary to produce a cement different from Portland cement, so that it would resist the action of sea water.

Concerning the use of Portland cement by railroads, I have a good deal of material on hand to show that some railroads are discontinuing the use of concrete. The Northwestern did not use concrete between low and high water mark in the new Clinton (Iowa) bridge. The New York Central, I believe, has discontinued the use of concrete to a large extent. At the office of maintenance-of-way for the Missouri Division of the Rock Island Road, they told me personally that the orders for 1908 were to construct culverts with stone, and this was because the concrete ones that were above a certain age were all in bad condition. Concrete ones were adopted eight or ten years before. I may be pardoned if I add that it is rather up to the cement manufacturers to find out the cause of these various failures and discrediting of concrete, instead of to deny that they exist. Now let me close by telling you one more fact: The dissolving of the lime and the alkalies out from the feldspars in the granite rocks leaves behind the silica and the clay material, these being the practically insoluble elements of the granite. Nature in many places has formed new rocks by recombining these elements of silica and clay by heat and pressure in the probable presence of superheated steam into the most durable rocks known to geology. The larger the per cent. of silica the more durable the rock, provided the rock-forming process is completed, Sioux Falls granite being a good example of this kind of rock. It is perhaps the most endurable and weather and acid-resisting rock known. Now when man takes these same insoluble elements—silica and the clays—and combines them and fuses them by over 2,000 degrees of heat in the fires, he can produce a material which will endure all that Sioux Falls granite (quartzite) will endure, with this additional advantage: This man-made product will withstand fire. There are many tile (porcelain tile) made in Iowa in this manner which will outwear Sioux Falls granite.

This last photograph is of some sewer pipe of porcelain (clay) that have seen thirty-five years of service in Jackson, Mich., and when taken out and rinsed were as clean as a dinner plate.

BRICK NOTES FROM TIDEWATER, VA.

The Eureka Brick Company, located at Lynnhaven, Va., are making extensive improvements at their plant. They are now adding a new steam dryer to their present one, which will double their capacity, giving them an output of 50,000 brick per day. They are also installing a new "Rusk" clay feeder, manufactured by the Marion Machine, Foundry and Supply Company, of Marion, Ind.

The Virginia Brick Company, of Suffolk, Va., have installed a new steam dryer and some new machinery to their plant. Capt. Henry Crocker will manage this plant the coming year.

W. Benj. Davis, of Richmond, Va., has changed his new stiff mud brick plant, located in Manchester, back to the soft mud process. Mr. Davis went to a great expense in equipping this plant with the latest improved stiff mud machinery, and after trying two makes of stiff mud machines he decided his clay was not adapted to the stiff mud process. He operates two large plants, one in Richmond, and one in Manchester, with a daily capacity of 100,000 soft mud brick. The output of both plants is used by Mr. Davis in his large contracting business in and around Richmond.

The Whitfield brick plant at Suffolk, Va., has been dismantled and sold. There remains nothing to mark the spot but a pile of brick dust and a few bats.

The plant of the West End Brick Company at Suffolk, Va., has not been in operation for twelve months, and is now advertised for sale.

There is talk of two new plants being built the coming spring, one at Dendron, Va., and the other at Branchville, Va. It is not known positively at this time whether they will develop into brick plants or pipe dreams. H. L. J.

Written for THE CLAY-WORKER.

BRICK PAVED COUNTRY ROADWAYS.

FINEST BRICK ROADS IN THE WORLD LAID IN NORTHERN OHIO.



CUYAHOGA COUNTY, of which Cleveland, Ohio, is the county seat, is preparing to expend \$2,500,000 this year in adding to its system of country brick-paved roads. This vast amount is expected to pave about 115 miles of roads, which are now seas of mud during the rainy season.

Cuyahoga County claims, and with considerable justice, too, that it has the finest paved roads of any county in the world. Gov. Hughes, of New York State, it is understood, is preparing to send a commission to Cleveland to investigate the system whereby the county looks after its suburban districts. Most counties with almost as large an income

that having been found more satisfactory and economical all around.

About a year ago, County Engineer Lea, who is in charge of all the paving and bridge building operations of the county, evolved the idea that the county could save money by doing its own repairing. The work of building the roads themselves is let by contract to the lowest bidder under rigid specifications. A system of close inspection is maintained, and for the most part honest work is secured.

During the year this experiment was tried it was found that the county saved 12 cents per square yard on all pavements laid during that time. Despite the fact that the county pays better wages than the contractors and adopts the union eight-hour day, the engineer says the saving can be increased this year. For the year the county spent \$33,198 for repair work on its county paved brick roads. There was a saving of 3½ cents on concrete curb and 10 cents on concrete base.

Concrete curb was used for the first time last year, and



Just Off a Paved Road in Cuyahoga County, Showing Condition of the Unpaved Roadways.

spend their money in frills and feathers, or fritter it away without getting any results at all.

Of the 115 miles of roadway to be paved, sixty-nine miles are east of the Cuyahoga River, and forty-nine west of it. In some instances the new paving will start at the city line and extend to the county's limits, while in others the work will extend roads which were begun last year. It is believed that next year will see the completion of every main artery running into Cleveland, and there are a dozen or more, for the roads diverge like a huge fan from the center of Cleveland.

As soon as the arteries are paved, work will proceed on improving every cross road in the county. There will be a gigantic paved road system around the entire county then, making an auto boulevard nearly 100 miles in length. Of the work to be done this year, \$1,000,000 will be for brick, which is used exclusively for wearing surfaces, and \$1,500,000 for the labor involved. A 4-inch brick is used for the most part,

owing to the fact that a very rigid system of rules was enforced, both as to workmanship and inspection, for the most part it has been found satisfactory, although many bids received this spring indicate that contractors will provide good stone curb at exactly the same price.

Cuyahoga County is fortunate in being the center of a great paving brick industry. This fact, however, does not gain the county so much in prices as might be imagined, for many towns throughout the middle west can get their brick from the same locality almost as cheaply.

A plan for coupling four of the largest cities in Ohio—Cleveland, Cincinnati, Columbus and Toledo—is now being considered by the authorities of those counties in which these great centers are located. A preliminary step has been taken by Cuyahoga County Commissioners, who are boosting a plan to have a sixty-mile brick road built from Cleveland to Canton, Ohio. The road would be built by the counties through which it passes. It would then be as easy to go

from Canton to Cleveland by auto as by trolley, and even more quickly. Cleveland has already built out fifteen or eighteen miles towards Canton, and the scheme may be developed before another year proceeds. Later, Cleveland would build towards Toledo, which would spread to Columbus, which, in turn, would improve its highways leading to Cincinnati.

By paving country brick roads, it must not be imagined that the road is graded and paved from ditch to ditch. For the most part the roadways vary from 14 to 18 feet, though there are a few in Cuyahoga County which are 20 and 24 feet wide. The pavement is usually at one side, leaving a dirt strip at the other, which is a relief for the pavement-weary horses of the farmer on his way to town. The curb is on the ditch side, while that on the dirt road side is several inches below grade, and merely serves to keep the pavement rigidly in place. The dirt road is regularly graded and the paved strip is cleaned several times a year to remove mud and dust.

"Country paved brick roads pay as a business proposition," declared County Engineer Lea to the representative of THE CLAY-WORKER. "I have made a very careful study of the

receives fully 80 per cent. of the benefit. Brick roads from any view you take of them are splendid investments."

This spring the county has been enjoying the benefit of keen competition for county brick roads. Prices for pavement have ranged from 20 to 30 per cent. lower than former years, and in most instances the contractors have been under the engineer's estimate. The lowest bid was from W. C. Pace, of Chicago, who bid 90 cents per square yard for paving the south end of Wooster pike. This makes the south end cost 50 per cent. less than the north end, which was paved a couple of years ago.

The list of county roads to be paved this year shows how the improvements are spread over almost every section of the county, so there is little objection among taxpayers, harmony always prevailing. The roads to be paved are:

East of river—Lake Shore boulevard, Bratenahl to the county line, eight miles; Highland road, Euclid township, three miles; Mayfield road, Cleveland Heights to Gates Mill, seven miles; North Woodland road, city limits to Chagrin River, nine and one-half miles; South Woodland road, Center road to Chagrin River, six miles; North Miles avenue, Ran-



Brecksville Road, Cuyahoga County, Ohio—Brick Pavement on Broken Stone Base. Cement Filler. Stone Curb. 6.4 Miles Long. 14 Feet Wide. Completed 1904.

costs involved and apart from the fact that the city gets cheaper produce because the farmers are able to get to market with it, the increase in the value of land involved should raise the tax duplicate sufficiently to meet the interest on the bonds needed to pay for the original improvements.

"Cuyahoga County now has about 150 miles of paved roads within its boundaries. Of these about thirty miles are bitulithic, laid in the early days of the movement; now we use brick exclusively. It will be seen that our present total of brick roads is 120 miles. This year we plan to lay anew nearly as much as we have already, which is a rather big undertaking, but which we will accomplish. I estimate that our brick roads cost the county on an average of \$20,000 a mile, so that it may be seen that the county has about \$3,000,000 invested already in its county pavements.

"Think of the pleasure Cleveland's 3,300 autoists have in spinning over these paved roads, radiating in every direction from the city. It is true that the city of Cleveland pays about 80 per cent. of the county's taxes, but it also

dall village to Chagrin Falls, seven miles; Miles avenue, Randall village to Solon, five miles; Harvard road, city limits to the Denison-Harvard viaduct, one mile; Pettibone road, Broadway to Son Center road, three miles; Northfield road, C. & P. Railway to county line, one mile; Warrensville road, Mayfield road to Bedford, nine miles; Dunham road, Bedford road to Canal road, six miles; Canal road, Willow Station to Tinkers Creek, four miles.

West of river—Center Ridge road, Rocky River to county line, eight miles; Wooster road to Center Ridge road to Coe Ridge road, one mile; Clegue road, North Ridge road to Coe Ridge road, three miles; River road, W. Madison avenue to Coe Ridge road, two miles; Dutch or Irish road, Berea to county line, six miles; Columbia road, Coe Ridge road to Olmsted Falls, six miles; Settlement road, Coe Ridge road to Wooster pike, six miles; Ridge Shunpike, city limits to Wooster pike, three miles; Broadview road (or Independence-Parma town line road), city limits to Wallings Corners, six miles; State road, Parma township to county line, five miles.

Written for THE CLAY-WORKER.

EXIT ASPHALT, ENTER BRICK.

MORE AND MORE are municipalities learning that asphalt will not stand the wear and tear to which city streets are often subjected. Even at considerable additional cost they are preferring brick to asphalt, and are pulling up the former and laying the latter.

On East Fifty-first street, Cleveland, such a scene may be seen. The street was paved with asphalt a few years ago. Every year extensive repairs have had to be made, yet the street was always in bad condition. Disgusted with it, the Department of Public Service finally decided to resurface it with Bessemer paving brick, furnished by the Cleveland Builders' Supply Company. This added considerable expense as the concrete base could have been resurfaced much more cheaply, the use of block necessitated the changing of curb and grade of the street to allow for the 1-inch sand cushion and 4-inch block. Nevertheless, it was felt

advertising pays, even then, for though there may be more business than he can do, by increasing the quantity of demand right along he is enabled to take the cream or select the more desirable business, and let the other go for somebody else, and thus make his advertising pay him good returns, even though he is not able to take care of a large part of his business.

Generally the cry of the busy man is that he doesn't need any more, consequently is not prepared to take advertising until some such time as business may go slack and he needs to push his product to increase his trade. He says this in good faith, too, and all that, but just the same, when the panic hit last fall more people discontinued their advertising than during the busy time preceding that. Their first excuse was to curtail expenses until the storm was over, and the next was that no amount of advertising would get business under existing conditions. The people who didn't want anything wouldn't take it anyway, and the only thing to do was to wait until the industrial situation im-



Asphalt Pavement, East Fifty-first Street, Cleveland, Ohio, Torn Up to Be Resurfaced With Brick

that brick was better and cheaper in the end, when the life of a pavement is to be considered.

The change is being made for the entire length of the street, which is about a mile long.

A WORD ABOUT ADVERTISING.

The majority of men admit that advertising in the abstract is a great thing, and a great many believe, too, that advertising their own product is not only one of the ways, but practically the only way to build up a big business. There are, however, many peculiar things about the way people take advertising ideas home to themselves and dish them up. With the average business man, whether he is manufacturing mantels, tiles or brass tacks, when business is good and he has more trade than he knows what to do with, he turns a cold but cheerful shoulder to the advertising solicitor, and says, "Nay, nay." Sometimes he can be persuaded that

proved somewhat and then go after the business. Of course, there are lots of inconsistencies in all this; in fact, the world is full of inconsistencies, and humanity probably has the lion's share of it all. We can't get over that, and probably needn't hope to, but we can pull up once in a while and take a new grip on things, and it looks like right now is the time for the industrial world, that part of it having products for sale and needing the markets seriously, to fall in and go to spending more money in printer's ink. There is probably no more need for this injunction in the mantel, tile and grate business than in any other industrial line; it is needed everywhere, and the wise man is the one that will go in, not recklessly, but judiciously, and advertise for trade, no matter what his line. That's the way to help get business. The man who keeps his product most persistently and properly before the people has the best show at the trade that is going, and will be on the ground floor when what is termed the revival does come.—Mantel, Tile and Grate Monthly.

REPORT OF THE FIFTH ANNUAL CONVENTION OF THE WESTERN ONTARIO BRICKMAKERS' ASSOCIATION.

IN THE BRIGHTEST of winter weather, the last clay-working convention of this annual series was held by the Western Ontario Brickmakers' Association at Blenheim, Ont., on February 26, 1909. This is the fifth year this body has convened under its present name. The Secretary, Alfred Wehlann, of Cairo, Ont., was on deck early to greet the arrivals, and the President, Adolphus Wehlann, Aldboro, led the clayworkers at 10 a. m. to the Council Chambers of the Blenheim Town Hall, where the sessions were held by courtesy of the town officials.

The President opened the convention with a brief address. He stated that ten years ago he commenced the work of organization, the prime object being at that time the regulation of prices. The movement, however, was not received with much enthusiasm for its first five years, a faithful few only gathering year by year, Messrs. Minor and Hill being the chief stand-bys. In 1905, however, the Western Ontario Brickmakers' Association was organized, and since then the attendance has been better.

An address of welcome was then given by a member of the Town Council, representing the Mayor of Blenheim, to which Wm. McCredie, of Lyons, Ont., made a suitable reply. Mr. McCredie enlarged on the value of associational work, and stated that the fixing of prices should not be considered, rather should the attention of the members be devoted to a consideration of manufacturing problems and a beneficial interchange of experiences.

The Vice-President of the association, A. W. Hill, Essex, Ont., then spoke for some time on the dryer question, describing a combination waste heat and exhaust steam dryer recently erected by him. The dryer is substantially constructed of brick with a brick roof. The dryer holds 30,000 3-inch tile. Mr. Hill estimated that one ton of coal will run the engine driving the fan for forty-eight hours. The dryer has a slatted floor and the waste heat is admitted under it through flues connected with the tempering chamber. The tile are set three high in the dryer, and sometimes four high. The dryer is operating quite successfully.

After some discussion of the dryer question, the Secretary and Treasurer, Alfred Wehlann, then read his annual report.

A consideration of the next meeting place was then held, the result being the selection of Kingsville, Ont., as a result of the cordial invitation of J. T. Minor, of Kingsville. It was also determined that a two-day convention in February be held, instead of one of one day's duration as has been previously the custom. Messrs. J. T. Minor, Kingsville, A. W. Hill, Essex, and B. Broadwell, Kingsville, were appointed as a special committee of arrangement to look after all matters pertaining to the next convention. Brother Minor promised to endeavor to secure a moose as a course in the next year's banquet. He (Minor) is a major moosist, and we understand that his house is paved with hunting trophies, tributes to his skill with a No. 38 bow and arrow.

"The Economical Handling of Clay Products" was then read by B. E. Bechtel, Bechtel's Limited, Waterloo, Ont. This will appear in full in a subsequent issue.

The paper given by Mr. Bechtel was received with a great deal of interest, and some of its chief points were then ably discussed by some of the prominent members of the organization.

The next in order was an address by Mr. Harry DeJoannis, of Waterloo, Ont., on "The Brickmaker and the Journalist."

Around the subject matter of this paper there waged a war of opinions as to the best method to be adopted to defeat the cement interests. Wm. McCredie, of Lyons, Ont., spoke with considerable force on the question and said that

though he was shipping carloads of material to other points, still he was unable to keep the concrete men from erecting cement houses and barns within hailing distance of his plant. He expressed himself as thoroughly in favor of the movement for intelligent and aggressive publicity on the other side of the line, and was willing to lend his financial support.

Mr. H. DeJoannis then supplemented his previous address by explaining away some of the misconceptions that, in the discussion, seemed to be manifested as to the broad and international scope of the new movement. He set forth clearly the advantages that Canadian clayworkers would derive by supporting and allying themselves with this great effort for publicity, and then he proceeded to canvass the members in rotation as to their individual attitude in the matter. Without exception, the convention expressed its co-operative views and the willingness of its members to contribute 1 cent per thousand brick made to the publicity fund.

The election of officers then took place and resulted as follows: President, J. T. Minor, Kingsville, Ont.; First Vice-President, Albert Hill, Essex, Ont.; Second Vice-President, John Wardle, Blenheim, Ont., and Secretary-Treasurer, Alfred Wehlann, Cairo, Ont.

The Executive Committee for the year 1909 is composed of the officers above-mentioned and David Martin, of Thamesville, Ont., and D. L. McMillan, West Lorne, Ont.

After election the officers made their speeches of thanks. H. DeJoannis then placed before the meeting a resolution addressed to the Provincial Government, requesting an appropriation of \$10,000 for the establishment of a clayworking school in Ontario. This resolution was ably seconded by Mr. McCredie and approved by the convention with enthusiasm.

An interesting discussion of the hollow block question was then held, the chief participants being Messrs. Broadwell and McCredie. The possibility of interesting the local farmers in tile drainage by inviting them to a special session devoted to drainage at the next meeting was then considered, and it was resolved that this should be done.

The convention concluded with a vote of thanks to to the town officials and the local brickmakers for their the town officials and the local brickmakers for their program.

A GOLD-BRICK TOWN.

There are many remarkable towns in Mexico, but none more interesting than Guanajuato, "The Hill of the Frog." It might more properly be called the "gold-brick town," for the houses have been found to contain much gold. This is a curious situation, but it came about naturally. Guanajuato—pronounced Wahnah-wahto—is one of the oldest mining towns in Mexico; but the value of the place as a town was discovered when a railroad company decided to build a station there. It was found necessary to tear down about 300 abode buildings, which were made of the refuse of various mines after the ore was extracted.

When it became known that the old abode buildings would be torn down, pieces taken at random were assayed. It was found that because of the old process, which lost much gold and silver, they assayed from \$3.00 to \$24.00 a ton. The mean value was estimated to run about \$8.00 gold per ton. The old buildings have brought about \$30,000 Mexican in gold, and persons who have built since the new machinery has been installed in the mines are bemoaning the fact that the new houses do not contain as much gold as the old.—Scientific American.

One of the biggest blunders the world makes is assuming that nobody works except those who wear overalls and jumpers.

Written for THE CLAY-WORKER.

A CASE OF CEMENT BRICK FAILURE.



SOME OF THE enthusiasts for cement and concrete construction who have long since had to admit that cement block is not half what was claimed for it, have been pinning their faith to cement brick, making a sort of last stand behind brick made of cement and sand, and prophesied great things for it. For this as well as for other cement products all the qualities of clay brick are claimed, yet it, like blocks, is proving a failure under tests. In Louis-

"They cracked and crumbled all to pieces, and there are none of them fit to use again."

Examination of the walls showed this to be a fact; everywhere that the heat had been intense the brick was cracked and crumbled pretty much, as a certain class of porous stone after a freeze. It is comparatively easy to pick up one of the bricks and break it to pieces in the hands, and many of them would crumble away pretty much like what we would term rotten sandstone. It is a little difficult to figure out from the remains just how good the binder or bonding material in this brick was originally, and how much it was damaged by fire. The one prominent fact is that it didn't stand the fire and is a failure, whether as a result of the fire or a failure in its original construction is im-



Ruins of the Coliseum, Louisville, Ky. The Cement Brick Failed to Stand the Fire.

ville, Ky., the Coliseum, a building covering more ground space than any other in the city of Louisville, except the big Armory, was build of this cement brick. This building was destroyed by fire one day in the early part of March, and the main parts of the walls fell or practically all of them. This might have happened even in brick walls, because of the long trusses across, but pretty soon some who had been around the ruins began to tell of the brick crumbling and being ruined generally by the fire. To verify this fact the Louisville correspondent of THE CLAY-WORKER visited the ruins, and, hunting up the watchman in charge, said:

"I desire to examine the remnants of these walls to see how this cement brick has stood the fire."

"They didn't stand it at all," the watchman replied.

material. The bonding properties of the cement brick, if they were ever present, have so nearly disappeared that they can easily be broken and crumbled up. Seemingly the only binder is a little on the outside. It is a peculiar fact in this connection that here and there were a few second hand clay brick, some used for fillers or a backing in the walls. These, as a rule, were intact and practically as good as they were when put in, while everywhere that the cement brick came in contact with the heat they were ruined.

We all admit that prevention is better than cure every day of the week, but that is no argument for not administering a cure where a cure is needed.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



BUILDERS AND SUPPLY dealers here are as busy as bees, as the construction season is now well under way. A number of new projects have been announced, while contracts have been let for a number of others. The building permits for March show a decided increase over last year, and the total for the year to date is well ahead of the last four or five years. It is believed that the amount of building done this year will compare well with 1907, which was the banner year in the history of the city.

For March, 741 building permits were issued for buildings aggregating in value \$1,165,983. Last year 738 permits were taken out for buildings worth \$745,985. The total value of permits issued to March 1 was \$2,169,318. This is about double the amount started within a similar period in 1908.

The Cleveland Builders' Supply Company reports a good demand for paving brick. It will supply Bessemer paving blocks for twenty streets to be paved this season by the Northern Ohio Paving Company. Another good plum secured was a big order of Tiffany Norman flats in white enamel for the new West Side market house. It is equal to about 200,000 standard sizes, and the order is worth about \$15,000. John Grant & Sons are erecting the building, which will be one of the finest in the country, costing \$300,000.

Edward Frantz, dealer, on the tenth floor of the Garfield building, says that he has about as much business as he can handle, and that the orders continue to roll in. He is supplying a number of his "bull dog" brand for big buildings and residences in the East End, among them being the new garage for the Babcock Electric Company, on Euclid avenue at East Sixty-sixth street, and a big store building on East Fifty-fifth street for the Forest City Investment Co.

The Atlantic Refining Company will spend about \$50,000 on a new plant in Newburg. This will include a large warehouse, a cooperage shop and a storage building. All will be of brick. Plans were prepared by the Osborn Engineering Company.

George H. Steffens, architect, will erect a \$50,000 apartment house for himself on East Seventy-seventh street, near Euclid, using a chocolate colored pressed brick for facing purposes. It will contain eight suites of eight large rooms each. W. T. Paul has the general contract for the mason work.

On May 1 plans for the new \$300,000 club house for the Cleveland Athletic Club, to be erected on Chestnut avenue, will be received. Six architects are preparing plans under a competition inaugurated by the club, of which they are all members. They are: J. Milton Dyer, Frank Meade, Hubble & Benes, Searles, Hirsch & Gavin, Abram Garfield, and L. T. Scofield. The exterior will be of a pressed brick and the interior of fireproof construction. Work will begin on the building by early summer.

Work is being rushed on the new twelve-story building for the Brotherhood of Engineers, and contracts for the glazed tile will be let early in May. The James Duff Construction Company has the contract for the foundation, which will cost about \$75,000. The building will cost about \$1,000,000.

A Y. M. C. A. building costing about \$75,000 is being planned for Ashtabula, east of Cleveland. Architects Briggs & Nelson, who have built a number of these structures, have prepared plans for it. It will be of ornamental pressed brick and of fireproof construction.

Patrolman Lawrence, of the Seventh Precinct, lost 1,000 bricks and a pup the other day. George Ginn, a prominent brick manufacturer, lost a valuable spaniel pup and offered

1,000 bricks for its return. Patrolman Lawrence tucked the description away in his jeans, and later in the day when he saw the pup he made chase. It is said that he chased it sixty blocks, when it disappeared in the dim distance together with his vision of the bricks.

James Connelly, sixty-four, one of the best-known of Cleveland contractors, died during the past month. He made a specialty of building public works, and was known throughout this part of the state. He is survived by a widow and four children.

The nominating committee of the Builders' Exchange Social Club has selected the following names of members of the Exchange to go on the ballot for election of the governing committee of the club for the next year: O. J. Bechtel, W. A. Bohnard, Harry Burgess, J. J. Comerford, W. M. Esterly, Ira S. Gifford, F. L. Henderson, Chester M. Harris, W. H. Hodges, W. W. Jepson, P. McNerney, M. A. Monaghan, E. E. Ranney, I. A. Reader, E. E. Robbins, D. E. Reynolds, R. O. Rote, A. H. Rudolph, George A. Rutherford, L. A. Slatmyer, E. A. Stevens, F. D. Stevenson, Charles W. Taylor and John W. Thompson.

On Thursday, April 8, Judge Taylor, the Federal Judge who is receiver for the Cleveland street car lines, addressed the monthly luncheon of the Exchange, which was very largely attended, on the street car situation, concerning which there is yet some interest in this city.

Plans for the new South Side public branch library have been remodeled by Whitfield & King, of New York, and bids will be accepted to May 3 for the construction of the building, which will be of pressed brick trimmed with terra cotta. It is aimed to have the building cost about \$40,000. Bids received a month ago made it cost in the neighborhood of \$60,000, so the plans were ordered remodeled. It is aimed to have the building erected under one general contract.

BUCKEYE.

Written for THE CLAY-WORKER.

PHILADELPHIA BRICK NEWS.

THE CONKLING-ARMSTRONG Terra Cotta Company are very busy and have been so for several months.

They have recently closed contracts for the following buildings: The New York, New Haven and Hartford Railroad station at Worcester, Mass., Watson & Huckel, of Philadelphia, architects. This station is to be a beautiful building, and will contain a large amount of white matt glaze terra cotta; the new Jordan & Marsh department store, of Boston; the White building, also of Boston; both of these buildings are to be entirely of matt glaze terra cotta; the Centurian building, New York City; the Frazer Academy, of Frazer, Pa., and the Cameron building, New York. There are, besides, many smaller buildings scattered through the various cities.

The indications are that the architectural terra cotta business will improve much and the coming year will be a prosperous one. There seems to be a general tendency throughout the country to use brick and terra cotta. It was feared at one time that concrete would take the place of terra cotta to a great extent, but it has had the reverse effect. The demand for matt glaze, with and without colors, has given the business a great impetus.

T. B. McAvoy & Co.

have secured the contract for 3,000,000 paving blocks for Philadelphia, and also another for 600,000 paving blocks for Asbury Park. They anticipate securing their share of the large contract to be given in Philadelphia next month. T. B. McAvoy, Sr., is enjoying the best of health, and gave a dinner last week to the boys in the office, said boys being about twenty in number.

The Chambers Brothers' Company

report some improvement in trade through their Chicago office, Mr. E. R. Frazier having recently sold another Chambers end-cut machine for Sioux City, Iowa, and taken orders for several of their new pattern automatic cutters. One of these goes to Milwaukee, another to Geneva, Neb., and two

to Chicago brickmakers. Their trade in the southern states is becoming more encouraging, Mr. Morrison having recently sent in an order for an end-cut machine to Hazlehurst, Ga., and another outfit going to Messrs. Peter Harris' Sons, of Macon, Ga.

M. E. LOCKINGTON.

PROVISIONS IN THE PAYNE TARIFF BILL IN WHICH THE CLAYWORKERS ARE INTERESTED.

THE FOLLOWING are the provisions of the Payne Tariff Bill as it passed the House, in which our readers will be interested:

82. Fire-brick, weighing not more than ten pounds each, not glazed, enameled, ornamented, or decorated in any manner, one dollar and twenty-five cents per ton; glazed, enameled, ornamented, or decorated, thirty-five per centum ad valorem; weighing more than ten pounds each and not specially provided for in sections one or two of this Act, not glazed, enameled, ornamented, or decorated in any manner, thirty per centum ad valorem; glazed, enameled, ornamented, or decorated, thirty-five per centum ad valorem; brick, other than fire-brick, not glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, twenty-five per centum ad valorem; if glazed, enameled, painted, vitrified, ornamented, or decorated in any manner, thirty-five per centum ad valorem.

83. Tiles, including quarries or quarry tiles, so called, plain, unglazed, one color, exceeding two square inches in size, four cents per square foot; glazed, encaustic, ceramic, mosaic, vitrified, semivitrified, flint, spar, embossed, enameled, ornamental, hand painted, gold decorated, and all other earthenware tiles, except pill tiles, valued at not exceeding forty cents per square foot, eight cents per square foot; exceeding forty cents per square foot, ten cents per square foot and twenty-five per centum ad valorem.

Cement, Lime and Plaster.

84. Roman, Portland, and other hydraulic cement, in barrels, sacks, or other packages, eight cents per one hundred pounds, including weight of barrel or package; in bulk, seven cents per one hundred pounds; other cement, not otherwise specially provided for in sections one or two of this Act, twenty per centum ad valorem.

This paragraph is amended as to "other cement," which in the bill as introduced was "not otherwise specially provided for in this section." The rates remain unchanged.

85. Lime, five cents per one hundred pounds, including weight of barrel or package.

86. Plaster rock or gypsum, crude, forty cents per ton; if ground or calcined, one dollar and seventy-five cents per ton; pearl hardening for paper makers' use, twenty per centum ad valorem; Keene's cement, or other cement of which gypsum is the component material of chief value, thirty-five per centum ad valorem.

87. Pumice stone, wholly or partially manufactured, six dollars per ton; unmanufactured, fifteen per centum ad valorem; manufactures of pumice stone, or of which pumice stone is the component material of chief value not specially provided for in sections one or two of this Act, thirty-five per centum ad valorem.

Clays or Earths.

88. Clays or earths, unwrought or unmanufactured, not specially provided for in sections one or two of this Act, one dollar per ton; wrought or manufactured, not specially provided for in sections one or two of this act, two dollars per ton; china clay or kaolin, two dollars and fifty cents per ton; limestone rock asphalt containing not more than fifteen per centum of bitumen, fifty cents per ton; asphaltum and bitumen, not specially provided for in sections one or two of this Act, fifteen one-hundredths of one cent per pound on the bitumen content contained therein; bauxite, or beauxite, crude, not refined or otherwise advanced in condition from its natural state, one dollar per ton; fuller's earth, unwrought

and unmanufactured, one dollar and fifty cents per ton; wrought or manufactured, three dollars per ton; flour spar, one dollar and fifty cents per ton.

The bill as introduced in the House provided for "fluor spar, crude, 50 cents per ton; crushed, ground, treated or otherwise manufactured, \$1.75 per ton.

89. Mica, unmanufactured, or rough trimmed only, five cents per pound and twenty per centum ad valorem; mica, cut or trimmed, mica plates or built-up mica, and all manufactures of mica or of which mica is the component material of chief value, ten cents per pound and twenty per centum ad valorem.

The mica paragraph is very materially changed as introduced in the House. Mica itself was dutiable at 30 per cent., and all manufactures of same or of which it was the component material of chief value, 35 per cent. ad valorem.

Earthenware and China.

90. Common yellow, brown, or gray earthenware, of common clay and strictly one color; plain, embossed, or salt-glazed, strictly one color common stoneware, and crucibles, all the foregoing not decorated in any manner, twenty-five per centum ad valorem; Rockingham earthenware not decorated, forty per centum ad valorem.

91. China, porcelain, parian, bisque, earthen, stone and crockery ware, ornamented, decorated, painted, colored, tinted, stained, enameled, gilded, brown white lined or printed, and clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, and lamps wholly or in part of such ware; and manufactures in chief value of such ware not specially provided for in sections one or two of this Act, sixty per centum ad valorem.

In this paragraph the words "brown white lined" have been interjected between gilded or printed. The rate of duty remains the same.

92. China, porcelain, parian, bisque, earthen, stone and crockery ware, plain white, plain brown, not subjected to any decorative process, and clock cases with or without movements, pill tiles, plaques, ornaments, toys, charms, vases, statues, statuettes, mugs, cups, steins, and lamps wholly or in part of such ware; and manufactures in chief value of such ware not specially provided for in sections one or two of this Act, fifty-five per centum ad valorem.

The words "plain brown" have been added in second line.

93. Articles and wares composed wholly or in chief value of earthy or mineral substances, or carbon, not specially provided for in sections one or two of this Act, whether susceptible of decoration or not, if not decorated in any manner, thirty-five per centum ad valorem; if decorated, forty-five per centum ad valorem.

94. Gas retorts, three dollars each; lava tips for burners, ten cents per gross and fifteen per centum ad valorem; carbons for electric lighting, thirty-five per centum ad valorem; filter tubes, thirty-five per centum ad valorem; porous carbon pots for electric batteries, without metallic connections, twenty per centum ad valorem.

A. F. TENNILLE.

The Cost of Dryers.—An advertisement in the paper states that the "Modern artificial dryer will dry brick without cost." That such can be the case must first be proven. If we take the cost of coal in a boiler by an eleven-hour run, we find that the regular boiler will use about \$9.00 for coal, while a gas motor will use about \$2.00. In a brickyard where such a new system was installed, it was found that the cost of drying was materially increased, especially as much live steam was used in the process of drying.

In the change which they made at this yard, they erected a four-story dryer, in which the kiln was in the center, and in which there was plenty of air drying. The cost of drying was reduced about \$1.00 per 1,000 brick by this system. In this building there are dried in the summer months about 190,000 brick, and in the winter months about 105,000 brick per week without any steam. With such a dryer, the statement that the drying does not cost anything can easily be made and proved.—Tonind. Z., No. 142, 1908.



Clay Industry Exposition in Berlin.—On account of the two hundred year anniversary of the discovery of porcelain in Europe, the second exposition for clay, cement and lime will be held in Berlin in the spring of 1910.—Sprechsaal, No. 50, 1908.

German Sewer Pipe Quotations.—The Association of the German Sewer Pipe has taken action in regard to the price for sewer pipe for 1909. On account of the great losses and the small trade of 1908, and, consequently that nearly all factories have been running at a loss, the price for 1909 will be raised 10 per cent.—Sprechsaal, No. 51, 1908.

Clay as Heat Conductor.—Mr. M. S. Wologdine has conducted some experiments regarding the conduction of heat through bricks. The results are that all clay products have the same coefficient of conduction, to wit: 0.003 silica brick has the same ratio as clay bricks. Carbon and graphite have five times as much conduction as clay.—Moniteur de la Ceramique, No. 22, 1908.

A French Drain Tile Press Machine.—Mr. M. Nikolaus Ketelsen has invented a press machine by which it is possible to press six drain tile at once. It works with a long lever, which works in return on six cylinders which are used for making of the drain tiles. The machine shows a simple construction and will work to great advantage.—Moniteur de la Ceramique, No. 22, 1908.

Austrian Association of Clay Industries.—The annual meeting of the Austrian Association of Clayworkers was held in Vienna in December, 1908. The attendance was very good. The president of the association, Mr. C. Cezerny, was re-elected. The action of the association in fighting the roofing paper trust has brought some results. Several of the official buildings will be exclusively roofed with clay tile. Several technical papers were read, from which extracts will be given later on.—Tonind. Z., No. 146, 1908.

Two Hundred Year Anniversary of European Porcelain.—In 1909 it will be two centuries since Bottger discovered the art of making porcelain. On March 19, 1709, King August of Polen and the Prince of Saxony were shown by Bottger the final results of the experiments which he had made with glazed porcelain. Bottger manufactured in 1705 red stoneware, which he called at that time "Bottger porcelain," and in 1708 he was able to make porcelain without glaze. The results of his experiments was the starting of the Royal Saxonian Porcelain Factory in Meissen on July 10, 1709.—Tonind. Z., No. 148, 1908.

Glaze for Brick and Tiles.—The quantity of glaze required to glaze brick and tile varies somewhat with the clay on which it is used. On 1,000 brick the amount of glaze required will be about eighteen pounds, while on 1,000 tile the glaze will be about forty pounds. When the glaze has to be applied on red bodies, the amount required will vary accordingly to the covering power of the glaze. The kiln in which the ware is burnt has also some influence on the amount to be used. In a continuous kiln, the glaze volatilizes

more than in a periodical kiln, as the glaze is longer exposed to the action of the heat.—Tonind. Z., No. 140, 1909.

Sale of Kaolin Beds.—The Bavarian Government has sold recently fifty-seven acres of kaolin beds, near Shoenhaid, for the total sum of 252,700 marks (\$63,175) to a large porcelain manufacturer of Tosenrenth.—Keramische Rundschau, No. 49, 1908.

Reduction of Wages of Brickyard Men.—The National Board of Trustees of the Brickmakers' Association has decided that the wages for all brickyard men in the association will be reduced 5 per cent. for the year 1909. The large stock on hand at all yards and the very limited demand for brick were the two important points in favor of the reduction in wages of the employees.—Deut. Topf. & Z. Z., No. 97, 1909.

Taxes on Advertising.—The German Government has proposed to levy a tax on all advertising matter. The clayworkers, and especially the brickmakers, are up in arms regarding the proposed tax, as they advertise very heavily as a rule. The Association of German Clayworkers is preparing to take a stand against this proposed tax. It is pointed out that this tax will work no benefit, and that the Government will not realize the estimated results of such a tax.—Tonind. Z., No. 144, 1908.

Underglaze Blue for Stoneware.—To make a good blue which will apply on stoneware under glaze, it will be necessary to use first quality of cobalt. Twenty-eight parts of black cobalt oxide is mixed with 35 parts of kaolin and calcined. After being calcined the color is ground very fine and ready for use. Another mixture which will be a somewhat lighter blue is made of flint, 100 parts; cobalt, 100 parts, and saltpeter, 18 parts. This mixture is also calcined and ground fine. A glaze which will cover this blue under glaze has the following composition: Feldspar, 58 parts; whiting, 12 parts; flint, 12 parts, and kaolin, 6 parts.—Sprechsaal, No. 46, 1908.

The Glazing of Gas Retorts. Most of the gas retorts made and used in Germany are glazed on the inside with a soft feldspar glaze. The pores of the retorts are closed by this process, and the life of the retort is lengthened. It is further claimed that glazed retorts produce more gas than unglazed retorts. Lead glazes are not suitable for this purpose. A suitable feldspar glaze is made of 84 parts feldspar, 35 parts whiting, 91 parts kaolin, and 204 parts of flint. This glaze will mature at a temperature of Cone 10, and the retorts should not be burnt higher than Cone 15.—Deut. Topf. & Z. Z., No. 97, 1908.

The German Porcelain Industries and the American Imports.—According to the official reports, the potteries of Germany have felt a great falling off in their export business with the United States in the last year. The amount of porcelain exported dropped from 250,484 tons to 216,167 tons. The business and the profits of these potteries declined considerable. The following table will give an idea of the decrease in value of seven of the largest plants in Germany:

Potteries.	Dividends.			Value of the Stock on the Berlin Exchange.		
	1905.	1906.	1907.	Jan., 1907.	Jan., 1908.	Nov., 1908.
Dux	7½	8½	8½	126¼	115¾	115
Kahla	35	35	25	460	354	340
Koenigszell ...	12½	11	9	218	149	172
Rosenthal	18	20	15	286	224	240¼
Shoenwald	11	9	4	154¼	110½	101¾
Sitzendorf	0	0	0	68	42¼	46½
Triplitz	12	15	12	217	168¾	167½
Wessel	7	6	2	118¼	87½	78½

—Deut. Topf. & Z. Z., No. 97, 1908.

Written for THE CLAY-WORKER.

NOTES ON THE HISTORY OF THE ROOFING TILE INDUSTRY IN THE UNITED STATES.

BY W. G. WORCESTER.



BIRTH OF THE roofing tile industry in this country, while of a somewhat recent date, is dimly shrouded in the past. To clear up this veil of mist which hangs over the dawn of our roofing tile industry this article has been prepared. The information received through this means will help to complete the notes already gathered for a bulletin on "The Roofing

Tile Industry," under the Ohio Geological Survey. This bulletin or report will not only deal with the roofing tile industry of Ohio, but of the United States as a whole; hence any information as to the dates, names or location of any roofing tile plants that have ever been launched in this country will be very greatly appreciated. A rough sketch of the tile made and the nature of the clay used will prove of special interest; also any information as to the importation of tile into this country by the Dutch and Germans of our eastern states, or the old Spanish tile imported into

fulness to the old tree, they later built their church beneath its stately limbs. The tree fell prey to the ravages of time, but the Zoar Church still marks the site, where, on that stormy night, the little flock of Zoarites were sheltered by the great tree.

During the following spring, or the spring of 1818, the women and the balance of the men came through from the East.

They were a very thrifty people and lost no time in getting to work to put up houses and other buildings. Having come from a land where tile had been used for many years, it was only natural that they should think of manufacturing tile with which to cover their roofs.

The tile made by these quaint people were an improvement over those made at Germantown by Mr. Robinson. They were larger, lighter and of better proportions, the size being approximately 6 inches wide, 15 inches long, and $\frac{5}{8}$ to $\frac{3}{4}$ -inch thick.

These tile were also made with a lug by which to fasten them to the roof. For appearance sake the lower end of each tile was rounded to a form known as "beaver tails."

The work of making tile was carried on by the Zoar people until 1854, when discontinued. The manufacture of tile with them was only to the extent of making tile for their own buildings, no attempt having been made to manufacture beyond their own usage.

The manufacture of roofing tile on a commercial basis

NAME.	LOCATION.	DATE OPENED.	DATE CLOSED.
John Robinson	Germantown, O.	1812	.....
Zoarites	Zoar, O.	1827	1852
John Conrade	Zanesville, O.	1873	.....
Edwin Bennett	Baltimore, Md.	1876	1908
Harris B. Camp	Cuyahoga Falls, O.	1876	.....
Akron Roofing Tile Co.	Akron, O.	About 1877	Still operating
Celadon Terra Cotta Co.	Alfred, N. Y.	1888	Still operating
Harris Bros.	Zanesville, O.	1892	Not known
Ludowici Roofing Tile Co.	Chicago Heights, Ill.	1893	Operating
Bernard Tile Co.	Bellair, O.	1893	Not known
Repp Roofing Tile Co.	New Philadelphia, O.	1890	Not known
Not known	Ottawa, O.	Not known	Not known
Chicago Terra Cotta, Roofing and Siding Tile Co.	Ottawa, Ill.	Not known	About 1902
Burns-Russell Tile Co.	Baltimore, Md.	Not known	Not known
Standard Roofing Tile Co.	St. Louis, Mo.	Not known	1907
Mound City Roofing Tile Co.	St. Louis, Mo.	Not known	Still operating
Huntington Roofing Tile Co.	Huntington, W. Va.	Not known	Still operating
Cincinnati Roofing Tile and Terra Cotta Co.	Cincinnati, O.	1895	Still operating
Ludowici-Celadon Co.	New Lexington, O.	1902	Still operating
Ludowici-Celadon Co.	Ludowici, Ga.	Not known	Still operating
Western Roofing Tile Co.	Coffeyville, Kans.	Not known	Still operating
United States Roofing Tile Co.	Parkersburg, W. Va.	1903	Still operating
Cloverport Roofing Tile Co.	Cloverport, Ky.	Not known	Still operating
Detroit Roofing Tile Co.	Detroit, Mich.	Not known	Still operating
National Roofing Tile Co.	Lima, O.	Not known	Still operating
Alfred Clay Co.	Alfred Station, N. Y.	Not known	Still operating
Spillman Brick Co.	Spillman, W. Va.	Not known	Not known
Not known	Sparta, O.	Now building	

our southern and western states will prove of much interest.

Among the earliest tile known to have been manufactured in this country were made by a Mr. John Robinson, at Germantown, Ohio, about 1812. While Mr. Robinson did not enter the field of manufacture on a commercial scale, he made tile for his own buildings, one of which was standing until as late a date as 1907.

The tile made by Mr. Robinson were very crude, not being much more than slabs of clay; in dimensions they were about $3\frac{1}{2}$ inches wide by 14 inches long and 1 inch thick. These slabs or flat tile were provided with a lug or rib on the underside at the uppermost end of the tile. These lugs were to permit of the tile being hung on the purlins of the roof, instead of being nailed down.

The next step in our manufacture of roofing tile was that of the Zoar colonists, in 1827, at Zoar, Tuscarawa County, Ohio. These people, with one common interest, were from Wurtemberg, Germany. Arriving in Philadelphia in the fall of 1817, they at once made purchase of about 5,000 acres of land in the above county at \$3.00 per acre. The entire party did not go at once to their new possessions; a few of the stalwart men set out overland by foot late in the fall of 1817 and succeeded in reaching their new home in time to celebrate Christmas.

Their first night at Zoar was one of storm and blizzard, and to protect themselves the little band of men found shelter in the hollow trunk of a mammoth sycamore tree. In grate-

in this country was probably first undertaken by Mr. John Conrade at Zanesville, Ohio, in the fall of 1873. Following Mr. Conrade in tile manufacture was the early attempt of Mr. Edwin Bennett, of Baltimore, in 1876. Both of the above plants were operated under a patent right held by a Mr. J. B. Hughes, of Terre Haute, Ind.

The Hughes' tile was a simple interlocking tile, but, nevertheless, seems to stand at the head of its class as being the first interlocking tile manufactured in this country.

At about the same time that the Bennett plant was opened in Baltimore, Mr. Harris B. Camps, of Cuyahoga Falls, Ohio, started, in a small way, to manufacture tile of the French diamond pattern at that point. The business was soon turned over to Mr. J. C. Ewart, of Akron, Ohio. This latter gentleman has, for the many years following, carried on the business successfully in that city.

Another of the early plants of this country that has done much to build up the roofing tile business is that of the old Celadon Terra Cotta Company (now one member of the Ludowici-Celadon Co.), Alfred, N. Y. This plant was built in 1888. In the years that have followed, many plants have been built at scattered points over the country.

In the foregoing table will be found a list of the roofing tile plants of the United States that have so far come to the attention of the writer. Additions and corrections to this list are asked for. Information addressed to the writer at the State University, Columbus, Ohio, will be properly received.

Written for THE CLAY-WORKER.

SOUTHEASTERN LETTER.



THE BRICK AND clayworking establishments in the South are experiencing a rapidly improved trade situation with the development of spring. Constructive work in Nashville, Memphis, Chattanooga and Knoxville is good. The contractors and architects have much work on hand and not a little in process of execution. The various agencies and building supply firms give favorable reports.

The E. T. Lewis Company, brick contractors and manufacturers and dealers in building materials and supplies, have recently closed the contract for the erection of the brick work on the new Hermitage Hotel. This company also recently completed the brick work on the new Davidson County Jail, the Criminal Court building, and are furnishing supplies for a number of residences about the city of Nashville.

Bids will be open on two sewers for the city of Nashville within the next few days, and also on the laying of the water mains in East Nashville. Both are to be clay pipe sewers, one 1,450 feet long, the other 738 feet long.

The Harley Pottery Company, of Nashville, has branched out into new lines this season, and has enlarged the big plant in West Nashville accordingly. Heretofore this company has confined its operation to a certain character of staple wares, but has recently entered a line of bowls, pitchers and other wares of the crockery trade. Jugs have been the leader for a number of years, and this trade has grown to a wonderful proportion. The company now proposes to make a general line of wares from the clay secured in West Tennessee. The plant has doubled its force of operatives and is enjoying a large business.

At Chattanooga, an addition has been made to the business concerns of that city by the opening of a new business by Sloan & Co., 819 Broad street. The business of the firm is under the management of Mr. Sloan, who is also general manager of the Howard Park Brick Company, one of the largest producers of common brick in that section. The firm will keep a handsome exhibit room at their city location, where will be exhibited all kinds of brick laid up in panels, showing the effect of different mortar colors and just how the brick will appear when put in walls. This idea was originated by Mr. Sloan, and is one that will no doubt be much appreciated by Chattanooga builders and architects. The firm also maintains warehouses on both the N. C. & St. L. Railway at Chattanooga.

At Jackson, Tenn., C. M. Monroe, a well-known expert on earthenware and tile work, is organizing a company for the construction of a factory in that city, where earthenware will be manufactured and a specialty made of all kinds of tile work.

The Humboldt Brick and Tile Company reports a good spring business. The officers of this concern are at present: C. H. Ferrell, president; J. J. Thweatt, vice-president, and Geo D. Dodson, secretary.

Costen, Moore & Co., of McKenzie, Tenn., report a good spring trade on brick for house building purposes. They are manufacturers of common brick, and ship over Alabama, Mississippi and West Tennessee. W. G. Costen, manager of this firm, states to your correspondent that probably they will not go into house building contracting work this year as they did last, but will give their time solely to the manufacture of their brick, which is meeting with an increased sale.

The Paducah Brick and Tile Company, Inc., of Paducah, Ky., operates one of the largest plants in Western Kentucky. The office and works of this plant are located at 1439 South

Tenth street, Paducah, Ky., and its officers are: Arthur Murray, president; J. A. Murray, secretary and treasurer. This firm's brick is of the machine and sand-mold type, and its output is consumed in the building operations of Paducah and vicinity. This company manufactures a hollow building block which has won great popularity wherever it has been used, as it makes a perfectly dry wall, and is capable of carrying a large load. It is five times the size of standard brick, and thus possesses very economical features. It is light and the company enjoys an extensive trade in this product, being able to ship to much greater distances than it would be possible to carry brick with profit. This company has furnished brick for a large number of Paducah's handsome buildings, including the Belvidere Hotel, Fraternity building, Christian Church, I. C. Hospital, Riverside Hospital, the Carnegie Library, the High School, and the J. W. Kuyler residence. This company manufactures no face brick.

The Union City Brick Company has been incorporated at Union City, Ga., by L. M. Wright, of Rome, Ga.; Julian Baxter, of Atlanta, and Longstreet Hull, of Athens, Ga. It will proceed with the erection and equipment of a plant to manufacture buff brick. The outfit has been purchased.

James and John McIntyre have purchased the plant of the Montgomery Brick and Tile Company at Montgomery, Ala.

The Greenville Tile and Cement Company has been incorporated at Greenville, Miss., with \$30,000 capital stock by Leroy Percy, J. H. Crouch and others.

The Tennessee Brick Company and the South Memphis Brick Company at Memphis, Tenn., report an active trade on common building brick, which they are manufacturing to the number of about 200,000 per day. Their output is handled through the Memphis Brick and Supply Company, whose offices are in the Southern Express building, Memphis. This firm has recently furnished brick for the Barnes & Miller Warehouse, and for the Shelby County Court House at Memphis, also for Crane & Co.'s warehouse in the same city, just being completed.

The Cubbins Brick Company is another flourishing Memphis concern that is furnishing its full supply of brick entering in construction work in Memphis this season.

The Cumberland Valley Company, of Nashville, reports trade good on sand and other building materials. They handle the Southern wood fiber and Monarch plaster. They contemplate handling a line of terra cotta at an early date. The offices of the concern are in the Stahlmann building, and the manager is Dan Lindsey.

The Chattanooga Sewer Pipe and Fire Brick Company, the successors at Chattanooga to the old firm of Montague & Co., were visited by your correspondent. O. E. Deppen, manager of this firm, states that the brick and clay business in that territory is reflecting the general dullness prevalent in other lines of trade. They are hoping for better times soon, and are manufacturing sewer pipe, fire brick, wall coping, etc.

DIXIE.

THE SIMPSON SCREEN.

The National Brick Machinery Company, of Chicago, Ill., are certainly meeting with great success in the sale of their Simpson screen. The Columbus and Hocking Coal and Iron Company, of Columbus, Ohio, have ordered a second screen, after thoroughly testing out the first one they ordered for their plant at Kachelmacher, Ohio. Mr. S. G. Brinkman, of Fords, N. J., and the Celtic Brick Company, of Prince Albert, Canada, have also sent in their orders for the Simpson screen.

Sometimes it is pretty hard for a young man to realize that it is much better to be a man in overalls than a mere figure in a shirt-front.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

The Best Paper for the Brickmaker.

DEAR SIR:

Enclosed please find a check to cover subscription for 1909 and 1910. We always look with pleasure for every issue of THE CLAY-WORKER, and think it is the best paper for the brickmaker.

Business prospects are quite favorable, and we are making preparations for operating the full season. Accept our best wishes.

Yours respectfully,

Logan, Utah.

GESSEL PRESSED BRICK CO.

Real Work Accomplished at Rochester Convention.

DEAR RANDALL:

Here are the three sweetest words in the English language: "Enclosed find check," covering amount of your bill for ad and \$5.00 towards the Bricklayers' School.

Hope you got over the rush incident to the convention report. I think the last meeting of the N. B. M. A. did more real work than any other convention, and the stay-at-home fellow little knows what he loses by staying away from these meetings. So many I meet during the year tell me they see it in THE CLAY-WORKER, whereas I consider the best of these meetings for information is the little side talks which are held in the lobbys and other places during these meetings, where the difficulties are thrashed out.

Very truly yours,

H. HAIGH.

A Stranger to Hard Times.

Dear Mr. Randall:

Enclosed find check to cover my subscription to the close of 1912. You ask what I am doing. I hear quite a lot of talk about hard times, but I certainly do not know anything about it myself. I have made more tile and brick than I ever did since I have been in the business. In 1907 I burned 119 kilns of ware and in 1908, 136 kilns, and no tile on hand, either. Made over 600,000 4-inch tile and other sizes up to 16-inch. Have orders in the books for about twenty-five to thirty cars; behind with orders from two to six weeks. Could have sold from fifty to seventy-five more cars of tile if I could have got them out. I shall try and build one or two more kilns in the spring. Have four kilns now, so you see on an average of eleven and one-third kilns were burned each month. With best wishes for THE CLAY-WORKER,

Chatsworth, Ill.

GEO. J. WALTERS.

Best Bodies to Use in the Making of Sanitary Pipes, Etc. Editor THE CLAY-WORKER:

The best body of clay is the light burning fire clay, as this will stand the fire needed to make a good and straight pipe; it will also make the best color, as the light-glazed pipe always takes better in the market than a dark pipe. Of course this body can be made to burn a dark color, nearly as dark as a Rockingham earthenware glaze. This is done in the burning of pipes. Now there are clays that will glaze well, but they will blister on the pipes during the process of making. This fault in many cases is owing to the clay being too plastic when ground, and when it is put on the machine for making the pipe, and so does not knead itself

together as it should; therefore there is always a lot of air in the clay that will cause lamination in a small degree, and as the pipes dry the air has no way to get out of the clay, so the clay shrinks and the pipes show large blisters on the face, and very often these blisters will cause the pipes to get out of shape in the burning. Of course the blisters very rarely show, only in the burning process.

Now there are two ways of overcoming this difficulty. One is by using say 2 per cent. of fire sand. This will open the pores of the clay and allow the air to escape out of the clay, therefore doing away with blistered pipes. Of course, if you have no fire sand, grog can be made from the body used for making the pipes, and the grog will answer the same purpose and make the pipes stand up to their proper size. Now there are many men in the pipe trade that will say that this has a tendency to take the ring out of the pipes when burnt. That can soon be remedied by getting some coal and grinding it in a wet pan until it is as fine as silk, and then when grinding the clay use, say 1 per cent. of coal dust, and this will not only give them a better ring, but will also give the pipe a much better body and help to vitrify the body with less fire, thereby saving much coal during firing; and I know the coal bill is a very large item in America.

Now there is another way of making a body for pipe making. This is done by mixing two-thirds of fire clay and one-third of red clay, but the mixture must not stand less than 2,500 degrees of heat, more if it can be gotten, as bodies to make sanitary ware must stand more heat than the dust from the coal. The dust must be burned fast on the pipes before the salt is given or the pipes will be very coarse and rough where the dust settles on them, thus giving a very bad appearance and very often causes the pipes to be seconds and thirds, where they would otherwise be first.

Every man understanding pipe burning knows that the dust from the coal must be burned hard on the pipe before giving the salt, or the salt will not take the first time, and it will necessitate giving a dose of salt more than is needed for giving enough glaze to the pipe. Some people believe in a flash for salting. I, myself, do not; I believe in the body being thoroughly vitrified before the salt is given, then the body being thoroughly vitrified before the salt is given, the body of the pipe will take a thick, rich coat, and will make a glaze so smooth that the settlings will not remain in the pipe after they are put to use. As the body which has been vitrified will not take the moisture, therefore, it is an impossibility for the refuse to settle and remain in the pipe.

There is another way to make a very fair body for pipes by making a mixture of the following: Three clay or shales—first one part fire clay, one part good shale, and one part good, strong red-burning clay. A very fair pipe can be made by this mixture, but not so good as the first two mixtures, as shale is apt to vitrify too quickly, therefore taking away some of the strength of the body. Some shales will cause the middle of the pipe to shrink rather more than the top and bottom, therefore causing the pipe to curve.

I do not say that the shale in America will do this, but I do say that all shales are vitreous burning bodies, also red clay. Of course, there are red clays that will stand a great deal of heat and stand up straight. For instance, the Staffordshire and Warwickshire clays. They will burn red as well as blue, as will also many more clays on this side of the water, and take a great deal of fire before being hurt or going out of shape. The right way to get this body is to have a small testing kiln and test each body by itself and so ascertain what each body will stand, and then make your mixture to suit. By doing this you know what each body will take if you make a mixture accordingly. This is the safest plan to follow. I, myself, always like to test everything I come across in a clay bank before using. Then I know what I have to contend with and know whether I can make what is required, so I can say definitely to the people I am working for whether I can make the goods or not.

Hope this will give my American brothers something to study over for another month.

H. W. HARDY.

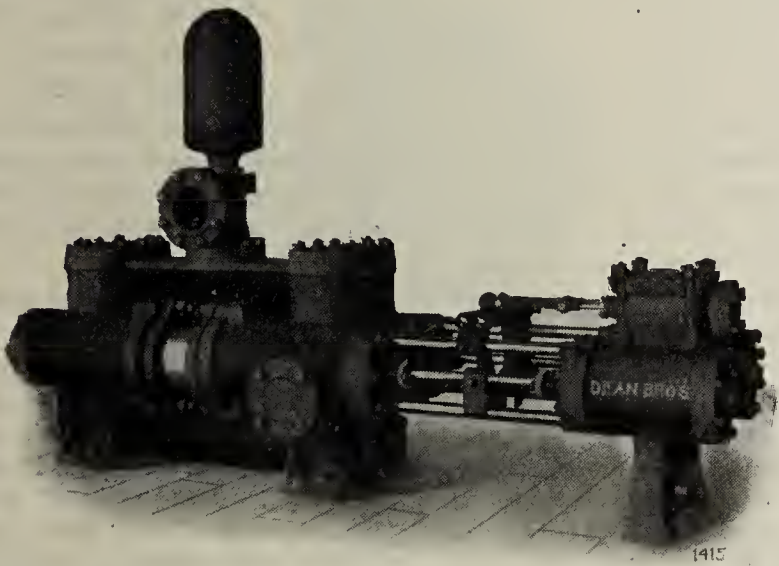
DEAN BROS. DURABLE DUPLEX PLUNGER PUMP.

Both the steam end and the pump ends of this duplex pump are of new design. The effort has been made to produce a pump that will stand long service working against heavy pressure. The convenience of the engineer has been carefully looked after. All the nuts are easily accessible, and all parts can be taken apart and replaced with the least possible trouble. The steam cylinders are of a new type. The steam ports are arranged on a novel plan. The method of steam cushioning is new, and the valves are of an original form.

The most serious objection to duplex pumps has been that they will make short strokes. This pump will always make full strokes and the stroke is unusually long. When a pump runs at half stroke it uses the full amount of steam, but only delivers half its capacity of water.

The water end of this pump is a compact form of outside, center packed plunger pump. It is a new and improved design for feeding boilers, pumping against pressures, etc., and for either hot or cold liquids. There are several advantages in this manner of packing. No leak can occur without being observed and it can easily be stopped by setting up the packing. The plunger not touching the pump castings, will not cut or wear, consequently they require no refitting.

The suction pipe opening is at the end of the pump.



One of Dean Bros.' Excellent Pumps.

The discharge pipe opening may be turned in any direction. They are made by Dean Bros. Steam Pump Works, Indianapolis, Ind.

BUILDING OPERATIONS FOR MARCH.

Official reports from some fifty cities throughout the country compiled by The American Contractor, Chicago, show an increase in March, 1909, of 98 per cent. in the aggregate as compared with March, 1908. The gains which swell the total were scored mostly in New York City and Chicago, amounting to some \$25,000,000. However, some building centers far removed from the two great cities show a surprising increase; those showing a gain or more than 100 per cent., as compared with March, 1908, are: Cincinnati, 113; Columbus, 110; Dallas, 286; Grand Rapids, 120; Harrisburg, 171; Kansas City, 108; Manchester, 152; New York, 387; Oklahoma City, 933; Omaha, 175; St. Paul, 108; Spokane, 100; South Bend, 289; Worcester, 333. Six cities show a loss from 14 to 81 per cent. From present indications, barring any serious labor disturbances, this year will be the greatest in the history of the United States building operations. In the aggregate, the same cities, in the month of January gained 123 per cent., as compared with January, 1908. February gained 132 per cent., and from general appearances building operations will be 100 per cent. greater in volume than during the past year.

Written for THE CLAY-WORKER.

WESTERN PENNSYLVANIA BRICK AND BUILDING NOTES.



THE MONTH OF MARCH and the first part of this month have easily been the best in the brick and building business that we have had in this end of the state in many months, and is considered a good harbinger of the outlook for the coming spring, summer and fall. Many companies report that, while they are not even running full, that they have been able to increase their output from 10 to 25 per cent. during the past month, and that they expect a continued increase in production for the next couple of months to come, a fact that is considered most encouraging.

The fire brick end of the business has gone forward with a steady stride, and is, perhaps, in better condition today than are any of the other departments of the brick and clay-working business. The demand for blast furnace brick, including stove linings, crucible furnace linings, and other refractory material used throughout the iron and steel mills, is very fair, and is showing a steady, although not by any means phenomenal, increase. The increased demand for iron and steel is, of course, responsible for this, and as this business is also expected to increase, it is but natural to expect the demand for refractory brick to increase also.

There is also an increasing demand for vitrified paving brick, as street and highway construction is being started all over this part of the state, and, owing to the small amount of this class of work that was undertaken last year, there will, in all probability, be a large amount of it done this year. Macadam highways have not proven successful in many districts, and will not stand up under the heavy hauling, while the tests that have been made with brick have, in every known instance, proven most successful. The result is, therefore, that the State Highway Department at Harrisburg is preparing plans for more brick highway paving this year than ever before in the history of the department. While the initial cost of the brick highway is somewhat in excess of the macadam or Telford road, its much greater life and far less repair cost makes it much the cheaper, as well as the more satisfactory road in the end. There are also a large number of cities and towns which have sold bond issues for street paving, and are now letting contracts for these improvements, and many millions of vitrified wirecuts will be required for this work alone.

The demand for fireproofing materials has not increased any in this immediate vicinity, but the orders from other parts of the country are coming in better and in larger numbers, so that these companies are also able to report some increase in business and production, although not nearly what they would like to have. Building operations are increasing very rapidly, but so far there is a scarcity of large business buildings in which quantities of hollow block fireproofing are required.

The sewer pipe business is much better, and, with the large amount of sewerage that is sure to be done all over the western part of the state this year, there is no doubt but that some of the plants in this immediate vicinity will be pushed to capacity. All of them are engaged at the present time in running their stocks up as high as possible and will hold these in reserve for emergency calls, shipping wherever possible from the kilns.

The building brick manufacturers are burning more brick now than they have for over a year, and the monthly production sheets of several of the large manufacturers show that they produced over 15 per cent. more common and pressed brick in March than they did in either January or

February. The same increase is looked for during the present month.

The annual meeting of the stockholders of the Courtney Fire Brick Company will be held this month at the general offices of the company at 204 Main street, Monongahela, Pa., and it is almost a certainty that all of the old directors and officers will be re-elected. The year just closed, while showing a falling off in business as compared with the year previous, is considered satisfactory, and was closed with a surplus.

The Clymer Brick Company, operating a large brick works near Clymer, Indiana County, Pa., has booked some large orders again this month and during the latter part of March, and has materially added to the production of the plant as a result. Most of the brick will be shipped to contractors who are building improved state roads in that county and vicinity, most of which are being built of brick. The company is manufacturing a brick that has successfully passed all the requirements of the state for road construction, and expects to do a large business all over the western part of the state this summer.

Issac Williams, one of the pioneer brick manufacturers of the Pittsburg district, died at his home at Trafford City on March 30, last, at the advanced age of seventy-two years. He was born at Blairsville, Pa., where he engaged in the manufacturing of building and paving brick for over forty years, and retired from the business about ten years ago. He remained there, however, for some years, moving to Trafford City four years ago, and again engaging in the manufacture of brick with his son, they having purchased the plant at that place formerly operated by Wynn & Starr. The new venture has been very successful, and this plant has furnished practically all of the common and red pressed building brick that has been used in the building of the town of Trafford City. Mr. Williams is survived by his widow, one son and six daughters. The brick business will be continued for the present under the management of his son.

The Ligonier Silica Brick Company, with general offices in Latrobe, Pa., and a branch office in Pittsburg, made an assignment last month for the benefit and protection of the creditors. For the past eight years the company has been operating a large plant along the line of the Ligonier Valley Railroad Company, and the plant was very successful for some time, but, during the recent years, there has been a large dropping off in the concern's business, and it has been impossible to keep the plant in operation more than a few months each year, and then at a loss. The plant manufactured exclusively brick and shapes for coke ovens, and has furnished this class of material to practically all of the coking plants in the Latrobe basin. The closing down of many of these plants during the past two years has undoubtedly had much to do with the financial embarrassment of the company. Reuben Miller, Jr., of Pittsburg, is president of the company and one of the largest stockholders. It is thought that as soon as business conditions in the coke industry revive somewhat the company will be reorganized, and another attempt made to operate the works during the remainder of the present year. The company has a fine property, including a large bed of the finest silica clay, and with proper business conditions and good management there should be no reason why the company should not be able to operate at a profit.

The Shenango China Company, operating the Shenango Pottery at New Castle, Pa., has been sold by the former owners to C. C. Robinson and a number of his business associates, and was placed in operation the first of this month under the new management. Mr. Robinson was formerly vice-president under the old regime, and is thoroughly familiar with the business, as well as with the operation of the plant. M. S. Marquis, also of New Castle, is president of the concern, and J. B. Whittacre is secretary. The plant

has been closed down during the past six months, owing to poor business and dissensions in the ranks of the owners. It is now in full operation, and is giving employment to about 200 skilled workmen, and has enough business under contract to insure its steady operation for some months to come, while there is still a large volume of business in sight that will probably be landed by the new management. One of the latest contracts booked is with the United States Navy Department, calling for furnishing about \$7,000 worth of china, for use on the various battleships in the Atlantic fleet.

The entire plant of the Pennsylvania Fire Brick Company at Beech Creek, Pa., is being operated to its capacity, and the company has a large amount of future business on its books. The concern has been awarded some excellent contracts during the past few months, and will be able, with the new orders that are constantly being received, to keep the entire force of men busy for the remainder of the winter. The clay mines of the company, which are reached by a private narrow-gauge road, are working day and night turn, and are having difficulty in keeping up with the demand from the plant. John P. Wynn, the manager of the plant, has just completed a number of improvements at the plant and mines, all of which tend to increase the efficiency of the delivery of the clay to the yards.

The partnership that has existed for some years past between James T. Fox and Thomas Mawhinney, as the West End Stone and Brick Company, 121 Wabash street, West End, Pittsburg, has been dissolved by mutual consent, and Thomas Mawhinney retired from the business on March 1, when the formal dissolution took place. The business will be carried on by John T. Fox at the old location and under his name, the name of the former partnership being discontinued. John T. Fox assumes all assets and liabilities contracted by and for the old partnership.

The Pittsburg-Callery Brick Company, with general offices in the Wabash building, Pittsburg, which some time ago took over the large plant formerly owned and operated by the Callery Brick Company, at Callery Junction, Pa., reports that the entire plant has been remodeled and gone over, and that it is now in the best of shape for a long and steady run. The capacity has been increased by the addition of extra machinery and several new kilns, so that it will now have a daily capacity of about 10,000 9-inch brick. The new owners will manufacture a cherry red waterproof face brick, for which there is an excellent demand in this part of the state.

Owing to the large amount of spring business that has been booked and the low condition of the stock, the owners of the Johnsonburg Vitriified Brick Company issued instructions that the entire plant was to be placed in operation on March 15, and operated to capacity until further notice. This year the plant will be in charge of L. I. Foster, a well-known brick authority of Olean, N. Y., who will have full charge during the absence of the general manager, Henry Hasbrouck.

The National Fireproofing Company, Pittsburg, has issued a handsome book showing photographic halftones of the various plants and operations operated, clay mines, etc., as well as the operations in the plants and mines. The book was issued for the benefit of the stockholders.

A. SMOKER.

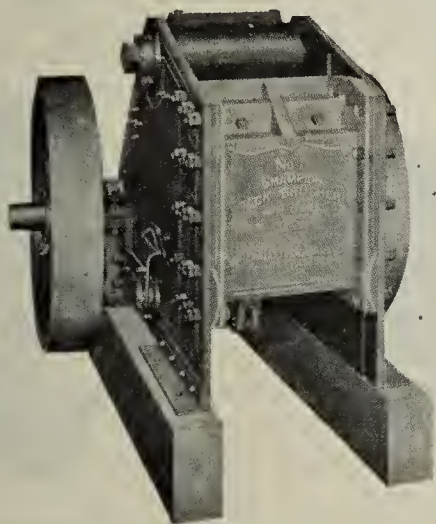
The Buckeye Coal and Clay Company, of New Salisbury, Ohio, after careful investigation and upon the hearty recommendation of one of the best sewer pipe manufacturers of the country, Mr. Andrew Robinson, of Uhrichsville, Ohio, have turned their order for machinery over to the Stevenson Company, Wellsville, Ohio, who will furnish a 40x52-inch one-rod press, noted for making more pipe than any other press in the country, along with wet and dry pans, elevators and conveyers, line shafting and pulleys, dies, trucks, etc.—a full outfit for a one-press plant. The Buckeye people have had plans drawn up for an admirably complete structure, an improvement over anything erected to date.

THE CHAMPION CRUSHER.

WE SHOW HERewith a view of a Champion steel rock crusher, manufactured by the American Road Machine Company, of Kennett Square, Pa., one of the oldest companies in the country manufacturing crushing machinery. When it was first discovered that shale, fire clay and other materials in the ceramic industries could be handled to better advantage after passing through a crusher, this machine jumped into popularity. It is built of high-grade steel, and is so constructed that it is very efficient and economical in operation, being strong and durable, reasonably light in weight and easy to handle.

The American Road Machine Company makes five different sizes of these crushers, with capacities ranging from 75 to 350 tons per day of ten hours. It works not only satisfactorily in reducing soft shale, but crushes with ease the hardest of granite rock with little or no strain on the machine.

The Champion crusher has been installed on a number of well-known clay plants, such as the American Sewer Pipe Company, Pittsburg, Pa.; the American Refractories Company, Joliet, Ill.; Miller Brick Company, Rochester, Pa.; Sayre & Fisher Co., Sayreville, N. J.; the Savage Fire Brick Company, Hyndman, Pa., and many other representative plants. Anyone desiring information on crushing machinery



The Champion Crusher.

should write the American Road Machine Company, Kennett Square, Pa., and get their latest catalogue.

HOLLOW FACE BRICK.

A hollow face brick has been placed on the market by A. C. Ochs, of Springfield, Minn., who has experimented along those lines for an entire year, and has perfected them.

He has demonstrated to many architects that they are more durable than the solid face brick, since they are made under a greater pressure than a solid brick, and will have no lamination, being pressed through small openings, which make the ware very dense and a great deal smoother than the solid brick. It is claimed they can be burnt to a darker color on account of the weight on the lower row not being as great as in the case of the solid brick. The brick being hollow, will also assure a warm and dry wall. There is also a great saving in the freight.

It is also claimed that when clays are subjected to efflorescence, the deposit is made in the hollow core, instead of on the surface of the brick.

The stretchers are made with an end-cut die, and the headers and jam brick are made with a side-cut die. The end-cuts have two holes, and the side-cuts have three holes through each brick.

Springfield has a very strong clay, and even the hollow brick made of the clay have an enormous crushing strength, hence the architects take kindly to the new product, and orders for two large public buildings have already been

received by the Springfield Brick and Tile Company for the coming season.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE BUILDING SITUATION in this section is satisfactory. There is good demand for common brick, and the prices are somewhat better than a few months ago. There are several large buildings contemplated, which will take a good deal of next summer's output. In the face brick line the situation is also encouraging. The demand is far in excess of the supply, and much brick is shipped in from the outside. Sand-lime brick has now been placed on the market, and several buildings are using the brick.

The demand for sewer pipe and paving brick is very brisk. On several paving contracts the specifications have been changed to asphalt, on account of the inability of the contractors to secure prompt delivery of paving brick.

The Hydro-Silica Brick Co. has been incorporated with a capital stock of \$150,000 for the manufacture of sand-lime brick. The plant will be built on Maury Island, near Tacoma. The plant will have a capacity of 48,000 face brick and 60,000 common brick. The brick which will be manufactured will have a waxy finish and will have sharp edges and corners. Mr. G. A. Misener is the manager of the new company.

The Denny-Renton Clay and Coal Co. has lost the suit instituted by Louis Grosjean for recovering of damage for injury sustained in the company's sewer pipe plant. Grosjean sued for \$35,000, and he was awarded a verdict for \$16,500 damages against the company. Grosjean lost both arms, which were crushed off in the feeder of the sewer pipe press.

Miller Bros., of Bellingham, will at once double the capacity of their brickyard, on account of the heavy advance orders and the prosperous condition of the building situation in Bellingham. They are figuring on making 3,000,000 brick this summer.

Hidden Bros., of Vancouver, Wash., have just closed a large contract with the Swift Packing Company, who are building a million-dollar plant on the Columbia River, near Portland. The contract calls for delivery of several carloads per day, and the total amount is over 1,000,000 brick. The company has also secured a Government contract for the Vancouver Barracks and Fort Stevens. They will work all summer full capacity.

The Northern Clay Company, of Auburn, is running its terra cotta and fire brick plant to full capacity. They have secured several large contracts on terra cotta, and will build another kiln at once. They are also contemplating enlarging the plant by the addition of more buildings. They have made a change in their engineering department, and secured the services of Mr. A. R. Thompson as chief draftsman.

The city of Seattle has started condemnation proceedings of a large amount of property in the Cedar River watershed, and the mayor has approved the ordinance. The description of the property includes the plant of the Denny-Renton Clay and Coal Co., at Taylor, but it is not expected that this property will be taken, but that the company will divert its drainage into one of the two available watersheds.

Seattle, Wash., April 3, 1909.

SIWASH.

THE REASON WHY.

"Jamie! I say, Jamie!! What makes the cows graze along that tile drain in the field yonder, where the grass is short and the nippin' poor, and leave the long grass over there sure?"

"And I'll never tell you, Mick."

"Well, Jamie, Oi've studied it out."

"Well, now, we'll hear from you, Mick."

"It's this sure: The roots go deeper and the grass grows stronger and sweeter, and they love it where the tile are. The roots of the ither grass grows down to the water in the spring and is na good, Jamie. It always pays to drain, Oi'm sure."

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NOTES.



RICK MEN OF Buffalo have no complaint to make about the condition of their business this spring. While the trade has not reached the high wave of prosperity of two years ago, a steady improvement is being shown in the building line, with bright prospects of greater activity as the year advances.

One feature which may have some slight effect on the building situation here is the strike of about 200 journeymen plumbers, who recently quit work. The demands of the men include an advance in wages and other concessions. In connection with this strike, the Buffalo Builders' Exchange Association, which includes prominent brick manufacturers, adopted a resolution supporting and endorsing the stand taken by the master plumbers in refusing to accede to the demands of the journeymen. The master plumbers have refused to meet any of the demands and threaten to make Buffalo an open shop city. It is expected that the men will go back to work on the old basis.

Lyman D. Walrath, representing the Queen City Brick Company, in the Builders' Exchange building, says that business in his line is showing much improvement. Lots of building is going on, and the brickyards are kept busy with out-of-town shipments. He is supplying the brick for the Washburn-Crosby mill, which is being built at the foot of Michigan street, and has just completed the last shipment of 200,000 brick. Another contract he is handling is for the brick used in the new water tower on Kensington avenue. About 75,000 will be required in this work. There are a large number of smaller factories and business blocks going up in and around Buffalo, and Mr. Walrath expects that the local stock of old brick will be used up by the time the new stock is finished.

John H. Black, representing Black & Co., Builders' Exchange, says that he has a satisfactory number of contracts. He is supplying the brick and terra cotta for the new hospital which the Homeopathic Hospital Association is building at the corner of Linwood and Lafayette avenues. About 50,000 enameled brick will be used in this building.

James McNamara, of Dunkirk, N. Y., has been awarded a contract for brick paving in Oil City, Pa., for \$55,000.

The Aqueduct Building Company contemplates the erection of a brick fireproof building, 68x73 feet, of seven stories and basement in Rochester, N. Y. W. J. Brockett is the architect, and the Gorsline-Swan Construction Co. will do the building.

Bids for the Lewis street brick pavement, in Binghamton, N. Y., were recently opened. The lowest bid was submitted by A. D. Osborn, of Binghamton, the prices being: Corning brick, \$1.60; Shawmut, \$1.58; Metropolitan, \$2.08.

Church street in Oneonta, N. Y., will likely be paved with brick. A petition signed by nearly all the residents of the street was sent to the Board of Public Works of Oneonta recently, and the work of paving the street will probably be commenced in the near future.

An Elmira (N. Y.) newspaper recently had an eulogistic writeup of Charles W. Burnside, of Sidney, N. Y. Special attention was called to the fact that he deals largely in brick and other building materials.

An effort is being made by the property owners on Main street, Binghamton, N. Y., to secure a new brick pavement for that thoroughfare from Chapin to Florence streets. Many citizens also want a new brick pavement for a section of Washington street in that city.

Contractor M. I. Ford will build a three-story brick block in Binghamton for Frank J. Kunkle.

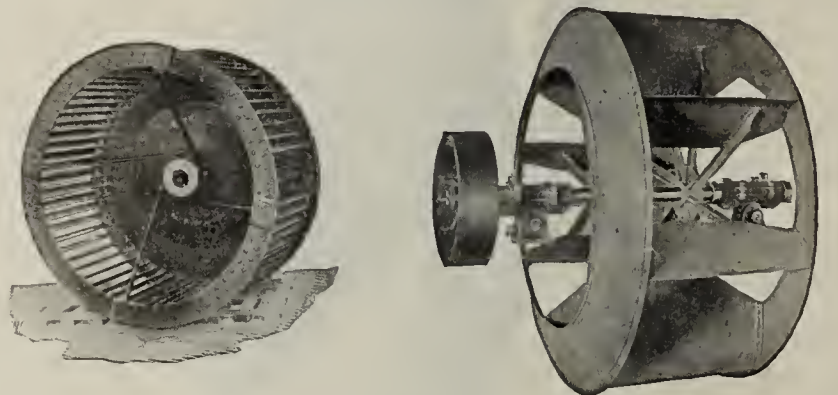
Secretary A. H. Stowell, of the Lyth Tile Company, Elli-

cott Square building, says business is showing much improvement in the tile line. He has just closed a contract to supply the piping for twenty miles of sewer to be laid in the town of Calgary, in the province of Alberta, Canada. Another big contract he has made is for furnishing the tiling and fireproofing for the new \$585,000 Onondaga Hotel recently planned for Syracuse, N. Y. Mr. Stowell's contract for this work amounts to about \$25,000. KNICKERBOCKER.

THE SIROCCO FAN A POPULAR FAVORITE.

The American Blower Company, of Detroit, Mich., recently mailed to the trade an interesting catalogue setting forth the many advantages of the Sirocco fan. The American Blower Company has a high reputation for quality of their products, their catalogues being no exception, speaking well for the many merits of steam traps, the A. B. C. fans, blowers, engines, hoisting apparatus, dry kilns, etc.

This Sirocco catalogue contains interesting illustrations and descriptive matter of the blowers and fans, the whole being printed on a high-grade white enamel paper. In the introductory notes, the dictionary and encyclopedia meaning of Sirocco is given as "a hot relaxing wind which rises in the Sahara, then blows across the Mediterranean, where it occasionally becomes filled with moisture, etc.," so that the word in its commercial meaning is indeed an expressive, well-selected trademark name for their patented apparatus, used chiefly for producing positive circulation. According to the



The Sirocco Wheel and the Former Standard Fan Wheel.

catalogue, the word Sirocco has acquired still another meaning, namely—it guarantees high efficiency when used in connection with heating, ventilating, drying, cooling, pneumatic conveying and mechanical draft apparatus. Furthermore, it has become known and recognized in all parts of the globe, aboard ship and on land, as representing a new and higher standard in blower design and construction. The descriptive part of the catalogue contains many other interesting statements, giving the history of the fans, their many advantages, construction and utilization. The catalogue contains twenty-four pages, bound in an attractive gray cover. We are pleased to show two illustrations taken from the catalogue. These show the comparison between the former standard steel plate fan wheel and the present Sirocco wheel. This new standard for a given size wheel at equal speeds, discharges a volume of air four times as great as the former standard types of steel plate fans. The distinguishing features of the Sirocco fan are in its blast wheel or runner. This is of drum form with a large inlet chamber, enclosed by numerous blades which are very long axially, but narrow and curved forward. Instead of having eight to sixteen blades, it usually has sixty-four, and these blades are generally from six to nine times as long as they are wide. In the back of the catalogue are illustrated descriptions of their "Vento" cast iron hot blast heater, "Detroit" automatic return traps, and the "A. B. C." vertical enclosed self-oiling engines. Anyone desiring information on drying, should write the American Blower Company, Detroit, Mich.

Written for THE CLAY-WORKER.

BAUXITE.

Bauxite probably is best defined as the ore alumina, it being the base of the aluminum products.

A true bauxite resembles a pure fuller's earth, and when thus found, is not properly a clay, as it contains no silica. Its composition is as follows:

Gravity	2.9
Hardness	0.8
Alumina	52.
Iron Oxide.....	27.
Water	21.

The average bauxite deposits, however, show a silicious combination, one analysis being as follows:

Alumina (Al_2O_3).....	55.21
Silica (SiO_2).....	12.40
Iron Oxide (Fe_2O_3).....	.96
Titanium Oxide (TiO_2).....	2.15
Combined Water.....	29.10
Moisture	.33

Other analyses show lower percentages of silica and water, and an increased percentage of iron, running as high as 8 per cent., giving a red color, which ranges to yellow and white.

There is also what is termed a modified form of bauxite, carrying much higher percentage of silica, in which the alumina does not exceed 45 per cent., and which is closely related to kaolin. All, however, are useful and supply demands in trade.

Its principal use is for the production of the metal aluminum. A considerable demand for the purest variety is had for the manufacture of aluminum salts, or alum, and no small amount is required in the manufacture of artificial cutting powders and abrasives. Also for the manufacture of bauxite fire bricks.

The known area of bauxite deposits in the United States is said not to exceed 10,000 acres, and most of this is found in Arkansas, Tennessee, Georgia, Alabama, and in the Goldfield district, all except the latter workable.

A number of foreign deposits are also known to exist, but they have as yet not been exploited, excepting that at Baux, France, where bauxite was first discovered, and from which it derives its name.

The Arkansas bauxite, which is by far the most extensive deposit in America so far as known, is, for the most part, pisolitic in its formation, well compacted, resembling in form peas agglutinated. It has, doubtless, been deposited by the overflow of innumerable hot springs with which that section at one time abounded. Each pisolite, upon examination, is found to have as a nucleus a minute grain of free silica, and, were it not for this, the percentage of alumina would run very high.

The deposits are not persistent, and are often interrupted by granite, only to appear again beyond.

The use of bauxite as a refractory has by no means as yet reached a perfected state, though several manufacturers are at this time experimenting with various processes, some using it as an admixture with other materials.

The absence of a corrosive action upon it by the molten metals at high temperature, recommends it in basins, open hearth, reservatory, and other practices where high heats are essential.

The life of such a lining is as yet undetermined, though known to exceed many times that of silica or fire clay brick.

The cost of raw material (at present \$6.00 per ton, f. o. b.), as well as that of manufacture, brings the total far above that of the last mentioned brick. Two thousand four hundred degrees F. must be reached before any appreciable shrinkage is apparent. After this the process of producing the

marketable product is a matter which each investigator prefers not to make public.

Some very satisfactory results have been obtained by the writer, who has devoted the past year in examination of the Arkansas field and to the making of tests, which have shown remarkable results, demonstrating the non-affinity of bauxite for metals, limes, cements, etc.; also its unyielding qualities in high temperatures.

OBITUARY.

Milton N. Grant Dies at Columbus, Ohio.

After ailing for some time with heart trouble and complications, Milton Nye Grant, well known as a Columbus business man and secretary and general manager of the Columbus Clay Products Company, died April 3d. Mr. Grant's death was not unexpected, as he had been confined to bed for the past month, gradually growing weaker. Three brothers and four sisters survive, besides a wife and two children. Mr. Grant was a member of the N. B. M. A.

Death of Capt. John Paye.

Capt. John Paye, a prominent Hudson River brick manufacturer, died at his home at Fishkill Landing, N. Y. Capt. Paye was seventy-five years old, and had been engaged in the brick business for many years, having first become interested in the business as owner of a sloop carrying brick, after which he was sales agent for a number of yards, and later took up the manufacturing end, first with the firm of Paye & Sherman at Dutchess Junction, and later with Wm. P. Aldridge, at Verplanck. A wife and two sons and four daughters survive.

BUSY DAYS FOR THE J. D. FATE COMPANY.

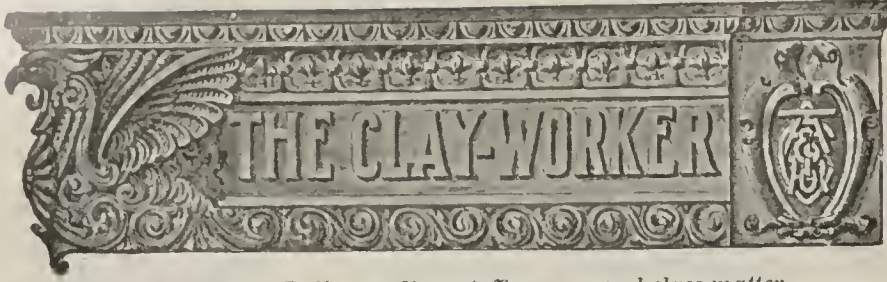
The J. D. Fate Company, manufacturers of the well-known line of clayworking machinery, report a very active business for the month of March. Among their large number of orders and shipments during this month, some of the more prominent ones are as follows:

The Sedalia Clay and Manufacturing Company, Sedalia, Mo., one Fate special combined machine, with brick and tile dies, automatic side-cut brick table and automatic tile table; the Straight Bros., Spencer and Adel, Iowa, two "Imperial" machines, with assortment of tile dies and two automatic tile tables for large tile. This makes five "Imperials" that the Straight Bros. are now operating; E. W. Giek, North Manchester, Ind., one "Imperial" machine, with dies for large and small tile, one disintegrator and two conveyers; the Gold Bros., Big Stone City, S. Dak., one "Imperial" machine with automatic side-cut brick table; the Ridgeville Tile and Brick Company, Ridgeville, Ind., one "Imperial" combined machine with vertical attachment and large tile dies; the Van Cleve Clay Manufacturing Company, West Mansfield, Ohio, one "Imperial" machine; W. H. Roettger, Salina, Ohio, one "D" machine with vertical attachment and dies; W. H. Rood, Goshen, Ind., one "D" machine and automatic tile table; Rambo & Rimer, Kalida, Ohio, one "Hummer" machine and automatic tile table; A. Beckloff & Son, Norwalk, Ohio, one "D" machine and automatic side-cut board delivery brick table and automatic tile table; the Badger Pressed Brick Company, Fon du Lac, Wis., one Simpson double die power repress; E. G. Blaser, Upper Sandusky, Ohio, one "Hummer" machine; R. H. Clegg, Durham, N. C., one "Imperial" machine and automatic side-cut brick table.

They also report sales of forty-two of the Bensing automatic cutting tables so far this year, and a great deal of interest is being taken in their new dry pan.

Judging from their order book in general, the clay industry this season is not showing much effect of the recent business depression.

Articles of incorporation have been filed at Phoenix, Ariz., by the Economy Vitriified Brick Company, of Coffeyville, Kans., with a capital stock of \$1,000,000.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LI.

APRIL, 1909.

No. 4.

CURRENT COMMENT.

April records indicate a big boom in building.

* * *

The Clay Products Association of America should receive the hearty support of every clayworker.

* * *

Humility may never have built a fine mansion, but it has frequently helped pave the way for ambition to do it.

* * *

Generally speaking, we all believe in being good, but many of us want the other fellow to be the good thing.

* * *

It looks so easy that all of us ought to remember that the best way to mix pleasure with business is to make our business pleasant.

* * *

From the way wheat has been kiting in price, it looks like the farmers might soon be able to employ all the idle labor of the factories to help run the farm.

* * *

No acre has done its duty unless it has produced its best crop, and no man has done his best unless he enables his acres to do their best, and acres can not do their best unless they have sufficient drainage.

* * *

A certain gentleman, called Castro for short, can testify these days that a president out of a job doesn't have a much easier time of it than any ordinary individual out of a job, and sometimes it is much more disagreeable.

* * *

If we are to take up in connection with the tariff question the old theory of protecting the higher-priced American workmen against those of the older countries, there is not an industry in the world that needs the tariff more than that of pottery. When it comes to brick, common, pressed and vitrified, the American manufacturer is in a pretty good

shape to hold his own, thanks to the development of brick-making machinery.

* * *

It is a good thing to take the world as you find it, but too many of us are given to putting emphasis on the "take."

* * *

With no national political campaign in the way, we ought to all turn in and get that prosperity wave to rolling this summer and keep it up for quite a while.

* * *

We are willing to forgive Congress and consent to a few shortcomings, if they will only hurry up and get through with the tariff business and have it settled, so that people can go ahead with their business.

* * *

The beautifying of the parks and other out-of-door architectural undertakings in this class furnish opportunities for pushing terra cotta. It enters well into various schemes of landscape decoration, and all it needs to become more conspicuous than everything else is widespread, intelligent and persistent pushing.

A BRIGHT OUTLOOK.

The spring building season seems to be budding out nicely, and the outlook is not merely for a building of modest homes this year, but for a decided revival in the building of the larger undertakings that involve lots of capital. We get reports from most all of the leading cities of new projects being developed, many of which are seemingly taking on definite form and will be put through this summer. This is as it should be, too, for the material can be had more easily than heretofore and help is more plentiful. In fact, everything continues in favor of building. A big structure erected under present conditions should prove such an excellent investment for capital that it will tempt out a lot of it this summer.

ADVERTISING BRICK.

In regard to the more general disposition of brick manufacturers to push their product by advertising, the Steam Shovel News says that advertising is all right, and "in this age of industrial competition it is absolutely necessary, but it is worse than folly to spend money for advertising any business unless it is backed up by the proper goods, made right, and at prices that will meet competition."

While admitting the logic of this, it is a little difficult to see the application of it, except in a few incidental cases in connection with brick. Brick as a product, generally speaking, has a merit that is so well known that it needs but little extolling. In fact, this has been one trouble with the industry; it has taken for granted that everybody knew the superior qualities of brick as a building material, and that it would be superfluous to keep telling about it, and has therefore neglected some advertising. There are, of course, some plants that make better brick than others. Some make them in a more up-to-date manner and can furnish the same product for less money, and numerous things of that kind which enter and are worth consideration. But, for all that, the main thing in the brick business as a whole is to have brick more conspicuously before the general building world. Have them properly impressed at all time with the superiority as a building material, so far as the general advertising goes.

Then, when it comes to specific advertising through individual firms, they can, of course, take up the peculiar talking points of their individual products. Some have a certain color that is a good talking point; some have one feature and some another. Some, it is true, have only what might be termed primitive yards and make common brick which

would sell mainly on its cheapness. Some yards of this class can probably be put in a better condition by use of more up-to-date methods. And where this is the case there should be no hesitancy about improving the methods. But for all that, there is room to push the sale of brick of all classes from the very commonest to the finest face. And there is something every man can say about his product; if there is not, if he looks it over and finds there is nothing good he can say about it in his advertising, then, of course, it is time to improve the product.

THE TIME FOR MISSIONARY WORK.

How is the paving outlook in your home towns and cities? Are there not prospects for a lot of street improvement and room on all side for every brick man to speak a good word for his favorite paving material? From the reports we get there are lots of street improvements to be made this summer—some of brick, some of asphalt, some of wooden paving, and the more good mission work each brick man does in behalf of the clay products the more chances there are for a greater number of the streets to be paved with brick.

PROF. BINNS LECTURES AT BUFFALO.

"Pottery at Home and Abroad" was the subject of a lecture recently delivered at the Albright Art Gallery here by Prof. Charles F. Binns, of Alfred University. The speaker referred to the infancy of the potter's trade in this country, and how American women could help develop the industry by demanding the best and finest of American-made pottery. In concluding his address, Prof. Binns described the Alfred School of Ceramics. He told of the work done there and how young men and women are taught thoroughly, so that when they are graduated they are able to obtain positions as teachers in schools of ceramics, or as foremen or superintendents in factories.

WORDS OF CHEER FROM AKRON.

THE CLAY-WORKER sanctum was brightened recently by the genial presence of P. J. Fish, of Akron, Ohio, who was headed West and stopped off between trains just to say "Howdy," an example we wish others would follow, regardless of destination. Mr. Fish reports trade conditions quite satisfactory, Taplin-Rice-Clerkin Co., with whom he is associated, having enjoyed a good volume of trade during the past winter and spring season. This is as it should be, for their sewer pipe machinery is "the best ever." Their sewer pipe dies and other factory appliances, because of their excellence, are sought even by those who use other makes of presses. Mr. Fish was the proud wearer of Button No. 264 at Rochester, and those who were not fortunate enough to attend the last N. B. M. A. Convention can get some interesting unwritten accounts of the happenings at Rochester by attaching themselves to his buttonhole.

FOREIGN POTTERY.

There is special interest attached now to certain of our consular reports which have to do with the pottery industry in various foreign countries, because the subject of tariff on pottery is up for discussion and is figuring in the tariff revision in Congress. The present duty is 55 per cent. on undecorated and 60 per cent. on decorated ware, ad valorem. This might seem at first a pretty stiff tariff and suggest that it is enough for the protection of our pottery industries, and probably it would be if it were not for the under valuation. Still, an examination of conditions abroad makes it evident that either they must be pretty stiff for protection,

or else bring mighty low wages in the pottery industry here. The pottery industry is one in which machinery may help somewhat, but not nearly so much as it can in some of our other American industries. More of it needs to be done by hand, and, naturally, the more hand work there is to be done the harder the competition of foreign countries, where the price paid is not half, and frequently not a fourth, of what is paid in the United States. In Germany the wage rate for the highly skilled labor is just about the rate here for ordinary labor, while the rate over there for unskilled labor, part of which is done by women folks and part by men, ranges from about 30 cents to 75 cents a day, with probably the bulk of it averaging between 40 and 50 cents. Special Agent Charles M. Pepper, in making a report on the pottery industry of Germany, gives the following as being the wage rate furnished by the Sonneberg Chamber of Commerce as the prevailing rate of wages in 1907 in several industrial branches there, which includes the manufacture of everyday table sets, as well as electro-technical articles, toys and ornamental figures. These figures are for ten hours per day, or sixty hours per week.

(a) Adult male hands, from 16 to 20 years.—Per day, 1.80 to 2 marks (43 to 48 cents); 3.50 marks (84 cents). Per week, minimum, 12 marks (\$2.88); maximum, 18 marks (\$4.32).

Males over 20 years.—2.30 to 3 marks (56 to 72 cents); 2.50 to 3 marks (60 to 72 cents); 5.50 marks (\$1.32). Per week, minimum, 15 marks (\$3.60); maximum, 25 to 30 marks (\$6.00 to \$7.20).

(b) Adult females, from 16 to 20 years.—Per day, minimum, 1.50 marks (36 cents); piecework, 1.60 marks (38½ cents); maximum wages, piecework, 1.90 marks (45½ cents). Actual weekly wages, 9 marks (\$2.16); piecework, 11 marks (\$2.64).

Females over 20 years.—Minimum daily wages, 1.50 marks (36 cents); minimum piecework, 1.80 marks (43 cents); maximum daily wages, 1.50 marks (36 cents); piecework, 2.40 marks (57½ cents). Actual average wages per week, 9 marks (\$2.16); piecework, 12.50 marks (\$3.00).

(c) Male working hands under 16 years.—Minimum wages, 1.50 marks (36 cents); maximum piecework, 1.80 marks (43 cents); maximum daily wages, 1.50 marks (36 cents); maximum piecework, 2.30 marks (55 cents). Actual average wages per week, 9.60 marks (\$2.30); piecework, 12 marks (\$2.88).

(d) Female working hands under 16 years.—Minimum wages, 1.50 marks (36 cents); piecework, 1.60 marks (38½ cents); minimum daily wages, 1.50 marks (36 cents); piecework, 1.60 marks (38½ cents). Actual weekly average by the day, 9 marks (\$2.16); piecework, 9.50 marks (\$2.28).

At Dresden, where a higher grade of goods is made and the piecework system prevails, there is a higher class of skilled labor, and the wages are better, ranging from about \$4.50 to \$10.00 per week.

This striking advantage in wages in favor of Germany is partly altered in the total cost of manufacture by higher cost of raw material and for fuel. But, for all that, the advantage is so decided that it looks like our pottery industries must either have protection, low-priced help, or some decided advantage in the process of manufacture. This latter, of course, it is difficult to get or to maintain. In the first place, Germany is older in the industry and generally better informed about the technology of it.

In Austria Hungary, among the pottery industries, the wage scale seems to be practically the same as that of Germany, some of it running a little lower. For example, for the decorator the Decalcomania girls receive only from \$3.05 to \$3.66 per week. The gilders receive about the same, some few who do very fine work, and the latter and hand painters doing very fine work receive sometimes as high as \$10.00 per week. These people would receive for the same work here from \$20.00 to \$30.00 per week, or an increase of at least 100 per cent. In the face of this, a tariff of 55 or 60 per cent. doesn't look very high.

In Japan it is well known that the wage rate is very

low, and while there have been some reports that indicate considerable inroads made by Japanese pottery during the past few years, it is difficult to get at actual figures of cost of manufacturing in Japan. In these reports of Mr. Pepper, it is estimated that Germany exported to the United States during 1907 something over \$8,000,000 worth of pottery; that is, including Porto Rica and the Canal Zone. The great majority of these goods are porcelain and wares resembling porcelain, table service being the largest item. The section from which the bulk of these goods come to the United States is comprised of Saxony, Bavaria and the adjacent territory.

AN EXCELLENT SHOWING.

The King Engineering Company, of Richmond, Va., is meeting with much success in rebuilding kilns and dryers, the application of Mr. King's recent inventions in methods of construction enabling the company to almost double the capacity of radiated heat brick dryers at a very moderate cost. Under Mr. King's supervision, a ten-tunnel dryer at the plant of the Potomac Brick Company, near Washington, D. C., was recently overhauled with such good results that Mr. Elliott S. Morse, the general manager of the Potomac Brick Company, is going to have another similar dryer reconstructed. Referring to the good work accomplished, Mr. Morse says: "Our No. 1 ten-tunnel Sharer radiated heat dryer before it was remodeled by the King Engineering Company gave us an average of fifty-five cars per day of dry brick. Since January 1, when the dryer was remodeled, it has turned out a daily average of eighty cars of dry brick. To say that we are well pleased is putting it mildly." Evidently, as a doctor of kilns and dryers, the King Engineering Company is making a very enviable reputation. For further particulars, see their ad on page 633 of this issue.

Written for THE CLAY-WORKER.

POTTERING AND PUTTERING.

The Divine Potter kneads His clays, which readily to Him must yield,
And in the various forms displays the mighty powers He can wield.
But the chief potter of this realm, placed at the head to so direct
The forces of the pottery (whom they had seen fit to elect),
Has many kinds of clay to merge together, with care to class,
So that the output may be sound, and thus acceptable to the mass.
As this would be for him alone, a greater task then he could do,
The voters of the common clay gave him a Congress—Senate, too.
These, with advice he was to guide, so that the ware the great shop made
Would be sound, and fit to use for the necessities of the State.
Alas! these helpers to their callings were not true—would not heed
The sound advisements of the chief, but would them with derision greet.
Instead of working as they should, they sought for flaws in the advice,
Because he touched on tender spots, that through unfaithfulness arise.
They spent the money and the time that common clay could illy spare
With idle talk and quibbling chaff, such as no faithful workman dare.
To cap the climax, when the chief sent messages, for which they called,
They then ignored the very good proof, because it proved they were at fault.
With such a crew to make our pots, the best of clay will show defects.
Next time the clay will use more care in choosing whom it then elects!

F. E. F.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 620.]

WANTED, FOR SALE, ETC.

FOR SALE.

Two pallet brick yards in good order. One yard situated close to the B. & M. & C. V. R. R., with a switch from each to the shed. Ninety acres with plenty of clay and sand. Three of Wiles H pattern machine and pug mills.

One yard on the B. & A. R. R.; about fifty acres of clay and sand. Two of Wiles B pattern machines. Owner wishing to sell on account of other business. Call on or address
FRANK E. WILES,
2 3 L Grassy Point, N. Y.

FOR SALE.

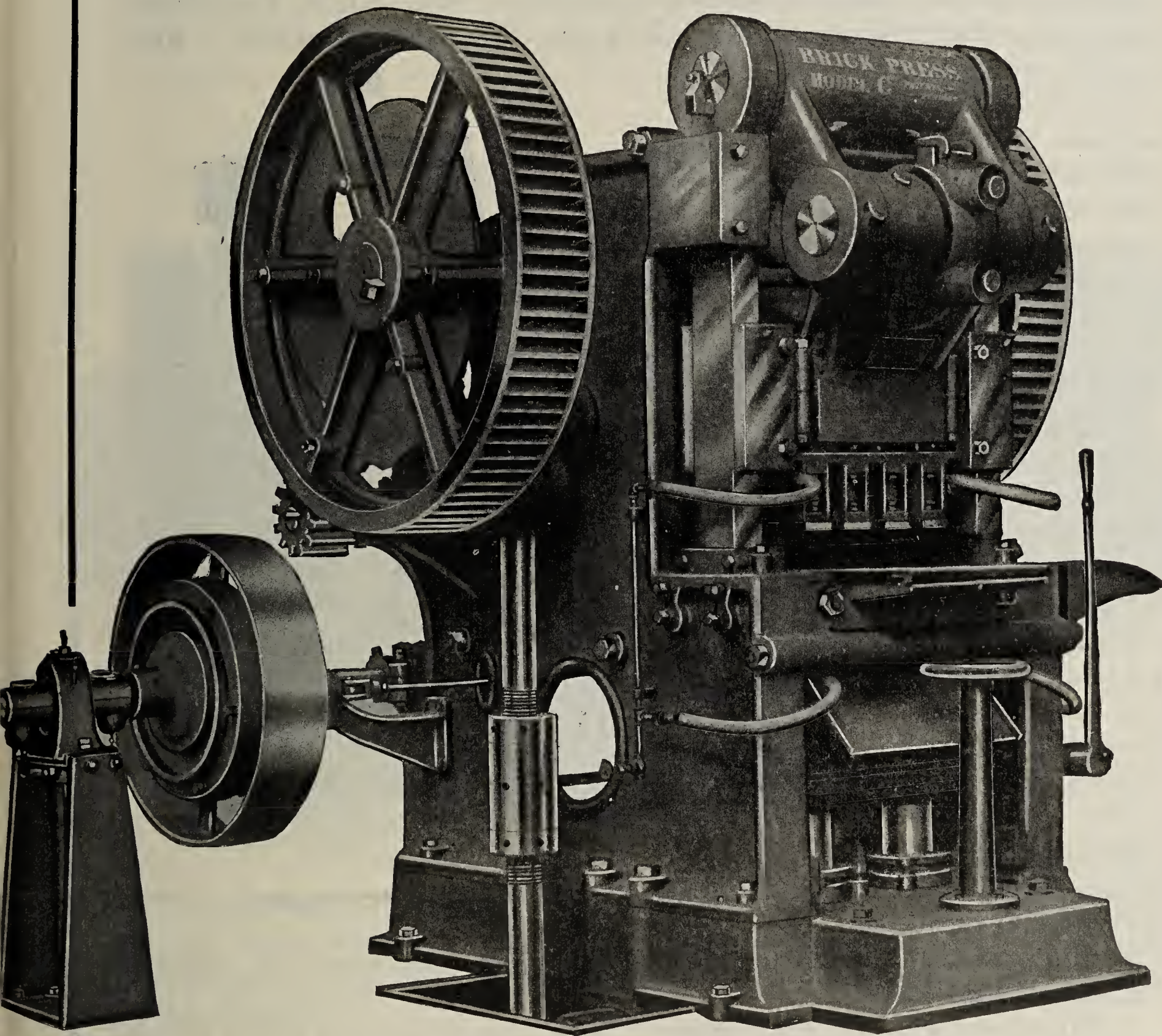
One Hercules stock brick machine, two Horton mold sanders, two dozen new brick molds, one elevator, one dump table, revolving, a lot of trucks, a lot of wheelbarrows, several carloads of brick pallets, one 100 h. p. engine. This machinery will be sold at a bargain, as we are manufacturing drain tile only, and have no use for it. Machinery has been used one summer, is clean, painted, rebabbitted and guaranteed as good as new. Address
AMERICAN BRICK AND TILE CO.,
2 4 c Morenci, Mich.

For Sale, Wanted, Etc., Ads Continued on
Pages 622-624.

The American Clay Machinery Co.

Simple, Strong, Durable.

This Model "C" Press is built in a most substantial manner. In strength and capacity it is without an equal. It is at once simple, strong and durable. Designed for great strength and built as designed. It is worthy of the high praise it has won. Complete description for the asking. We also build a number of other presses, ranging from 6 mold to 1 mold. Correspondence solicited.



Four-Mold Model "C" Brick Press.

World's Largest Manufacturers of Clayworking Machinery.
Everything Needed by the Clayworker.



The American Clay Machinery Co.,
Bucyrus, Ohio.

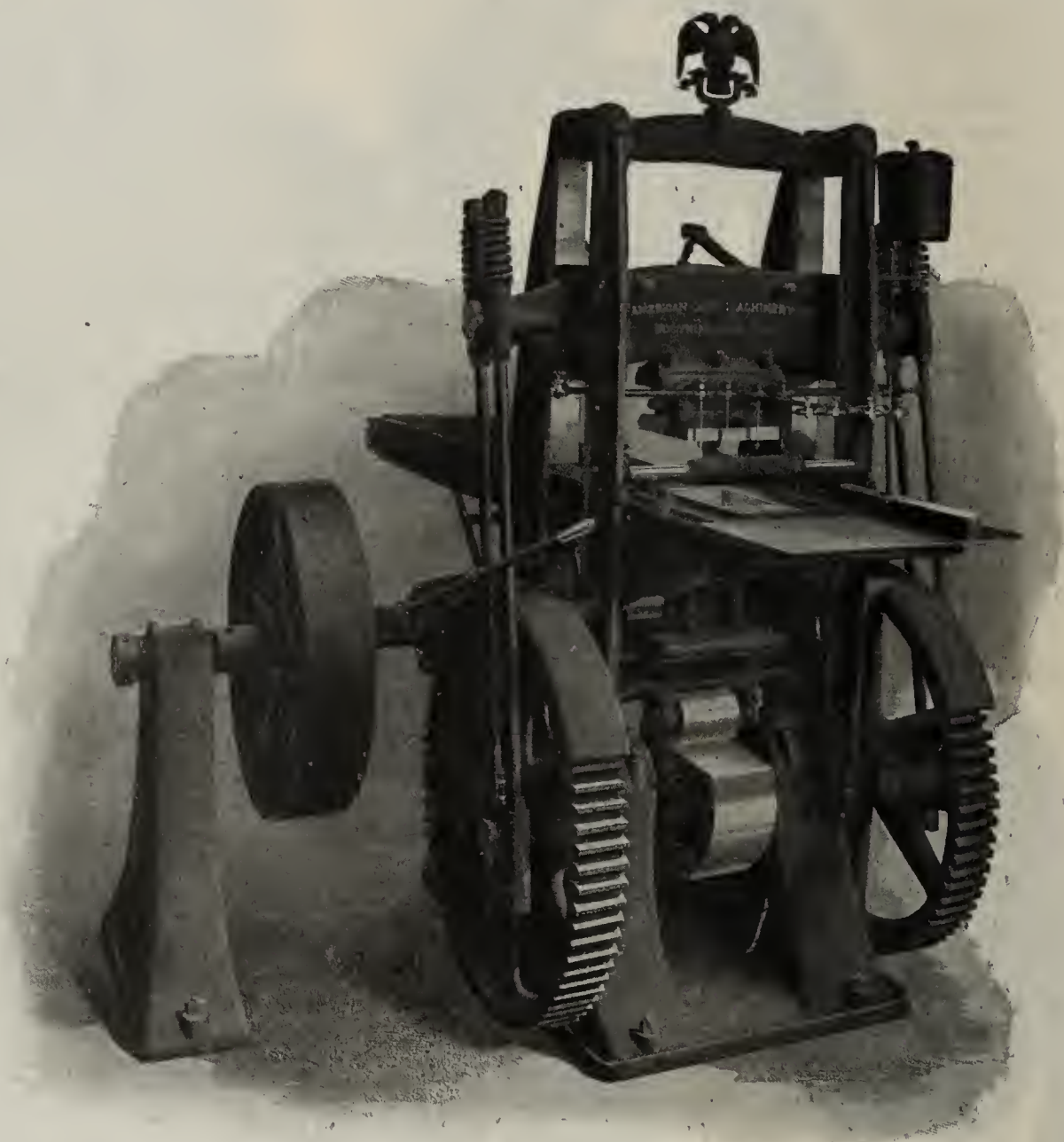
The American Clay Machinery Co.

DOUBLE EAGLE REPRESS.

To meet the demand for a heavier Repress, with a wider range in size of block than can be pressed, we have designed the No. 85 "Double Eagle" Press, which will press a block up to 15 x 17 x 7 inches. In designing this machine we have retained the well recognized "Built Right, Run Right" principles of our Standard Eagle Repress, but have embodied a number of new features in the No. 85 which increase its range and usefulness. It is built much larger, heavier and stronger than the Eagle in order to stand the extra strain incident to the successful pressing of so large a block. It has self-feeding oil supply, with a return system for filtering and replenishing the waste oil. The tables are easily removable and all wearing parts are readily accessible. The twin gears and pinions equalize all pressing strain.

The cam and cam roller are protected from clay. All gears are protected with substantial covers.

Full description on application. This is only one of a dozen presses we build, ranging in size and capacity to meet every need.



No. 85 "Double Eagle" Brick Repress.

World's Largest Manufacturers of Clayworking Machinery.
Everything Needed by the Clayworker.

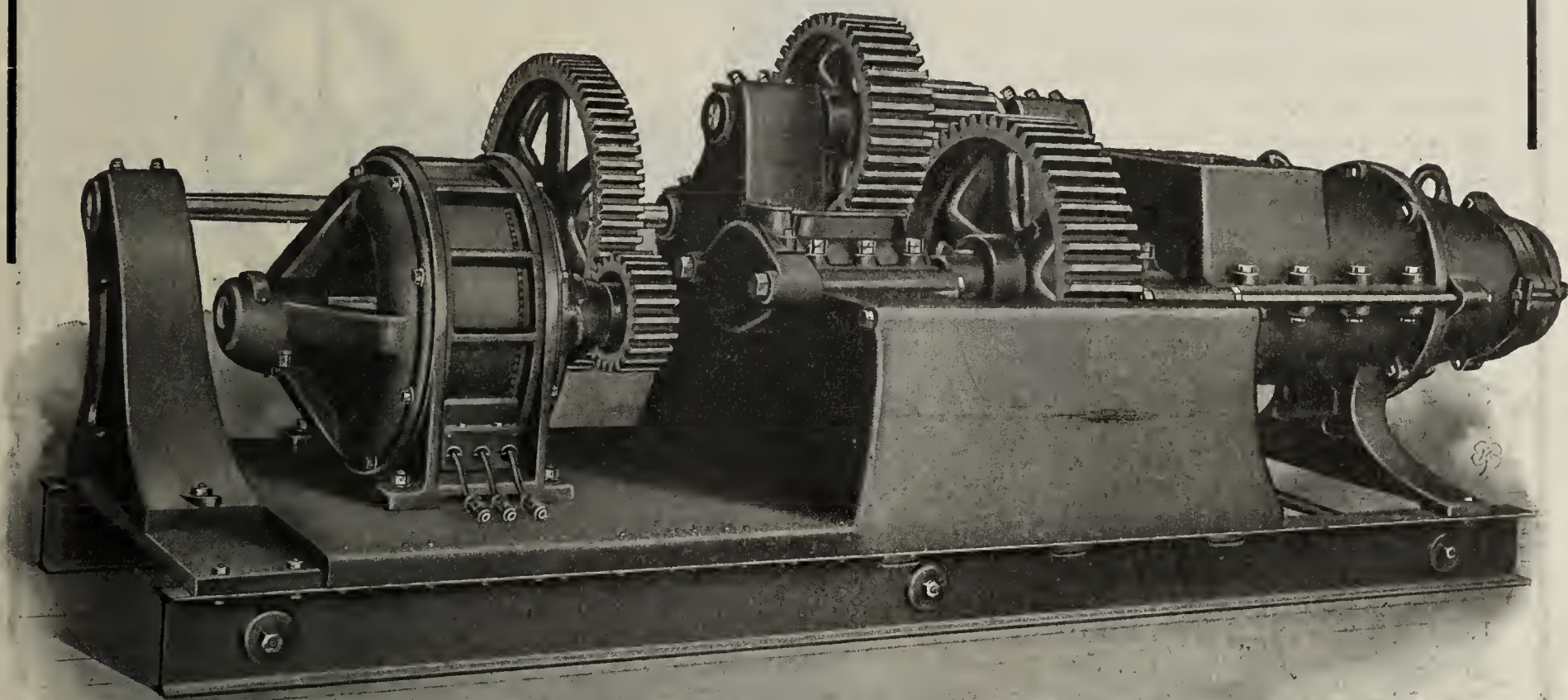


The American Clay Machinery Co.,
Bucyrus, Ohio.

The American Clay Machinery Co.

Motor Driven Auger Machinery.

Where electric driven Clayworking Machinery has been installed it has given general satisfaction. There are advantages of installation and operation of motor driven machines that appeal strongly to the careful investor. We build a complete line of Motor Driven Clayworking Machinery and can furnish testimonials from satisfied users of our Motor Driven



Electrical Driven No. 41 Heavy Duty Auger Brick Machine.

Line. The accompanying cut shows our No. 41 Auger Machine with direct connected motor. The No. 41 Auger Machine is one of the most substantial and dependable machines of our large and excellent line. It is built for heavy duty and has a large capacity. A full description will be sent on application.

World's Largest Manufacturers of Clayworking Machinery.
Everything Needed by the Clayworker.



The American Clay Machinery Co.,
Bucyrus, Ohio.

The American Clay Machinery Co.

Soft Mud Brick Machinery.

There is many a clay which can best be worked on Soft Mud Machinery. To handle such clay on Stiff Mud or Dry Press machinery would prove a failure in the long run.

We build a complete line of Soft Mud Brick Machinery and appliances to meet the needs of such clays. We are not interested in selling you machinery which may prove a failure. We have the very machinery you require to make a success of your business, and that is the only machine we will sell you.

Our Upright Stock Brick Machine is built for long and continuous use. It has many satisfied users who will cheerfully recommend it.

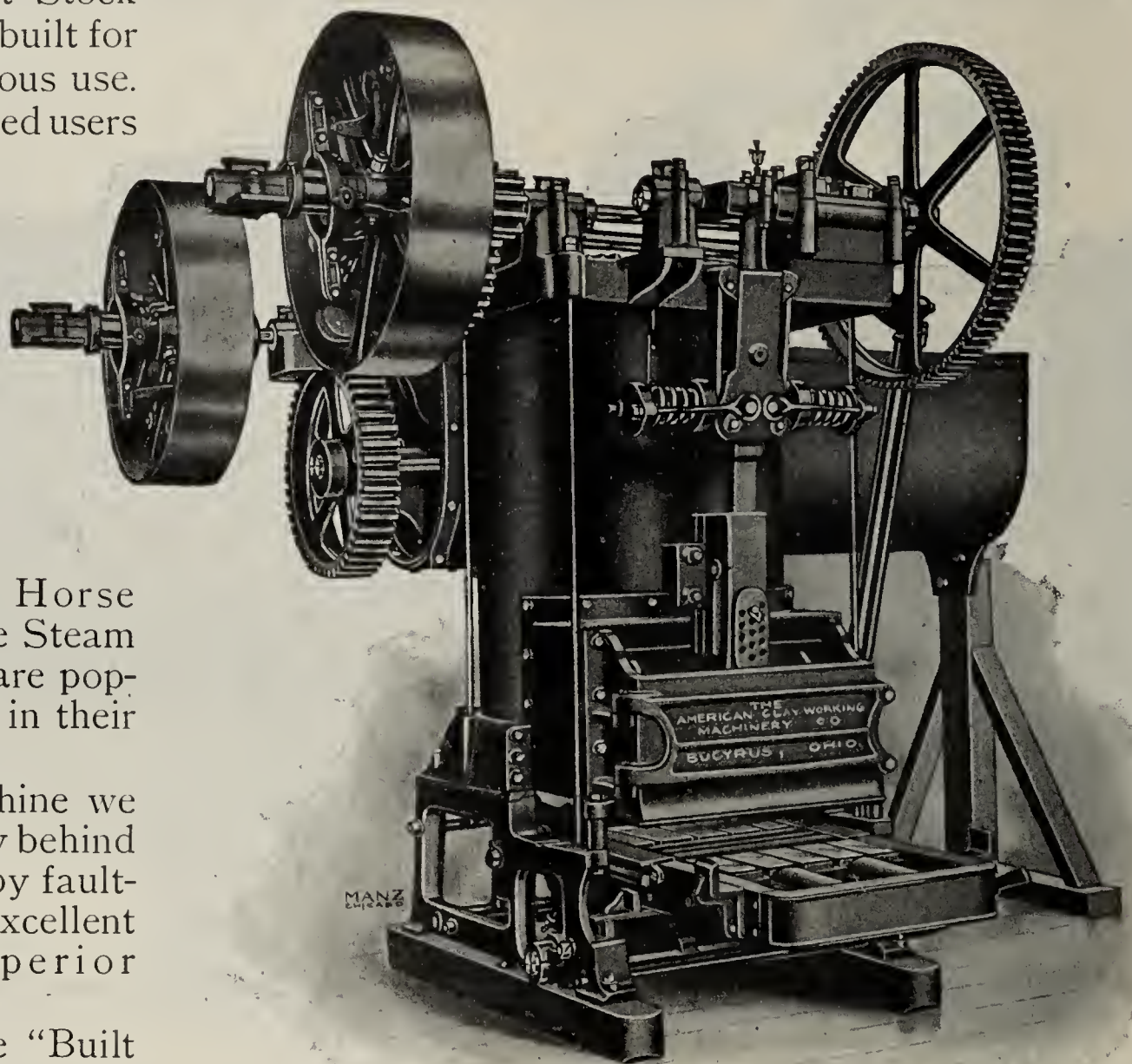
Our line of Plunger machines is complete, with a size range to meet your requirements.

Our Eagle Horse Power and Eagle Steam Power machines are popular favorites in their class.

Every machine we build has a quality behind it attained only by faultless designing, excellent material and superior workmanship.

In buying the "Built Right Run Right" line you buy quality and that means successful operation.

We build every machine and appliance needed to manufacture Clay Products by any known process. Every machine built in our own factories, so that we are able to guarantee the quality, because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.

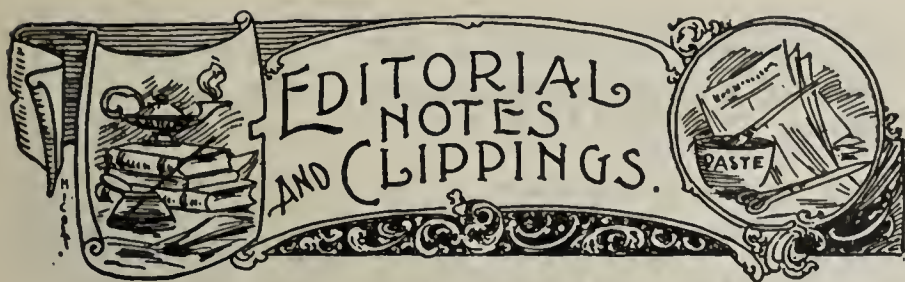


Upright Stock Brick Machine and Pug Mill.

World's Largest Manufacturers of Clayworking Machinery.
Everything Needed by the Clayworker.



The American Clay Machinery Co.,
Bucyrus, Ohio.



Charles H. Leathe has sold his brickyard at Baldwinville, Me., to Edward B. Fish, of York Village, Me.

M. Braun has purchased the brickyard of George Barrows, at Cassville, Wis., and will begin to operate the same in a very short time.

J. H. Chase, president of the Kenmare Hard Brick and Coal Company, Kenmare, N. Dak., was badly injured by being thrown from his horse.

J. R. Rickhoff has purchased the plant of the Superior Brick Company at Lima, Ohio. A company will be formed to take over the plant, which will be materially improved and enlarged.

A plan is on foot at Bone Gap, Ill., to erect a brick plant at that place. L. F. Voyles, E. A. Morgan, George Porter and others are interested, and will organize a company with \$50,000 capital stock.

M. A. Nicol, formerly with the Straitsville Impervious Brick Company, Straitsville, Ohio, has moved to Willamina, Ore., where he will have charge of the machinery department of the Pacific Face Brick Company at that place.

Samuel F. Spencer, of Dresden, Ohio, has disposed of his interests in the Dresden Brick and Tile Company to the other stockholders of the company, the principal ones being Chalmer Moore, of Dresden, and J. D. Fowler, of Junction City.

The plant of the Denton (Texas) Press Brick Company is being rebuilt, having been destroyed partially by fire several months ago, and will be in operation in the next month or six weeks. The plant will be considerably better than it was before.

The Buckeye Fire Clay Company, of Uhrichville, Ohio, have purchased a new sewer pipe press from the Taplin-Rice-Clerkin Co., of Akron, Ohio. Mr. W. B. Stevens, the manager of the Buckeye Company, will make a number of important improvements in the factory.

The brick plant of the Campville Brick Company, Gainesville, Ga., was almost totally destroyed by fire April 5, entailing a loss of \$20,000, on which there was no insurance. Mr. J. A. Maultsby, the owner of the plant, will rebuild at once, and will build a larger and more modern plant.

Mayor Martin J. Tierney has purchased the plant of the Piedmont Brick and Coal Company, one mile below Piedmont, W. Va., at public sale for \$7,000. The plant went into the hands of receivers and has been shut down for some time. Mayor Tierney expects to resume operations at once.

Jesse Bradley, of Mooresville, Ind., will move his brick-making plant to Clayton, Ind. The plant will be equipped with new and improved machinery, permanent kilns will be erected, and everything put in readiness to operate the plant to a capacity of 40,000 brick per day. Mr. Bradley expects to have the plant running by June 1st.

Additional heavy orders for new machinery has forced the Stevenson Company, Wellsville, Ohio, to increase their force and go on full time. The future looks good, and the present is good to them, as a result of the quality and quantity of work their brick and sewer pipe machinery is doing everywhere it is intelligently operated. They recently turned down a very solicitous and complimentary order for brick machinery to go to Cuba.

The Marion Steam Shovel Company, Marion, Ohio, advise us that they are booking a large number of orders, and that business so far this season has been all they could expect. They took advantage of the dull season to materially increase their plant, putting into operation a new open hearth steel foundry, which has been working for three weeks with very good success. They also have a new pattern storage room, and will increase the patternmaking department during the present year. In addition, they will erect a new office this season, large enough to accommodate all their

departments on the first floor, and the engineering department on the second floor.

The Cobb Brick Company, of Fort Worth, Texas, has been incorporated with \$30,000. Those interested are: H. H. and F. C. Cobb and J. C. Harris.

The Ada Clay Works has been organized at Ada, Ohio, to manufacture tile. L. E. Anspach is president and George Rothrock is secretary. The plant will be pushed to completion as rapidly as possible.

Antoine Tousignant, for many years a brick manufacturer of Sandwich, Ont., Can., died at his home in that village, March 28. Mr. Tousignant was seventy-four years old, and leaves four daughters and three sons.

The Blue Blanket Valley Brick Company, recently incorporated at Aberdeen, S. Dak., has the work on its new plant well under way, and expects to be making brick by the first of June. Tile and hollow block will be manufactured at the plant also.

The Royal Brick Company, of Connellsville, Pa., have just installed one of the Stevenson Company's noted heavy duty 9-foot grinding pans, embodying all of that company's late and great improvements, and a 35-foot dry clay elevator. They are a new factor in the brickmaking business.

Gorge Duprat, a well-known brick manufacturer of Winoski, Vt., died at his home in that city, April 5, from injuries inflicted by a cow while at work on his farm several weeks previous. Mr. Duprat was born in Quebec sixty-nine years ago, but had lived in Vermont for forty years.

R. Buffalo, of Knoxville, Tenn., will build a brick plant at Johnson City, Tenn., of 40,000 daily capacity. He expects to have the plant in full operation within the next sixty days, turning out common and pressed brick. W. B. McGill will be manager of the plant, which will be up-to-date in every particular.

The Reynoldsville Brick and Tile Company, Reynoldsville, Pa., has resumed work after having been shut down a month for repairs. The capacity of the plant is about 750,000 brick. It was the best year of the company in its history, notwithstanding the depression. The demand for paving brick was scarce.

A dangling shirt sleeve, which caught in a moving cog-wheel while he was cleaning some machinery in the Frankford Brick Works, at Bridge and Ditman streets, was the cause of Thomas Short, Philadelphia, Pa., losing his arm. The arm was practically ground to pieces as far as the elbow and was nearly wrenched from the socket.

T. M. Zapel and George Chaasdon, of Chicago, have bought seven acres of land at Kettle Falls, Wash., and will engage in brickmaking. The land is on the bank, near the junction of the Colville and Columbia Rivers. Operations will commence at once, as there are several brick buildings to be constructed as soon as the material is ready.

The Shenandoah Brick and Tile Works and the Lake & Cotrill Brick and Tile Co. have been consolidated and will be operated under the name of the latter company, under the management of Mr. D. S. Lake. H. T. Shurtz, the manager of the Shenandoah, retires from the business. The new company is capitalized at \$40,000, and new machinery and equipment will be added to the plant.

J. C. Steele & Sons, manufacturers of brickmaking machinery, Statesville, N. C., report a great improvement in the brick business, and have recently shipped complete outfits to the following points: Loris, S. C.; Hollywood, Ala.; Mt. Airy, N. C.; Marietta, S. C.; Columbia, Ala.; Thomaston, Ala.; Emporia, Va.; Easton, Md.; Jefferson City, Tenn.; Tuscaloosa, Ala.; Crisfield, Md.; Greensboro, N. C.; Riverdale, N. C.; Apex, N. C.; Athens, Ga., and Bonsol, N. C.

The Union City Brick Company has been incorporated and will erect a plant of 30,000 daily capacity at Union City, Ga., where they have twenty acres of very fine clay. The contract for the building of the plant, machinery equipment, dryers, kilns, etc., has been turned over to Houck Bros., of Atlanta, Ga., who make a specialty of work of this sort. The machinery will all come from the shops of the J. D. Fate Company, Plymouth, Ohio, with the exception of the Richardson repress, which will be furnished by the Ohio Ceramic Engineering Company, of Cleveland, Ohio. The officers of the company are: Julien Baxter, president; P. J. Voss, vice-president; L. Hull, secretary and treasurer, and Louis Wright,

(Continued on page 616.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

general manager. They expect to be turning out brick the first of June.

C. H. Henley, Randallman, N. C., and D. W. Fulp, Bluefield, W. Va., contemplate establishing a brick plant at the latter place.

F. J. Passe, formerly of Atwater, Minn., has bought the Preston brickyards at Preston, Minn., which he will operate the coming season to full capacity.

The plant and a large quantity of lumber of the Amos Kent Lumber and Brick Company, Kentwood, La., was destroyed by fire recently. Loss, \$200,000.

Joseph J. Kulage, a retired brick manufacturer of St. Louis, Mo., died at his home in that city March 24th. He has not been in active business for about ten years. A wife and two brothers survive.

J. E. Mecusker has purchased a twenty-acre tract of clay land at Sedalia, Mo., on which he will erect a modern brick plant of 50,000 daily capacity. Work on the plant will be commenced at an early day.

The Stevenson Company has booked a good order for pans and sewer pipe machinery from Hugh J. Phillips, of Washington, D. C., who has purchased and is remodeling a plant that has formerly done good service in the capital city.

The Queen City Pressed Brick Company is the name of a concern recently incorporated at Cincinnati, Ohio, with \$25,000 capital stock by Jos. Lemkuhl, S. Hickenlooper, E. Bridger and others. The plant of the company is located at St. Bernard, Ohio.

The Hancock Brick and Tile Company at Findlay, Ohio, has had a busy season. At the present time they are shipping on an average of ten cars per week, and, in spite of the fact that the plant is running night and day, they are at present behind with their orders.

Damage to the extent of \$4,000 was caused at the plant of F. R. Carter at East Peoria, Ill., by a severe wind and rain storm which passed over that section of the state early in the month. Four large kiln stacks were blown down, and the roof of the drying sheds was lifted off and blown a quarter of a mile.

S. A. Slusser, the special representative of the American Clay Machine Company, who has been superintending the erection of the brick machinery at the new brick plant at the Federal Prison, Leavenworth, Kans., sustained a badly lacerated leg recently, when a car of green brick was pushed over him.

The American Sewer Pipe Company has made some extensive alterations in a number of their plants this spring, the machinery coming from the Stevenson Company's shops. Wm. Dunspaugh, the new charge de affairs, has original ideas of his own and energy in applying them. He is up-to-date in every respect.

The Union Stoneware Company, of Red Wing, Minn., has purchased the plant of the Plymouth Stoneware Company, of Marshalltown, Iowa, and will operate same in connection with their plant at Red Wing. George H. Thompson, who has been superintendent of the Plymouth plant ever since it was started a year ago, will continue in that capacity.

The Contractor Brick and Supply Company, of Spokane, Wash., will establish a brick plant at Thirty-sixth avenue and Elm street, that city, which will have a capacity of 50,000 brick per day. R. W. Stitsel and Wm. Stitsel, of Spokane, and W. B. Freeland, of Kansas City, Mo., are interested. They own forty acres of clay land, on which they will erect their plant.

The new plant of the Carson Brick Company at Charlotte, N. C., has been completed, and is one of the finest brick plants in that section, being thoroughly fireproof, so that the disastrous fire of a few months ago will not be repeated. The plant is equipped throughout with modern machinery, and the brick will be burned with producer gas in a continuous kiln of 75,000 capacity. J. E. Carson is the general manager.

At the camp of the Chattahoochee Brick Company, Atlanta, Ga., work has been temporarily suspended until the plans for resuming the work with free labor instead of the convicts have been worked out. The transfer of the convicts recently consummated left vacant the places of about 150 men. This, of course, implies that the entire labor scheme at the camp must be revised and reorganized. In order that sufficient time might be given for this to be thoroughly ar-

ranged and perfected, the plant has been closed until work can be resumed with free labor only.

Mrs. G. A. Buckley will establish a brickmaking plant at Montrose, Cal. John Arpen, her brother, will be associated with Mrs. Buckley in the business.

The Lone Star Brick Company is to be organized to take over the Pearson brickyard and enlarge and improve the plant so as to manufacture paving brick, roofing tile and drain tile, as well as building brick.

The Alberta Clay Products Company will build a \$200,000 brick plant at Medicine Hat, Alta, Can. Work on same will be commenced about the first of May and pushed through to completion as rapidly as possible.

The Schyrock Hill Land Company, of Indiana, Pa., determined that no rival concern in Pennsylvania should turn out more or better product than they, have ordered a Stevenson's Company's 5-foot pan to do their grinding.

The Smithfield Brick and Tile Company, Smithfield, Utah, has filed articles of incorporation. The officers of the company are: E. R. Miles, president; W. C. Claypool, secretary; George Smith, treasurer, and W. M. Deppe, general manager.

The Westport Paving Brick Company has purchased the entire plant of the Baltimore Vitrified Brick Company, located at Westport, Md., and will operate the plant to full capacity, making pavers and vitrified building brick. The company owns 101 acres of fine clay land.

The Morton Brick Company, at Morton, Minn., has been incorporated with a capital stock of \$50,000. The new company will expend about \$10,000 in new equipment, thus increasing the capacity of the plant and enabling them to turn out fire brick, drain tile and pottery.

Frank X. Carr has purchased the Aberdeen Brick Company's plant at Aberdeen, S. Dak., from Dr. W. E. Fish, of Anita, Iowa, and will make a number of improvements in the plant, enlarging the capacity of same. Mr. Carr will move his family to Aberdeen and make that place his permanent home.

The Wickliffe Brick and Tile Company has been incorporated at Cadiz, Ky., with \$100,000 capital stock, \$50,000 of which has already been paid in. The incorporators and promoters are: Capt. T. S. Shaw, of Cadiz, Ky.; R. L. Coffy, of Sturgis, Ky., and Gip Watkins, of Gracey, Ky. The plant is located near Wickliffe, Ky.

Articles of incorporation have been filed by the Northern Michigan Brick and Tile Company, of St. Ignace and Calumet, Mich. The plant will be located at St. Ignace, but offices will be maintained at both that place and Calumet. The company is capitalized at \$50,000, and the incorporators are: W. M. Harris and E. L. Huddlestone, of Calumet, and E. A. Reavie, of Laurium. Work on the plant will be commenced at once.

The Prewitt Brick Manufacturing Company, Elgin, Texas, has been organized, with Ira A. Prewitt, president; L. D. Prewitt, vice-president and manager; J. H. Stephens, secretary and treasurer, and J. B. Morrison, superintendent. It owns a large tract of land between the Elgin-Butler brick plant and Elgin, and has the machinery on the ground and is pushing the work of construction as rapidly as possible. The company expects to be in operation in a couple of months.

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.

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RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR **\$3.00**

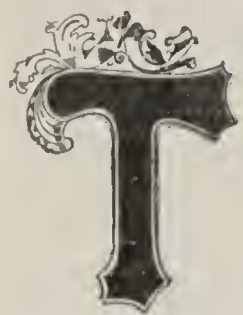
DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

Written for THE CLAY-WORKER.

BRICK NEWS FROM KENTUCKY METROPOLIS.



HE REPORTS in the past few weeks with regard to the building outlook in this city have not been as favorable in several years, and there is reason to hope for a decided activity in the general demand for brick on this account. There are now in contemplation, and assured, a large number of large structures to be erected here during the present year.

There will be at least three new theatres, an office building, a new depot for the Illinois Central Railroad Company, and a large plant for B. F. Avery & Sons. In addition to these, there is a great deal of smaller work, so that a big increase can be counted upon in the brick demand here soon.

The plants are all getting in shape for a nice run, and are feeling much more hopeful over the outlook than they were at this time a year ago. Many of them are now operating full and others will soon get things in readiness for a like run.

The Board of Works will soon let contracts for a considerable amount of brick work for the building of new streets, and there is to be a big increase in the demand for sewer pipe within a short time, as the completion of the larger sewers will mean that there will be a number of lateral sewers that will demand sewer pipe.

There have been some new changes made in the building code here, and some important details that are beneficial to the builders are now in vogue. These will be helpful in future building operations here. More attention has been given the subject of fireproofing than was the case previously.

Taking the situation as a whole, there is every reason to feel that there will be a vast increase in the conditions this year, and that there will be enough activity in the business for clay products to make all the plants in this locality feel the good effects of the change.

The Hydraulic Brick Company are now operating all their plants, and find the situation with them to be very much more pleasing than it was last year. In fact, they feel that there will be a very much better demand for all kinds of building brick this year, and they are encouraged over the aspect for the future.

The Louisville Brick Company are doing a very nice business, and while it is a trifle early to look for a big increase in the demand, they have noted a nice line of business thus far. They feel that there will be a most pleasing year for all kinds of brick in this city and vicinity, and they are in a position to handle large amounts of orders.

The Louisville Fire Brick Works, at Highland Park, Ky., are pushing their plant to completion, and hope to have all things in shape for full operations within thirty days more. They have been able to manufacture a fair amount of clay commodities, and in this way they have been keeping up with their orders. The demand for fire brick and other fire clay commodities has not been as brisk as it might have been recently, and this has given them an opportunity to make more headway than would otherwise have been the case.

The P. Bannon Sewer Pipe Company are noting some increase in the demand for pipe now, and are operating full force. They have just installed two new boilers of 150 h. p. each, which will give them increased capacity. Everything now points to an increased demand.

The Southern Brick and Tile Company are operating full capacity at their plant now, and say that there are indications for a good year with them, as they are getting busier all the time.

The Falls City Brick Manufacturing Company are getting

ready to resume operations at their plant. The spring demand has not been as lively yet as it might be, but there is ample time yet, and they are not complaining.

The Burrell & Walker Clay Manufacturing Co. feel better over the way business has been improving in the past few weeks. Mr. Burrell said that there was a more certain activity to the demand, and that the indications pointed to a better business this spring. They are operating their plant at Owensboro, Ky., at full capacity.

C. O. Smith says that there has been a very much better demand for all kinds of brick with him in the past few weeks, and that the outlook now is such as to make the prospects very much more hopeful. He said that there has been an increase in the out-of-town demand, and that he has been making a number of shipments to different localities of late.

The Kentucky Vitified Brick Company are looking forward to a better demand for brick this year than was the case last, and they are operating their plant on full time. There have been some delays in the past, owing to the backward weather, but the prospects are very much more pleasing than they were, and the outlook offers a very hopeful future.

The Louisville Pottery Company are operating at full capacity, but they say that there has been a decline in the demand for jugs, due to prohibition, and that there will not be any increase in this respect soon. The outlook for other lines is as pleasing as they could hope for, and they are simply waiting the outcome of the whole to note what changes will take place. There are good indications for fruit, and they are counting on this to be a helper to them in the end.

C. O. L.

STEVENSON CO. SHIPS MACHINERY TO STREATOR, ILL.

The Streator Clay Manufacturing Company, of Streator, Ill., don't let any little thing like a \$100,000 fire destroy their nerve and throw them into a state of desuetude or collapse for many moons. They snatched a telegram blank from the burning embers as it were and wired the Stevenson Company that they were ready for another and better plant, and almost before the smoke cleared away new machinery was rushing to the site. The Stevenson Company are "Johnny on the spot." The new building will be a four-story structure of one of the latest designs in the country, and will be fitted up as a two-press plant. It will have four 150 h. p. boilers, one 400 h. p. Corliss engine, one 40x60-inch and one 40x52-inch press, three dry and three wet pans and all the necessary line shafting, pulleys, power and gravity elevators to make it one of the most complete plants in the state. R. H. Green, the president and treasurer, is himself a contractor, and is on the ground making every effort to be turning out pipe in fifty days. He is a hustler from the word "go." The entire outfit of machinery will be new and furnished by the Stevenson Company.

Marion Brick Works

Indianapolis, Ind.

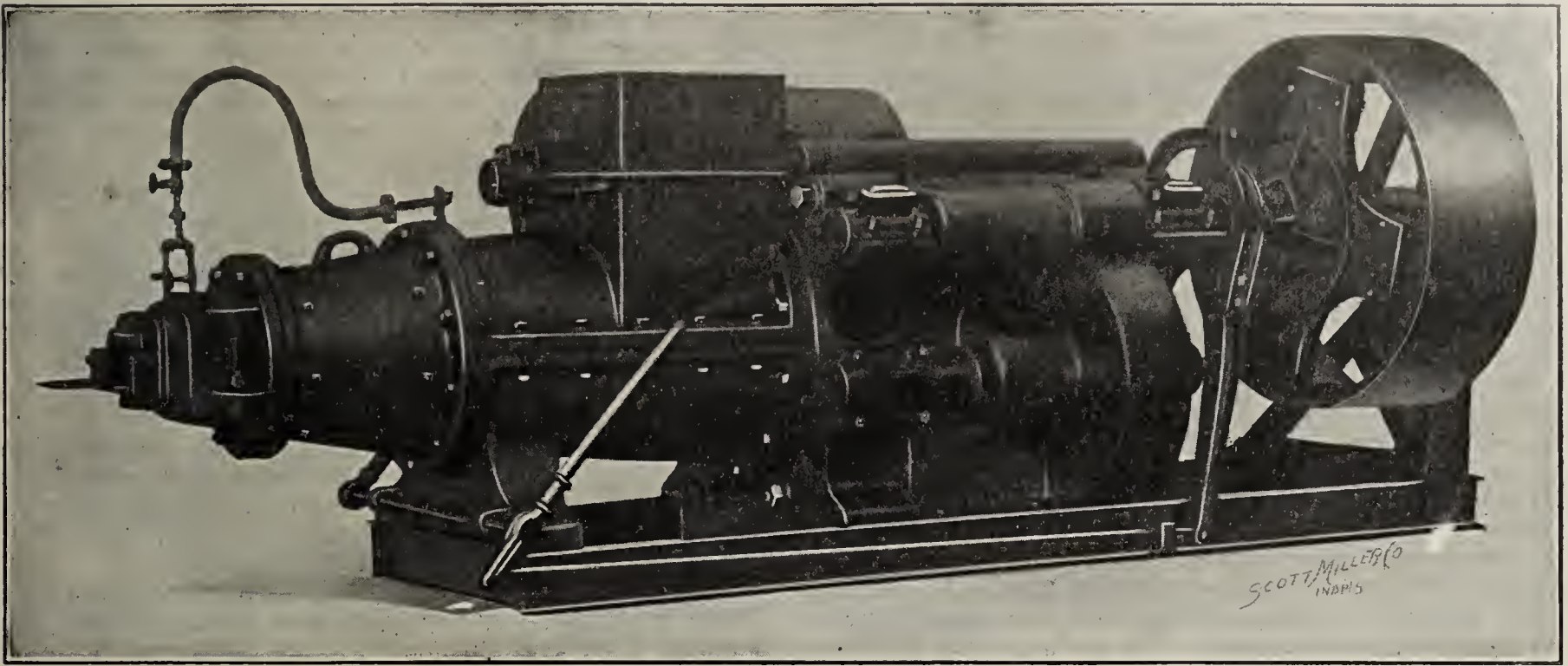
MARION PAVERS

A Strictly High Class Paving Block.

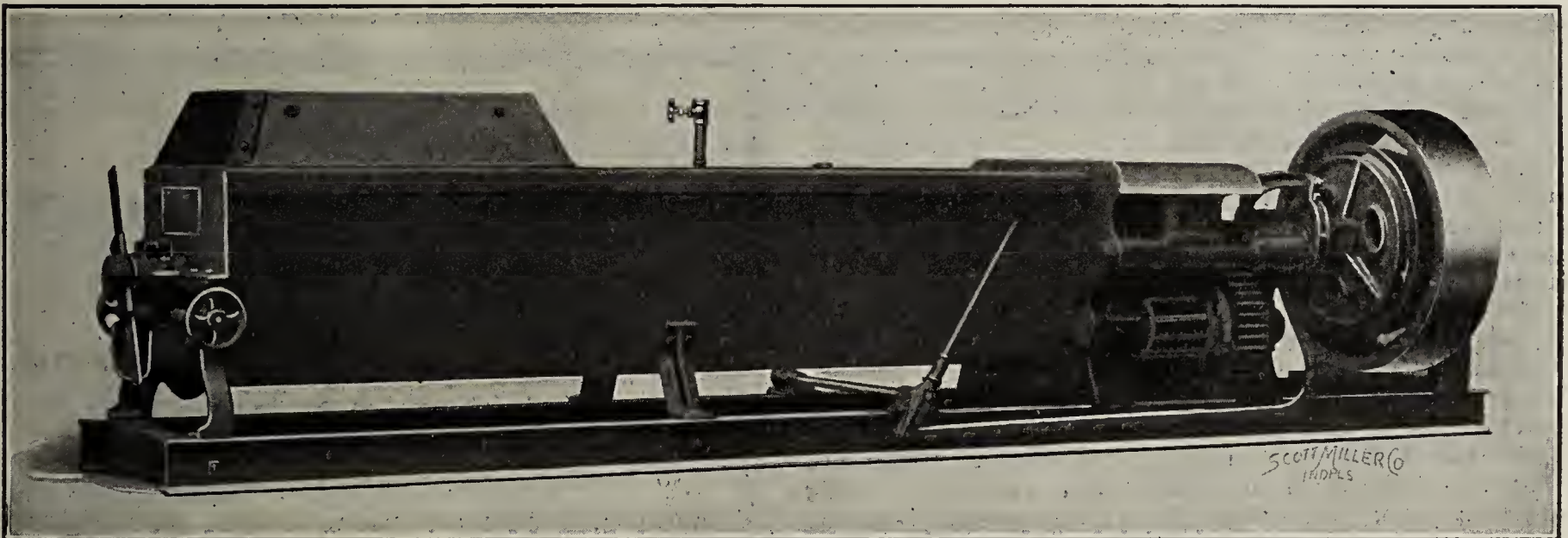
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FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

Galion, Ohio.

(Mention The Clay-Worker.)

See ads on pages 654 and 655.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM NORTHWESTERN OHIO.



MUCH INTEREST centered around the decision of Judge Charles E. Chittenden, recently, in discharging the fifty-eight master plumbers of Toledo, who, for the past two years have been under indictment for criminal conspiracy in restraint of trade, in violation of the Valentine Anti-trust Law. The Toledo

plumbers, like the Toledo brick dealers, were at the same time indicted by the grand jury, but, unlike the brick men, the plumbers did not plead guilty as charged, and their cases have dragged along from term to term, without a hearing upon the merits, until they were finally last week dismissed by the court for want of prosecution. This has given rise to the question of the advisability of the action of the brick men, who, acting under the advice of their counsel, entered pleas of technical guilt, to a certain section of the law, and upon which pleas the court sentenced them to the payment of heavy fines. Many now argue that if the brick dealers had assumed the same attitude assumed by the plumbers, that the result would have been the same, as it was not thought possible that a conviction could have been secured upon the evidence obtainable. The brick dealers appealed their cases to the higher court, where they have been pending for some time without final action, and the fines have not been paid. It is possible that further prosecution may go by default, but the better opinion is that a decision will be reached before very long.

In the meantime, the brick business is looking better in this vicinity, and while there is not as much snap and vim in the building situation as many had expected, there is, nevertheless, much improvement over the conditions of last season. Most of the yards are figuring upon some fair trade and are planning accordingly. There is already under way a number of large brick consuming structures which are making themselves felt on the local market. Outside trade continues to grow, and a healthy business is being carried on with the surrounding territory. There are plenty of brick on hand to care for a large business for some time, and it is not thought probable that prices will ascend to any unreasonable height. Brick dealers express themselves as satisfied with future prospects, as well as with present business.

It seems barely probable that the paving block industry will not come up to expectations this summer. While there numerous municipal contracts and a fair amount of business is assured, there seems to be a disposition to permit matters to drag, and it is probable that much work will be delayed if not postponed for the season. Prices are being well maintained at present and business is being conducted along conservative lines. The output of paving brick is—at least normal, and there is little danger of shortage.

Most all of the clayworking plants of all kinds report a better business atmosphere than has prevailed for a long time, although most of them agree that there is a certain hesitancy about business that is not altogether satisfactory. The cause is attributed in most cases to an unsettled condition of the tariff question, and this being true, it follows that they expect a new life to be injected into trade as soon as the tariff is finally out of the way.

Sidewalk work in the city of Toledo is on the boom, and it is estimated that more than \$20,000 worth of walks will be laid before the first of June. The activity is unprecedented in the history of the city. Permits have already been issued for about \$15,000 worth of walks of various kinds. In addition to this, thousands of dollars will be expended by citizens. The awakening has come as a result of numerous damage suits against the city recently as a result of defective walks.

A hurry-up job of paving has been decided upon at Toledo which means the paving of Summit avenue from Michigan

avenue to Bay View Park, a distance of about three blocks. The Council has passed the preliminary legislation, and it is expected that the work will be hurried to completion before the great military tournament of the Department of the Lakes, United States Army, which will open at that place July 5. A 36-foot brick pavement will be constructed at an estimated cost of \$13,000, of which the street railway company will pay for 14 feet. It was desired that a wider street be made, but it was found impossible to do so for the reason that the property is not worth enough to stand the assessments. The improvement is made at the instigation of the local Chamber of Commerce, and will be done without petition from the property owners, thus requiring a three-fourths vote of the Council.

The Charles McCaul Company, general contractors for the new Toledo Post Office building, costing approximately half a million dollars, have awarded the brick and concrete work to S. J. Pickett, the Toledo contractor. It is also announced that the Toledo Builders' Supply Company will furnish all brick, sand, cement, lime and crushed stone that goes into the structure.

It is understood that the plant of the Superior Brick Company, at Lima, Ohio, will be enlarged and a strong company formed to take over the business. The property was recently sold under order of the court to J. R. Rickhoff, of the Lima Tea Company, for \$7,000.

Many new contracts for street improvements are being closed in Toledo, and the indications point to a very busy summer along that line. Among the more recent awards were that of portion of Marion street to Charles F. Peter, for \$5,914.74, portions of Craig street and Paine avenue to Garrigan Bros., at \$7,370.10, and \$6,482.80, respectively. These improvements will be of brick.

A stock company has been organized at Ada, Ohio, by local capitalists, for the purpose of manufacturing drain tile. The capital stock of the concern is \$15,000, and work will be started at once on the erection of the new plant. L. F. Anspach is president of the company, and George Rothrock, secretary and treasurer. T. O. D.

The Richardson-Lovejoy Engineering Co.

Consulting Engineers and Factory Architects.

We make geological surveys of properties, test the materials, investigate manufacturing propositions and advise regarding products, design plants and superintend construction, modernize old plants for economical operation and devise cost systems.

Expert service for special cases or by the year at moderate prices.

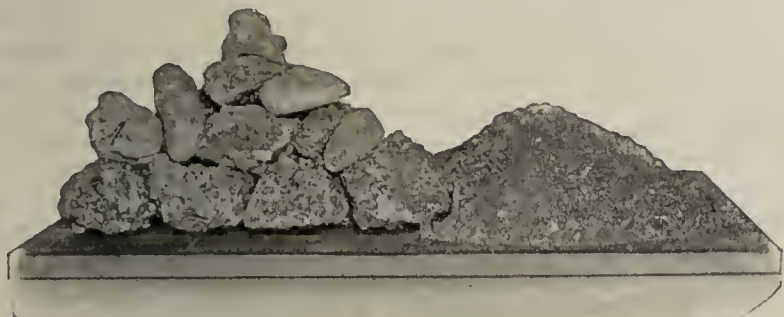
TECHNICAL BUREAU FOR CLAYWORKERS

Send for Pamphlet
"Ceramic Engineering."

Schultz Bldg., Columbus, Ohio.

KEYSTONE DOUBLE DISINTEGRATORS

Produce this result



Grinds materials that are too wet for Dry Pans.

Small stones and pieces of ore are ground with the clay.

Grinding tests made for customers.



Chambers Brothers Company,

PHILADELPHIA, PA.

CHICAGO, ILL.

See ad on page 543.

THE PHILLIPS BRICK DRYER

Is in successful operation in different sections of the country and without exception those who are using it are more than satisfied.

The Phillips System of Drying is a sure cure for whitewash or scum on brick and also a safeguard against cracking.

If you are having dryer troubles of any sort tell us about them—We can help you and save you money too.

The Phillips System is the most economical method of drying brick. Let us tell you about it.

The Inside Fan Condenser, Heater & Dryer Co.

S. G. Phillips, Patentee, Treasurer and Manager

413 North Thirtieth Street, Richmond, Va.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CONTRACTING CO.,
11 tf d Zanesville, Ohio.

FOR SALE—One American Clay Machinery Co.'s semi-automatic side cutting brick machine in first-class condition; has not been used to exceed two weeks. Make us an offer. Address IOWA,
4 1 d Care Clay-Worker.

ATTENTION CLAYWORKERS.

We have installed cost systems in clay-working plants and have a thorough knowledge of the business. We will be pleased to lay our methods before any interested firms. Address B. A. P.,
4 3 dm Care Clay-Worker.

WANTED—Position as general superintendent or manager of a large brick works or the building of same. Have had twenty years of practical experience and thorough knowledge of the business. Address BRICK SUPERINTENDENT,
P. O. Box 81,
4 1 dm Coffeyville, Kans.

FOR SALE.

One $\frac{3}{4}$ housing 8-foot wheel, Rodgers waste heat fan. Built especially heavy. Water cooled and ring oiling bearing with 72-inch pulley. Used eight months. Shows no wear at all.
DALLAS COUNTY BRICK AND TILE WORKS,
4 2 d Adel, Iowa.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.
THE KING ENGINEERING CO.,
2 tf L Richmond, Va.

WANTED.

Position as superintendent of brick plant. Was superintendent of St. Louis Press Brick Co.'s plant for six years; superintendent of Jamestown Shale Paving Brick Co.'s plant for nine years, and also superintendent of Denny-Renton Clay and Coal Co. for two years. I am a thoroughly practical, up-to-date brickmaker, with No. 1 references. Address "GEO. C.,"
4 2 c Care Clay-Worker.

FOR SALE—Brick and tile plant, consisting of fifteen acres of land; 30,000 capacity stiff mud machine with tile attachment for making from 4 to 30-inch tile; 60 h. p. boiler; 45 h. p. engine; three-story drying house, brick drying sheds and 250,000 brick kiln and tile kiln. Machinery securely housed and been run but little. Clay suitable for manufacture of tile and brick. Address W. P. ECKLES,
Odd Fellows' bldg.,
4 3 cm Memphis, Tenn.

A BARGAIN.

Five hundred dollars cash takes our Chambers machine with friction clutch, automatic cut-off and everything complete. Capacity, 35,000. Address
SUMMERVILLE BRICK CO.,
4 1 d Summerville, S. C.

FOR SALE—One Bensing automatic side cutting brick machine—cost us \$500, f. o. b. factory, and has not cut to exceed 100,000 brick. Can't use it in our clay—make us an offer.
GRINNELL BRICK AND TILE CO.,
4 1 d Grinnell, Iowa.

WANTED—Position as assistant foreman on a small soft mud brick yard with a party who owns and superintends same. Eight years' experience and very good references. Can take a small interest. Give me a trial. Address WORK,
4 1 cm Care Clay-Worker.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,
2 tf L Cleveland, Ohio.

FOR SALE.

Only brickyard in city of 7,000, modern machinery, only bed of clay suited for brick; nearest competitor thirty miles. Good reason for selling. A fine chance for practical brick manufacturer. Address
ADAM PAULUS,
4 2 cm Marshfield, Wis.

WANTED, POSITION—As manager of brick plant. Have had twenty years' experience in the manufacture of soft and stiff mud brick, drain and roofing tile, with all sorts of kilns and dryers. Can install new or remodel old plants. Specialty, roofing tiles. Address
BARTH,
4 1 cm Care Clay-Worker.

FOR SALE.

A profitable brick plant and business; 20,000 capacity; four-mold Boyd press; complete equipment. Splendid reputation. Economically situated. Supplies this entire section with no competition. A money-making plant. Owners have other interests. Address
DURANGO PRESSED BRICK CO.,
4 1 d Durango, Col.

FOR SALE OR LEASE—A good soft mud plant, equipped with Quaker machine, drying racks, etc. Will be sold or leased on very reasonable terms. A fine opening for a practical man. The plant is located twenty-five miles from the capital of the state. An abundance of good clay and shale, cheap fuel and low freight rate. For full particulars, address
Box 2285,
4 1 d Care Clay-Worker.

DO YOU NEED A MANAGER?

Have you a brick, tile or a brick and tile plant with good clay bank and need a manager? I can take the entire management and furnish the capital to operate same for share of profits. Object is to buy an interest when I find what I want. Have had experience and am competent to manage a business of this kind. Will not buy or rent until I have had charge of plant for at least a year. Address
B. F.,
4 1 d Care Clay-Worker.

FOR SALE.

One 4-mold Ross-Keller brick press in good working condition. Has been used only one year.
CHISHOLM, BOYD & WHITE,
2 tf L 57th and Wallace, Chicago, Ill.

FOR SALE OR LEASE.

Tile and brick plant in Southern Minnesota. Reason for selling, owner not a practical brick man and has other business to look after. Address JOHN GEIB,
Bingham Lake or Gaylord, Minn.
4 3 cm

WANTED.

First-class, all around machinist, sober and industrious. One who has had experience with clayworking machinery. State experience and wages expected and give references.
THE CERAMIC SUPPLY AND CONSTRUCTION CO.,
280 North Front st.,
4 1 L Columbus, Ohio.

WANTED—Situation as superintendent of a clayworking plant. Applicant has practical experience in the manufacture of face and paving brick, stiff mud process; hollow goods, sewer pipe, drain tile and electrical conduits. Also have had technical training in other branches of the clay industry. First-class references. Address
J. L. S. K.,
4 1 d Care Clay-Worker.

WANTED—Position by practical and experienced man. Can take charge of plant. Up-to-date in all details of manufacture and business for production of building, paving, common and fire, including all specialties, furnace, coke oven, locomotive and other linings of brick and tile. Familiar with stiff and soft mud and dry press process and all kinds of kilns. Address
S. L. K.,
4 1 cm Care Clay-Worker.

FOR SALE.

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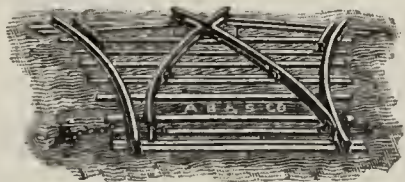
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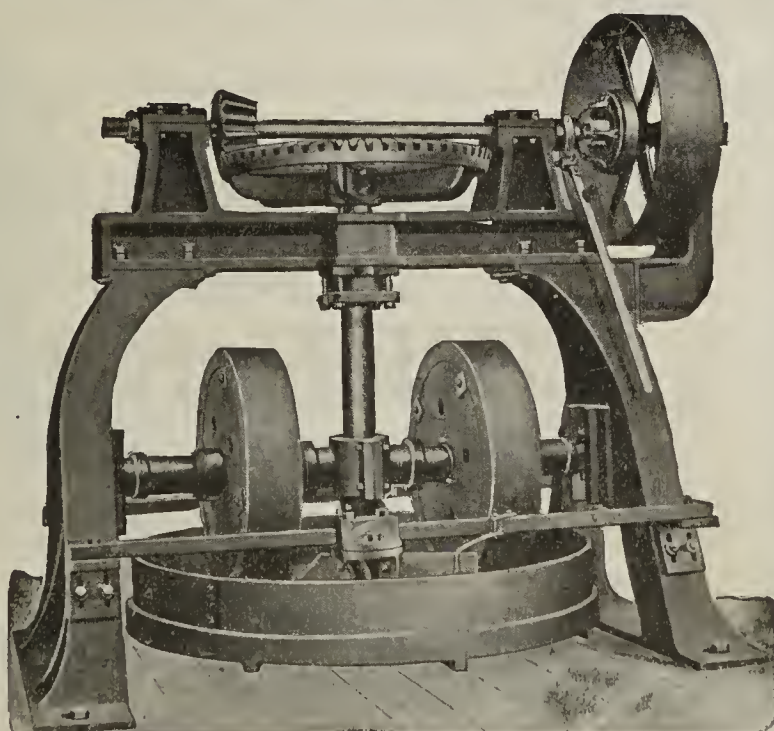
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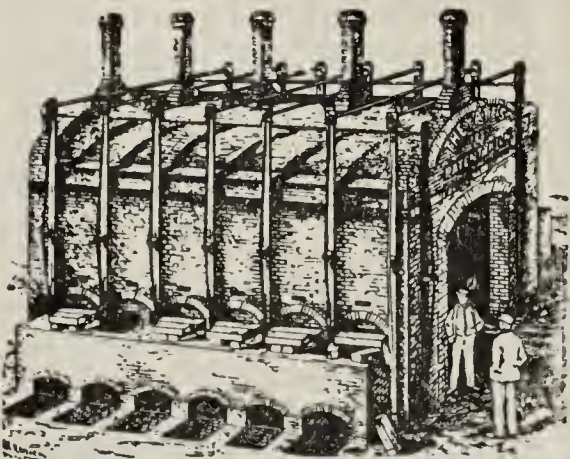
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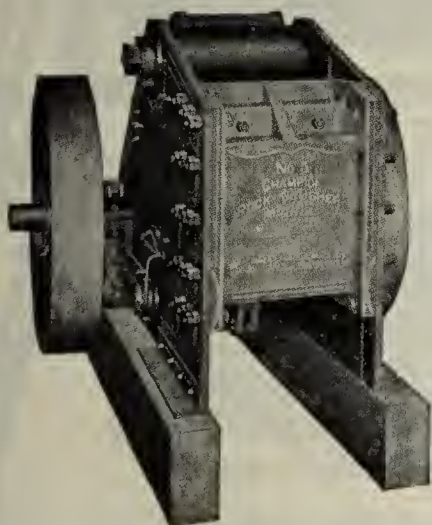
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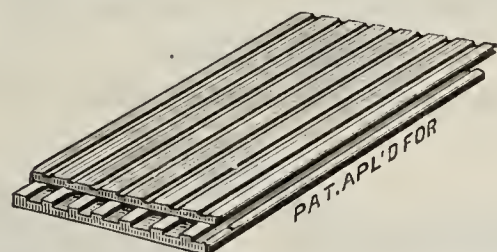
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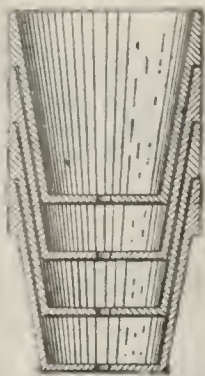
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Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.



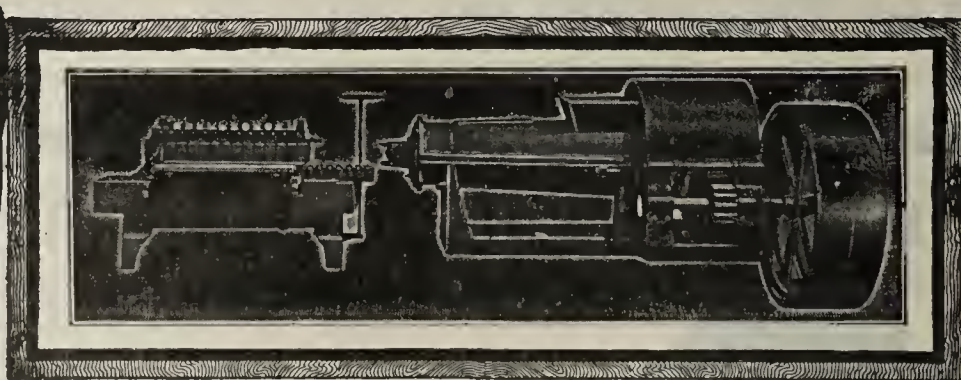
Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

136 Main St.,

NORFOLK, VA.



THE PIONEER.

Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality

of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.

CHOOSE WISELY...

when you buy a SEWING MACHINE. You'll find all sorts and kinds at corresponding prices. But if you want a reputable serviceable Machine, then take

the **. WHITE .**



27 years experience has enabled us to bring out a HANDSOME, SYMMETRICAL and WELL-BUILT PRODUCT, combining in its make-up all the good points found on high grade machines and others that are exclusively WHITE—for instance, our *TENSION INDICATOR*, a device that shows the tension at a glance, and we have others that appeal to careful buyers. All Drop Heads have Automatic Lift and beautiful Swell Front, Golden Oak Workwork. Vibrator and Rotary Shuttle Styles.

OUR ELEGANT H. T. CATALOGUES GIVE FULL PARTICULARS, FREE.

WHITE SEWING MACHINE CO. Cleveland, Ohio

INDIANAPOLIS OFFICE:

138 E. New York Street, Cor. New York, Delaware and Massachusetts Avenue

WHEN WRITING TO ADVERTISERS
Mention the CLAY-WORKER.

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
Derby, Conn.

Old Machines Taken in Trade.



If...

You Want
to Sell
or Buy...

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

If...
You Want
a Man

for any position or a position in any connection with the Clayworking Trades use the

For Sale
and Want
Columns
of...

The...
Clay-Worker.

RATES

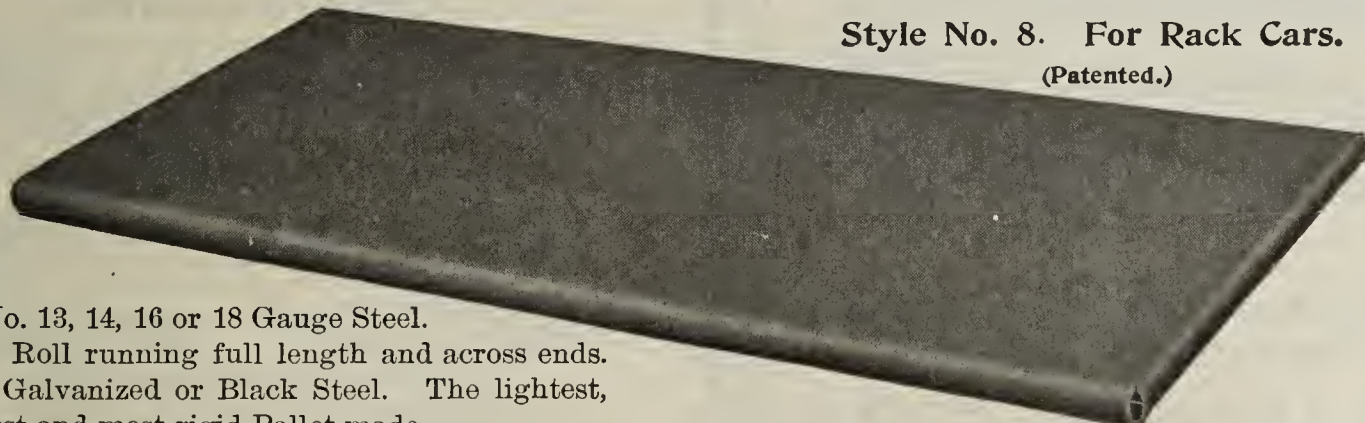
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The Best, Quickest, Cheapest Method of Securing Results.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.

(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.

Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



We might claim "till the cows come home" that LEVIATHAN is the best belt in the world, but is it the best belt?

One brick manufacturer says:

This Leviathan belt driving a 50 to 60 horse machine, on 21 ft. shaft centers, and a machine grinding dirt, and of course subjected to dust, has given us absolute satisfaction, and has been cut only once in eight months, and today looks like a band of steel traveling over the pulleys, so slight is its variation on the changing load. We had used gum, and other cotton belting, considered the best on the market, and it was a weekly job to cut out the slack.

The best thus described is a regular Leviathan and no better than any other of our products.

All we ask is a trial order, and we will then convince you better than by any claims that Leviathan needs less "guaranteeing" than any other belt.

Main Belting Company

1224 Carpenter Street,
59 Market Street,
118 Pearl Street,
305 Broadway
908 Ellicott Square,
33 Terminal Way.

PHILADELPHIA
CHICAGO
BOSTON
NEW YORK
BUFFALO
PITTSBURGH

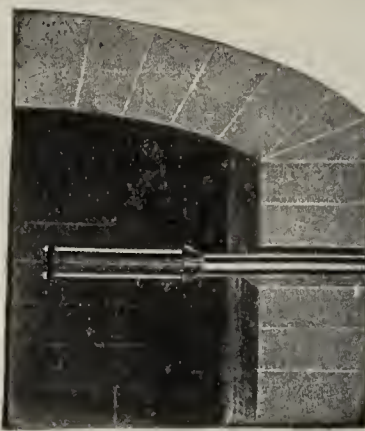
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
618 Fourteenth St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311 Walnut St.,
Philadelphia, Pa.

CLAY HAULAGE

Reduce cost of transportation
by using a

Davenport Industrial Locomotive.



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

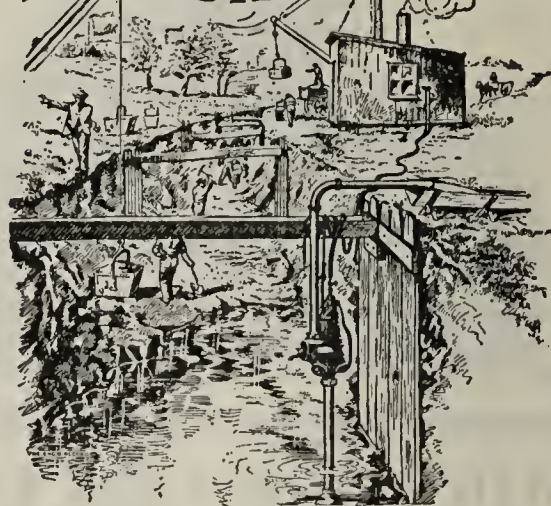
and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars.

Davenport Locomotive Works,
Davenport, Iowa.

PULSOMETER STEAM PUMP



ALWAYS READY

A pump that has no easily deranged inside or outside mechanism, no rods to score, no projecting or breakable parts to be injured by rough-usage;—one that is not likely to become choked or clogged by the mud, grit and sediment encountered in

DRAINING CLAY PITS

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary, and may be raised and lowered as occasion demands without interrupting its work.

Often Imitated.

Never Equaled.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.
Chicago Office, 61-69 No. Jefferson St.

Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade Missouri semi-flint fire clay. A large stock of Number One brick and shapes always on hand. Let us quote you prices and we will save you money. Samples sent upon request. Address

Mexico Brick & Fire Clay Co.

MEXICO, MISSOURI.

Let Us Tell You About Our

GEAR SHIELD

An Adhesive Compound Lubricant that will accomplish WONDERFUL saving in LUBRICATION and PRESERVE the wear of GEARS and PINIONS by preventing NOISE and METALLIC CONTACT between the gear teeth.



THE OHIO FILLER & SHIELD CO.,
Columbus, Ohio.

When You Travel EAST OR WEST

Bear in Mind Always that The



"AMERICA'S GREATEST
RAILWAY SYSTEM"

New York Central Lines

Affords the most comfortable service, the fastest and best equipped trains between New York, Boston, Chicago, St. Louis and all connecting Points.

"KNICKERBOCKER SPECIAL"

An Electric-Lighted vestibuled Train, with Stenographer, Maid, Barber, Valet and Bath Service for the benefit ... of its Patrons between ...

ST. LOUIS, INDIANAPOLIS AND
NEW YORK CITY

THE SOUTHWESTERN LIMITED

Leaving New York daily at 10:30 a. m. and arriving St. Louis 1:45 p. m. next day, has the same equipment and service. Ask your local ticket agent for full information, or write to

WARREN J. LYNCH

Passenger Traffic Manager : : : : Chicago

The New Champion

Brick Mould Sanding Machine

The ORIGINAL, Light
Running, Always Running.

CHAIN DRIVEN and BELT DRIVEN.

Patented Spring Feed Rack.

Hundreds in Use.

ONE COMPANY HAS FORTY.

FOR PALLET OR GROUND YARD.

ADDRESS US

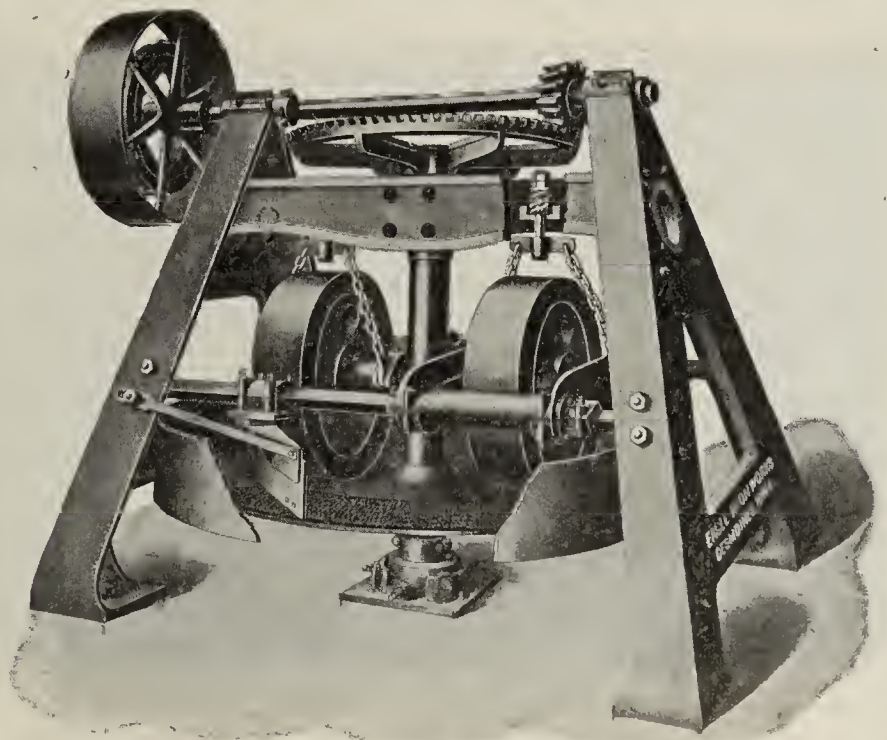
FOR INFORMATION and PRICES.

**The Cohoes Iron Foundry
& Machine Co.,**

COHOES, N. Y.

Independent and Suspended Muller

the distinguishing
feature of our **DRY PANS.**



Other valuable features which our catalogue
fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:	City Office:
East Falls,	Builders' Exchange,
Philadelphia, Pa.	Philadelphia, Pa.
New York City.	Washington, D. C.
Trenton, N. J.	

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

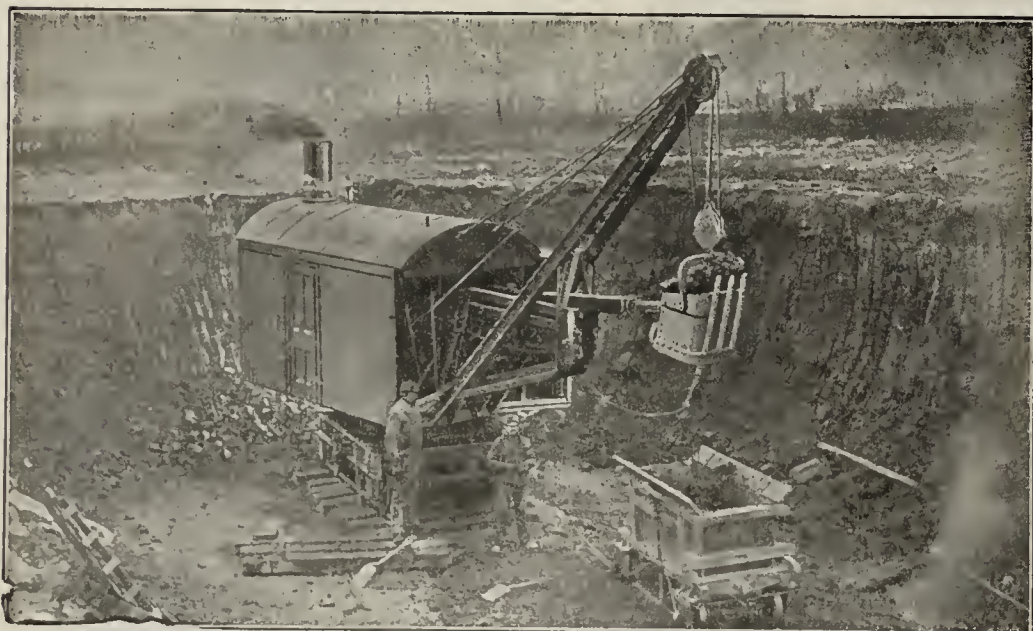
**We Build and Equip
Complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.**

**Ross-Keller Triple Pressure
Brick Machine Co.**

**Offices
Fullerton Bldg., ST. LOUIS, MO.**

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 0—Ohio Brick Company, Toledo, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.

BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.

Write for Catalogue.

JOHN C. BOSS,
Monger Bldg. ELKHART, IND.

Some Interesting Facts Relating to Drying Clay Products.

Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
 100 William Street,
 NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
 R. & H. PRECIPITATED.

Oxide Tin,
 Oxide Cobalt,
 Red Oxide Iron,
 Green Oxide Chrome,
 White Oxide Antimony,
 Black Oxide Manganese and
 all Chemicals used by the Clay Trades.

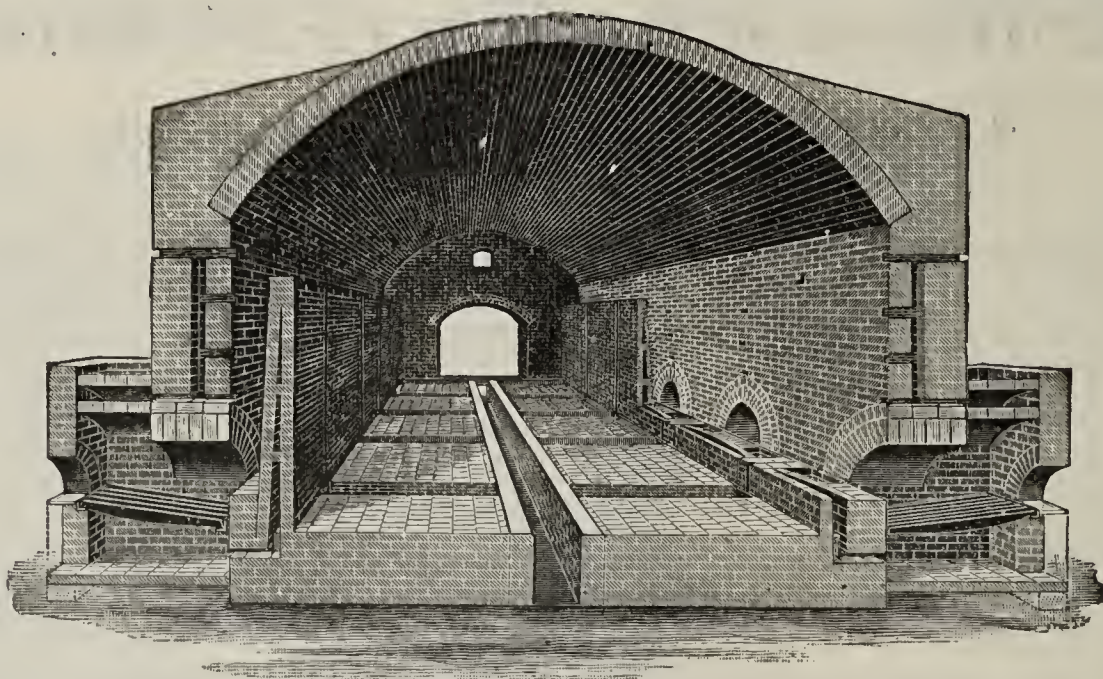
Mention THE CLAY-WORKER

WHEN WRITING TO ADVERTISERS,

Mention THE CLAY-WORKER.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

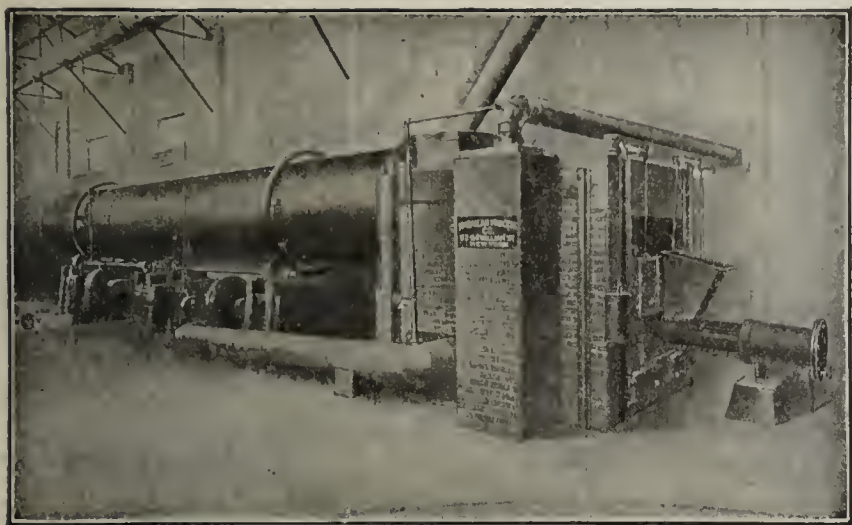
The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.



Automatic Improved DRYERS

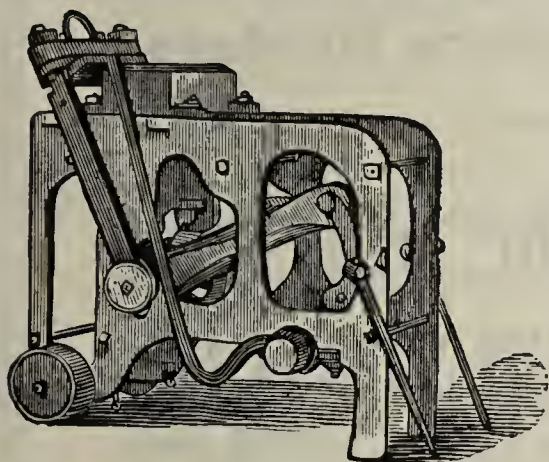
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

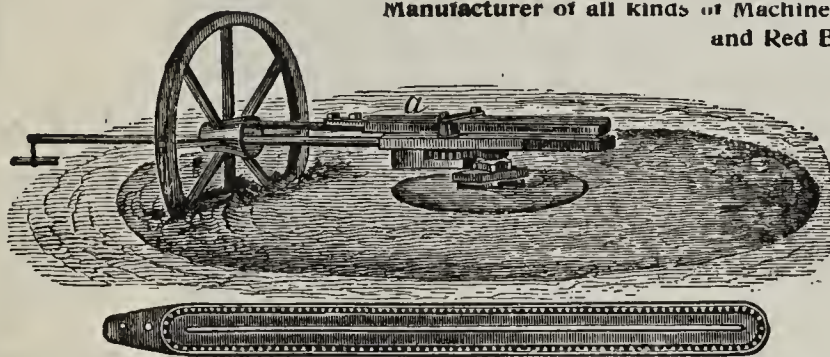


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

GEORGE CARNELL. 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Madden Tile and Brick Machinery

Built for the heaviest service, of the best material, by the best workmen, in a modern shop—That's the **MADDEN MACHINERY.**

All the shafting in our new mills is of the best hammered steel—The main gears, cut steel—Everything about the machine of the very best.

In buying a **MADDEN** machine you can feel that you will have a mill that will be ready for work every day in the year. No break downs—Small repair bills—Large output in any clay. Don't that interest you?

Write us for our catalogue of horizontal machines to make Brick, Hollow Ware or Tile up to 12 in. Our Vertical machines to make Tile up to 24 in. Disintegrators, Pug Mills, Granulators, Dry Pans, Cutting Tables, etc. for any capacity plant.

MADDEN & CO.,

RUSHVILLE, IND.



Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.

The Original ^{EXHAUST}_{STEAM} Dryer is the National.

ROCKFORD BRICK COMPANY.

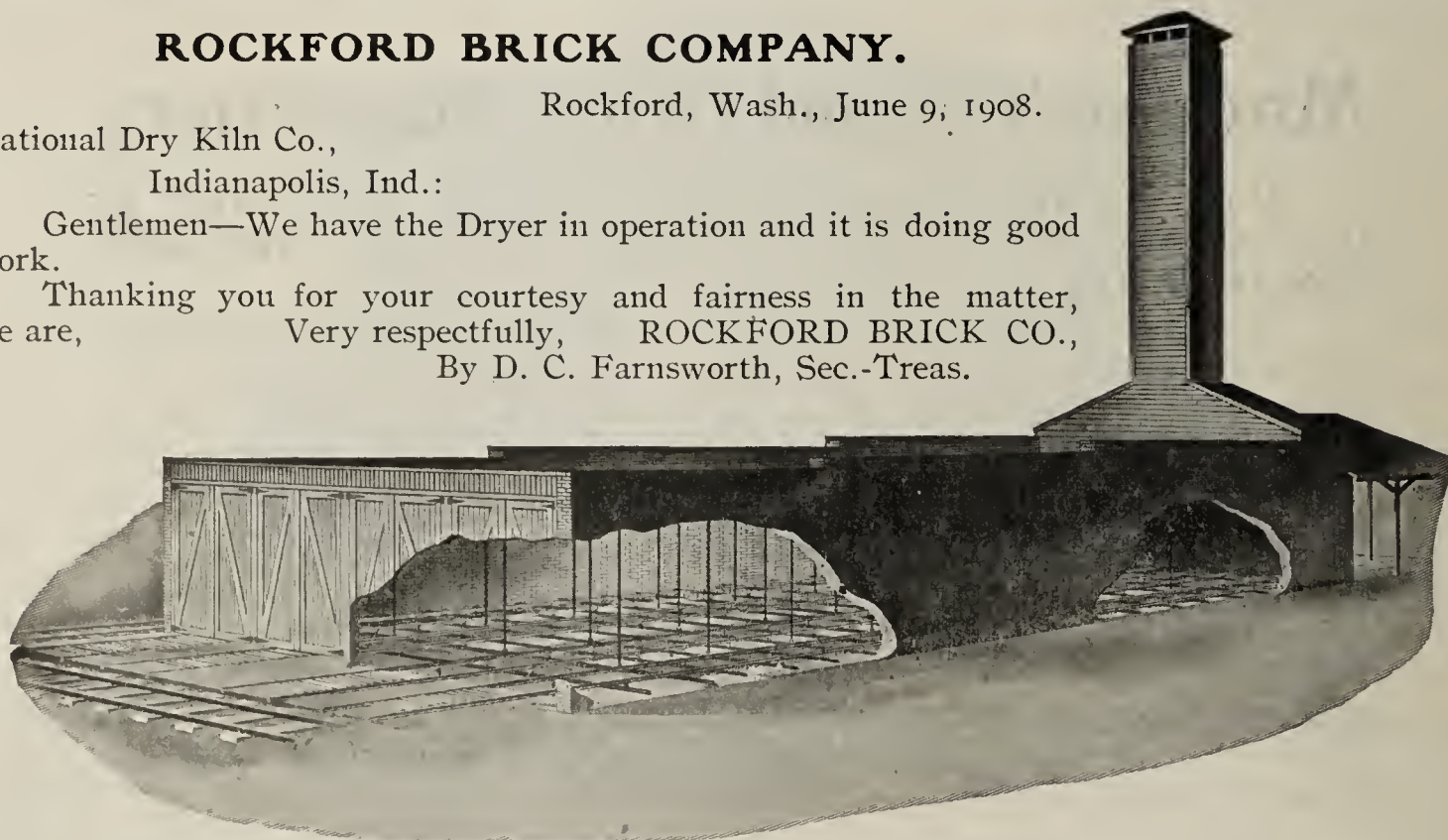
Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good
work.

Thanking you for your courtesy and fairness in the matter,
we are, Very respectfully, ROCKFORD BRICK CO.,

By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.
Steel Roller Bearing Cars, etc.

No Fire Danger.
Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

HAIGH'S IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
Paving and Common Building Brick,
AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.
For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
particulars
address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.



ESTABLISHED IN 1860.

JACOB BUHRER'S TECHNICAL BUREAU, CONSTANCE, GERMANY.

Constructor of Brick, Tile and Lime Works for Coal or Gas Firing, and of Kilns with or without Dryer.

Buhrer's Shortened Kilns are the most suitable for burning ordinary and enamelled goods, lime and cement.

Bricks and Tiles made by the plastic process from clays of normal character may be dried in a Buhrer Dryer in 1½ to 4 days.

The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

References and letters of introduction for visiting works are given on application.

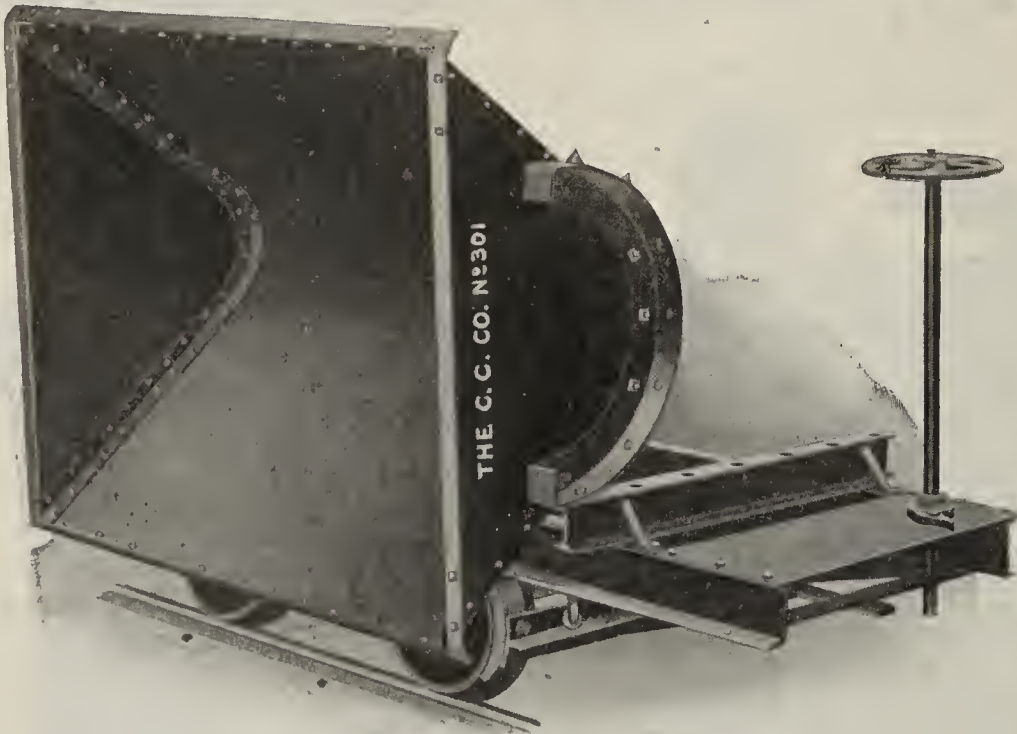
Clay Testing is done in a thorough way.

Write for Illustrated Pamphlet.

About 1,000 Kilns have been constructed already.

BUHRER BRICK AND TILE WORKS WITH BUHRER FANS.

NOVEMBER 1908	Num- ber of Kilns	Num- ber of Fans	Single Fan Wings	Dryers	Length in feet of the fire canals worked with fan draught	Total annual out- put of these works in bricks of 10" x 5" x 2½"
Recently erected Works	132	133	170	95	41,980	732,500,000
Works in Con- struction, 1908	16	14	15	13	4,790	79,000,000
Total Amounts	148	147	185	108	46,770	811,500,000



NO. 301 ROCKER DUMP CAR.

CLEVELAND DUMP CARS ARE RIGHT.

We can convince you of that fact without difficulty through a trial order.

Many satisfied users will also corroborate this statement.

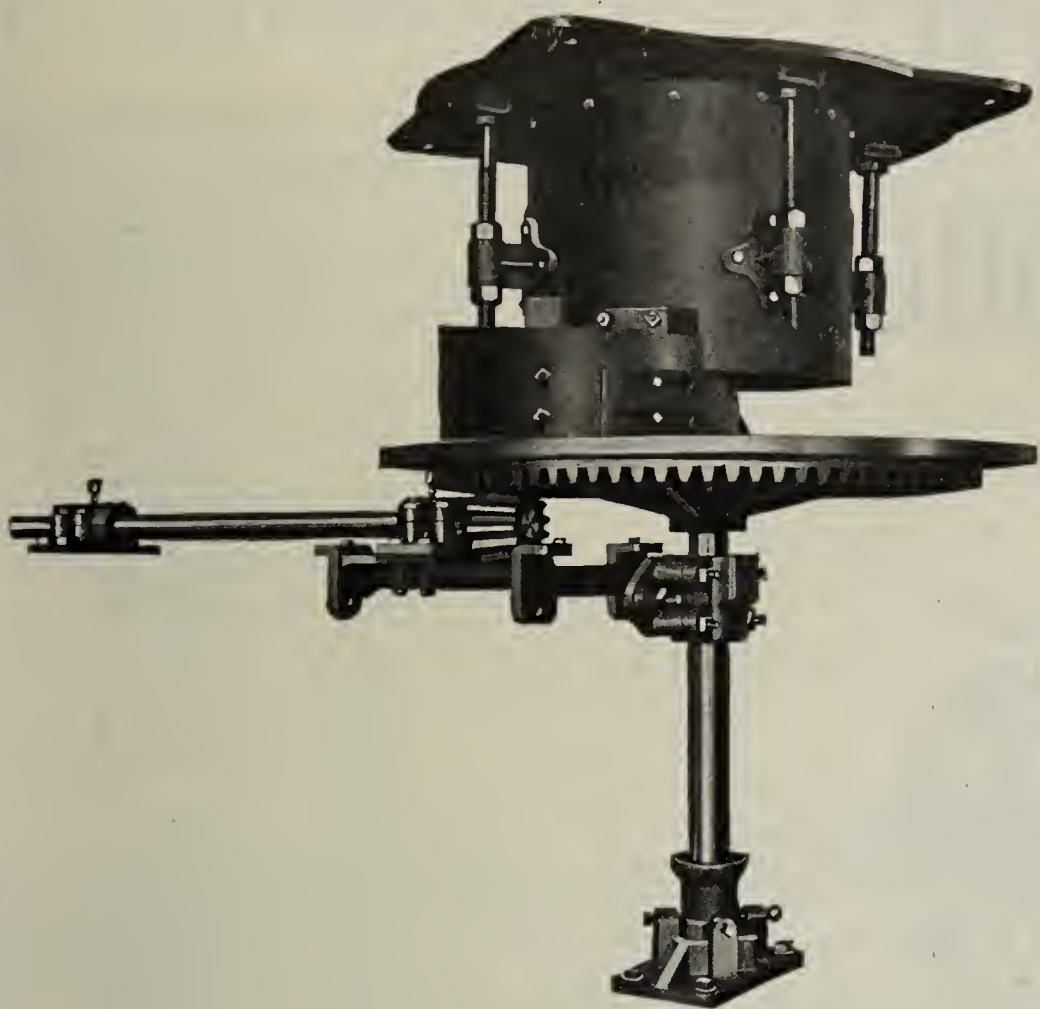
These cars are properly balanced, strongly constructed, run easy and clear the road thoroughly.

Note these features carefully in purchasing your equipment.

The Cleveland Car Co.

WEST PARK, OHIO.

Manufacturers of Industrial Railway Equipment for all Classes of Service.

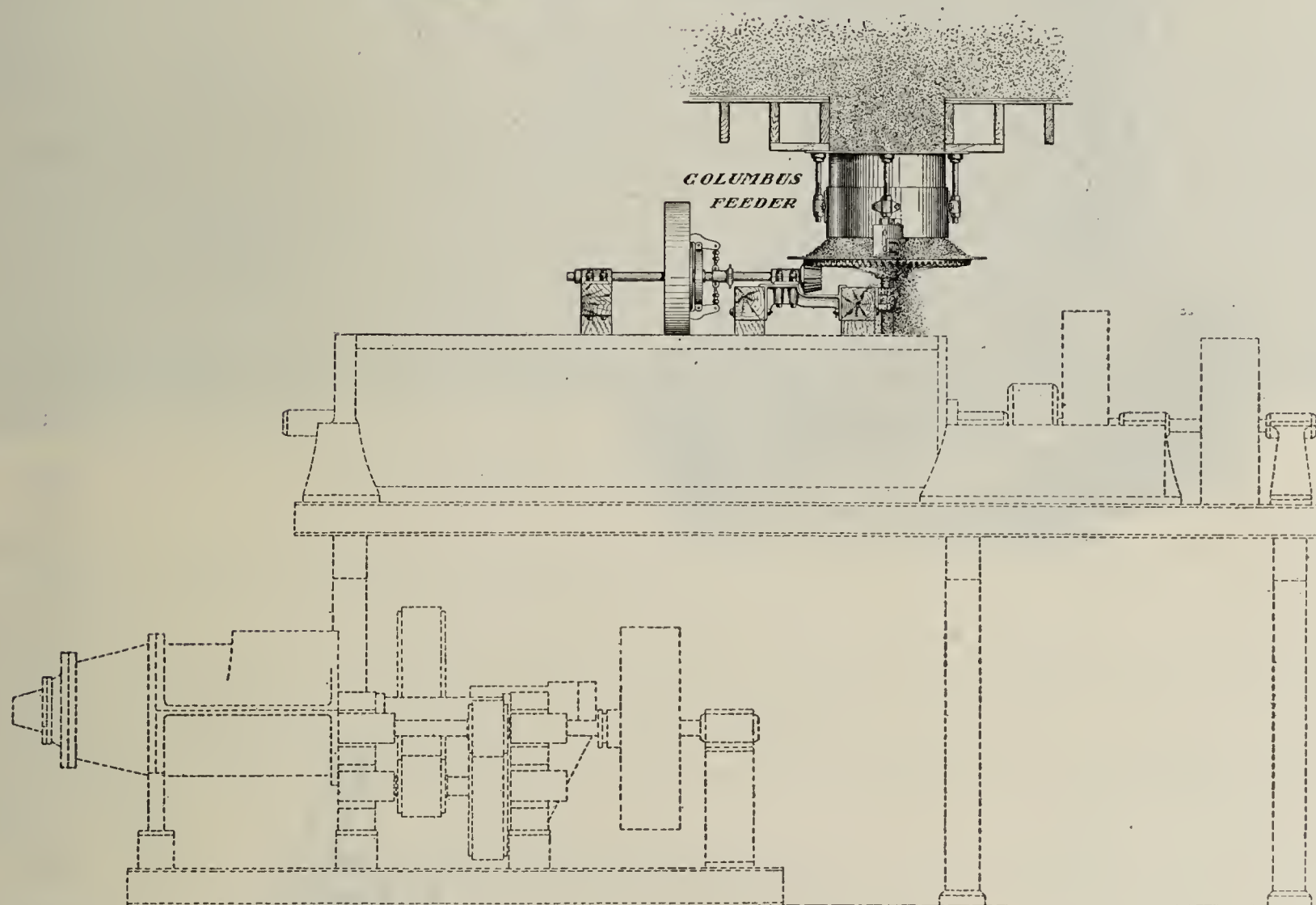


AUTOMATIC

tempering of pulverized
clay or shale better than
the most expert man can
do, is the special function
of the

Columbus Feeder

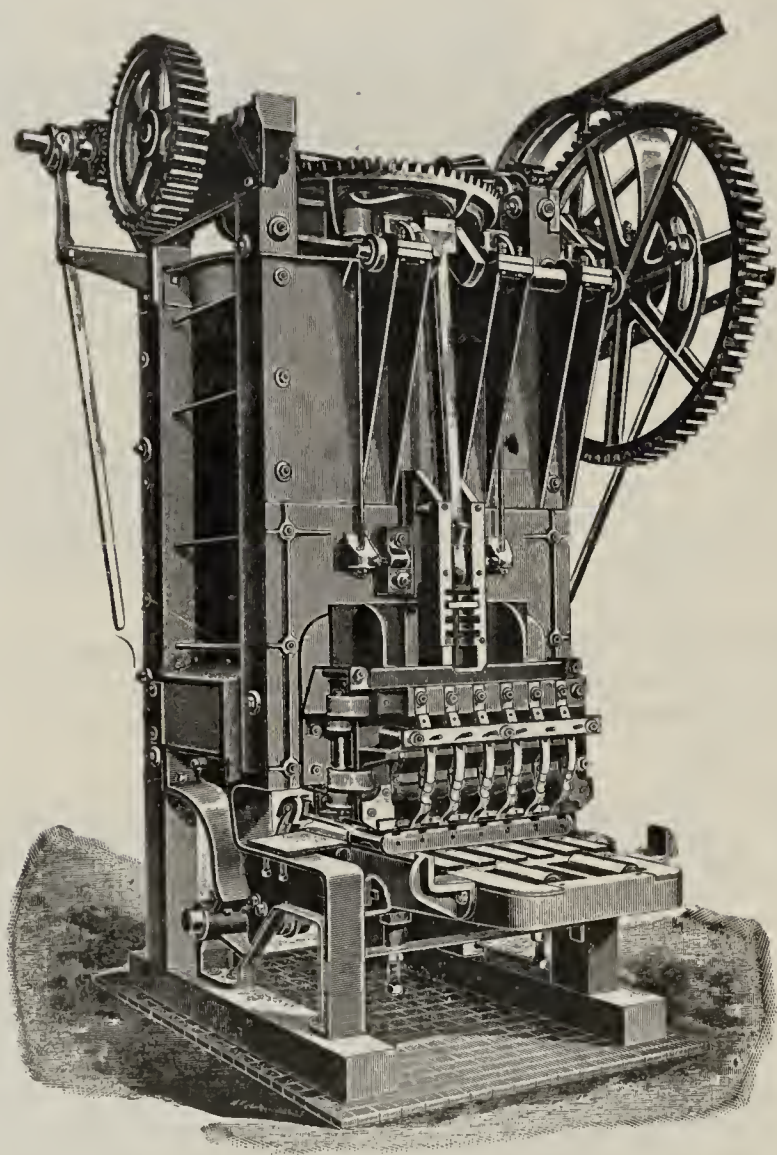
No new plant should be
built without it. All old
plants will have it in time



Send for Catalog.

The Ceramic Supply and Construction Co.,
280 North Front Street, COLUMBUS, OHIO.

“New Haven” Brick Machines.



Soft
Clay
Brick
Machines
Are
the
Only
Kind
We
Build
and
We
Build
Them
Well.
Stout
Shafts,
Long
Bearings,
Large
Oil
Holes,
Strong
Gears,
Steel
Liners
and
Other
Details
in
Proportion.

The Eastern Machinery Co..
New Haven, Conn.



The Youngren Continuous Gas Fired Kiln



As Installed at Omaha, Neb.

We are now ready to furnish licenses for the building of the Youngren Continuous Gas Fired Kiln.

The great labor saver and the wonderful fuel saver. It will give you a profit while your competitor is selling at cost. He can't stand up against your 60% to the good, besides the uniformity of burn obtained by no other method.

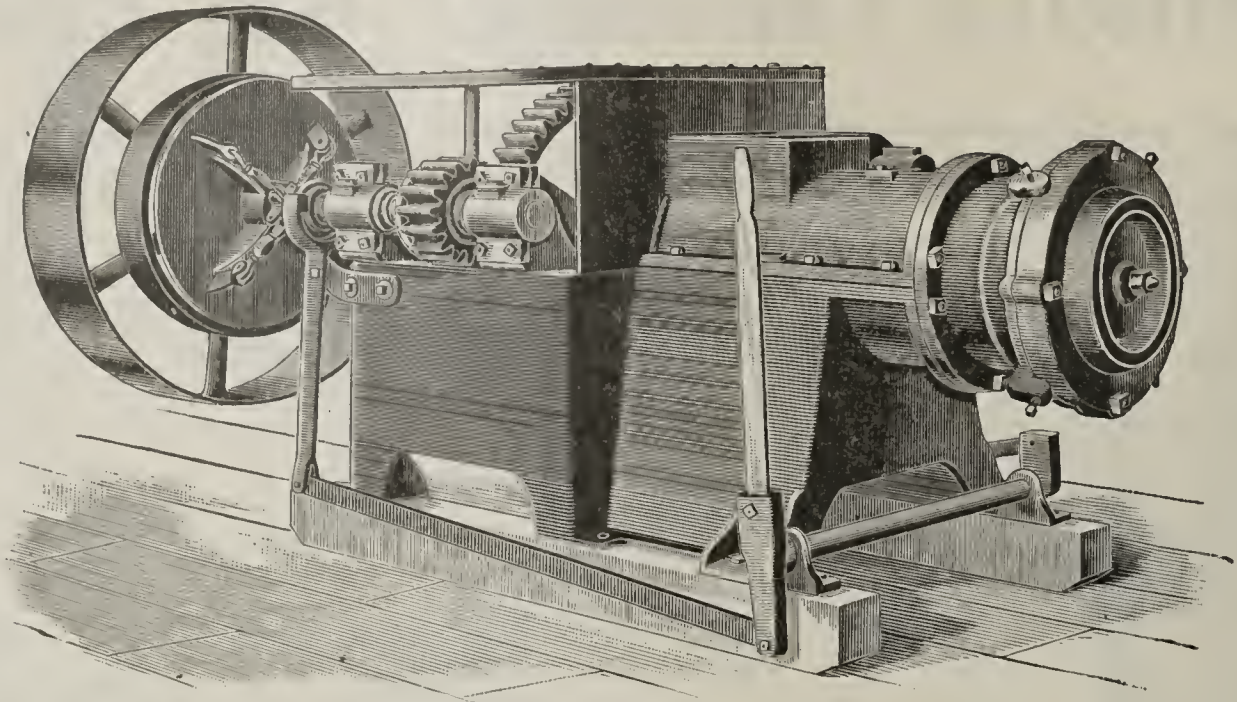
These claims are neither radical nor visionary, but susceptible of the highest proof, and we are ready to give this proof to you.

The C. W. Raymond Company,

Exclusive Licensees of the Youngren Patents,

DAYTON, OHIO, U. S. A.

Mention The Clay-Worker.



NO. 25 LEADER BRICK AND TILE MACHINE.

OUR LINE OF
Brick and Tile Machinery and Supplies
 Represents the Combined Experience of

D. J. C. Arnold, New London, Ohio.

Established 1880.

Manufacturer of Brick Moulds, Barrows, Trucks, Dump Tables, Kiln
 Doors, Ventilators, Grates, Bands, Etc.

Jonathan Creager's Sons Co., Cincinnati, Ohio.

Established 1881.

Manufacturers of Soft Mud Brick Machines, Pug Mills, Disintegrators,
 Sanding Machines, Clay Elevators, Cars, Etc.

Leader Manufacturing Co., Decatur, Illinois.

Established 1889.

Manufacturers of Stiff Mud Brick Machines, Tile Machines, Represses,
 Automatic Cutters, Crushers Etc.

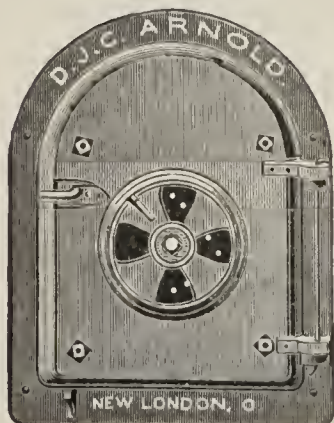
Continual usage brings out the weak spots in any manufactured article. The experience of several years past, has resulted in many changes of design and construction of our present line. We are not offering any experiments. Our machinery is giving satisfaction all over this country and in foreign lands. If you want the "Tried and True" line, address

THE ARNOLD-CREAGER CO.,

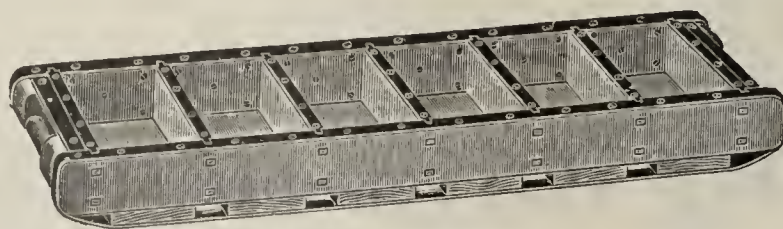
(Successors to the Above)

Shops and General Office:

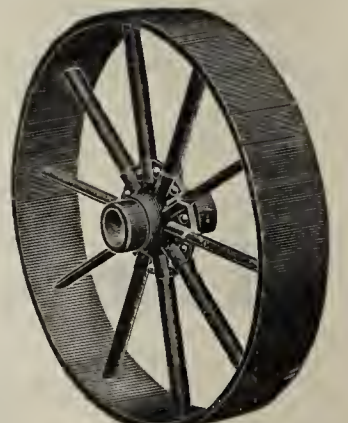
NEW LONDON, OHIO.



KILN DOOR

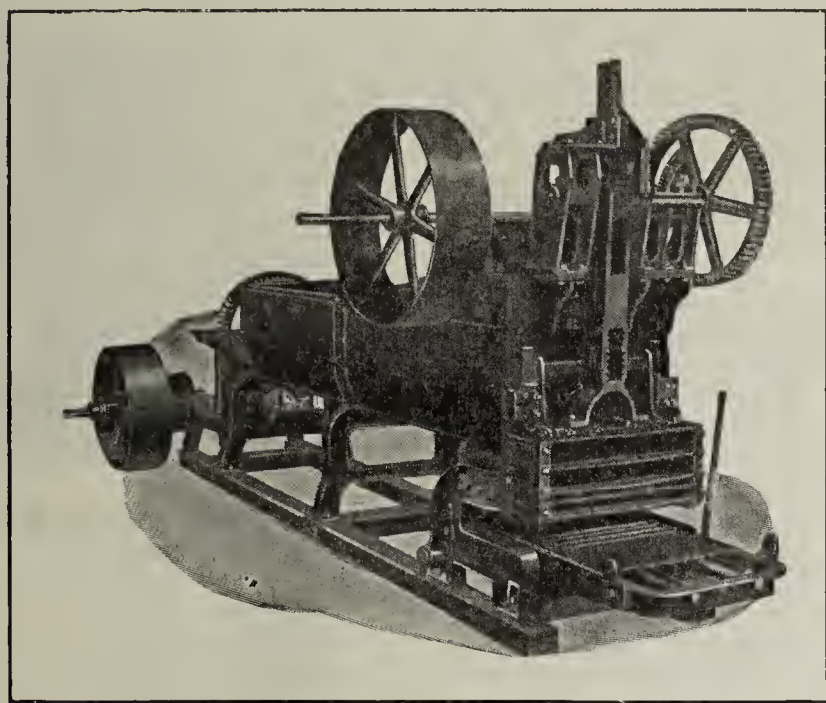


MACHINE MOULD
 STEEL LINED FULL DEPTH AT ENDS
 OF BRICK.



TRUCK WHEEL

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.

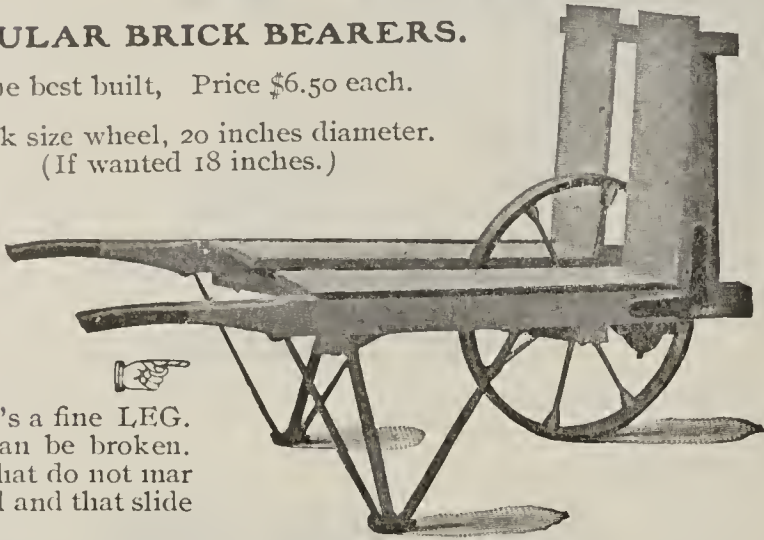
We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

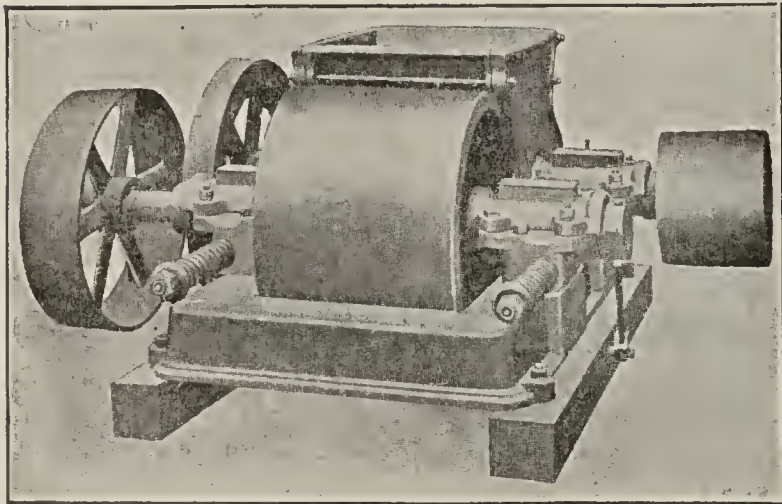
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



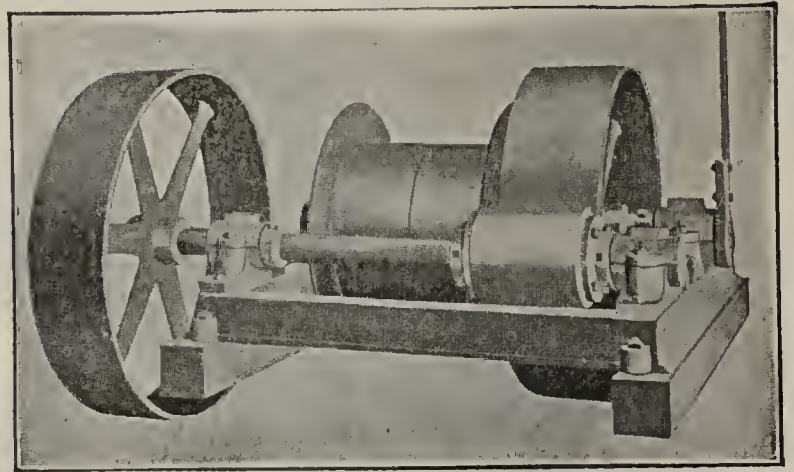
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

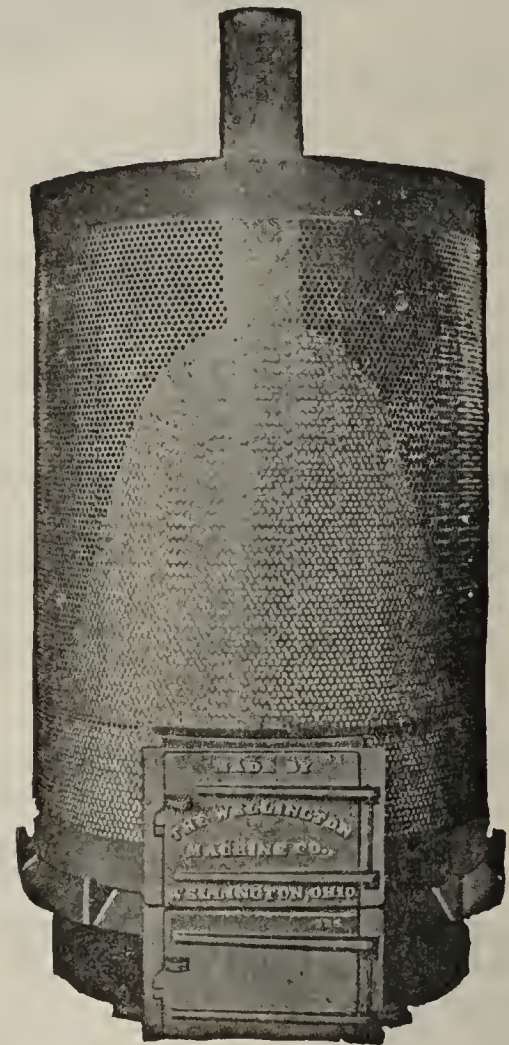
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1909 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

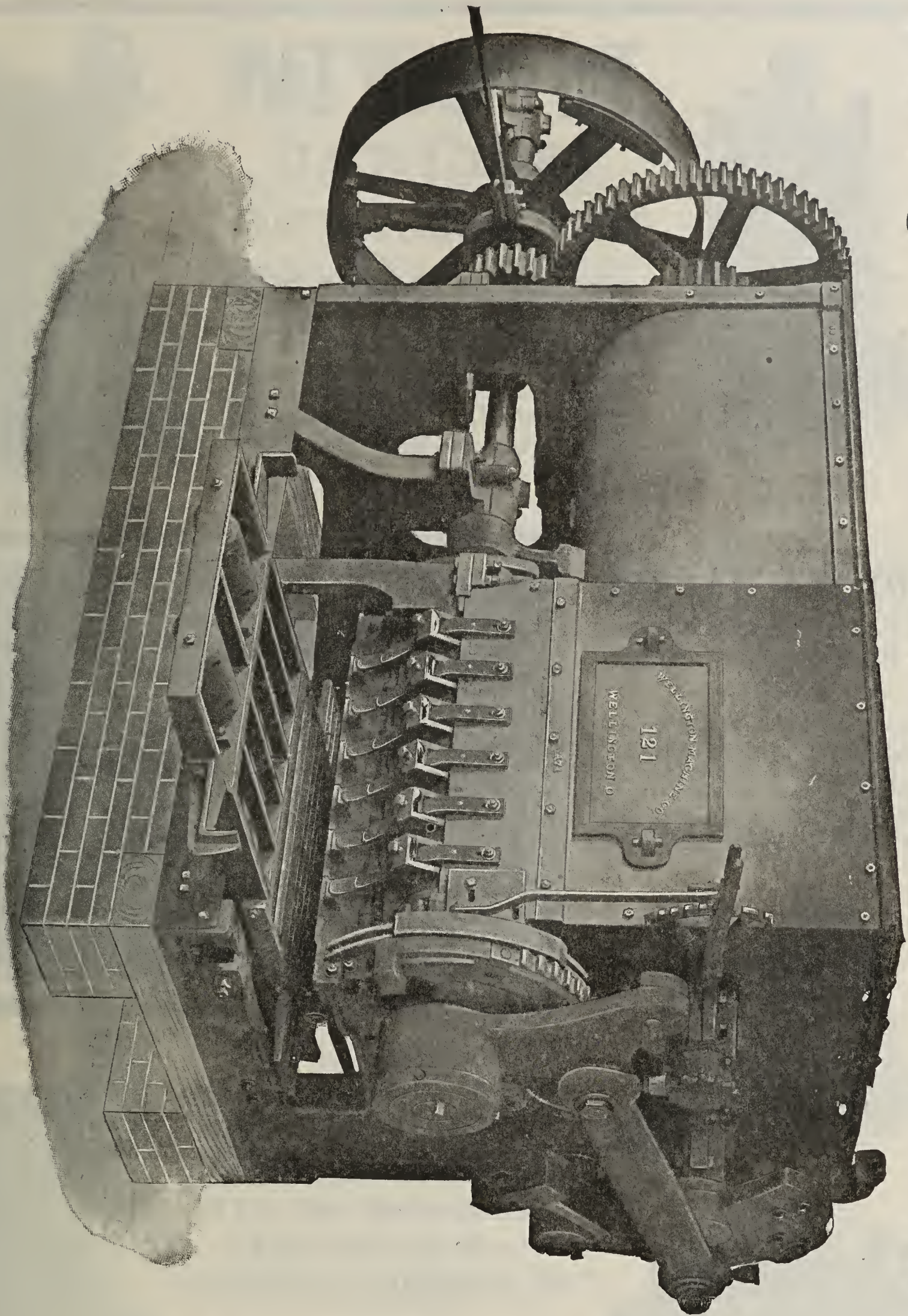
Indianapolis, Ind.

Mention The Clay-Worker.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

ROLLER-BEARING
BARROWS.

The Wellington Machine Co.,

WELLINGTON,

OHIO.

Send for Catalogue.

Mention the Clay-Worker.

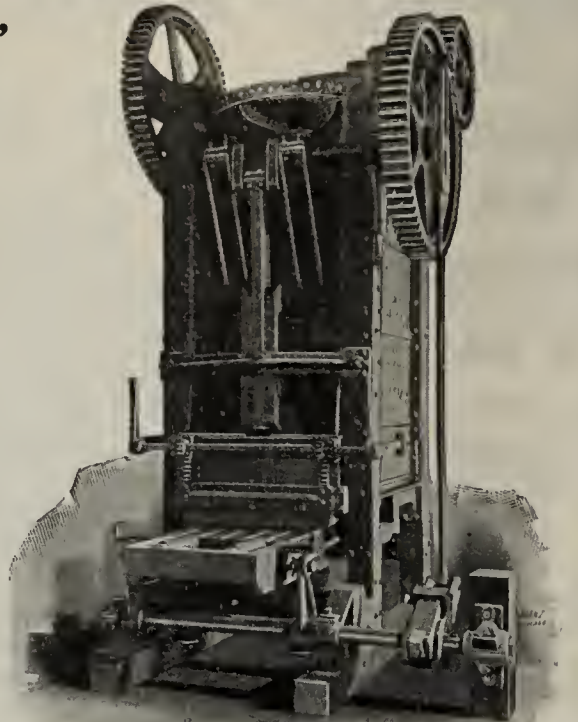
ANIMAL POWER
MACHINE

THE "MARTIN"

PRACTICAL BRICK-MAKING MACHINERY DOWN-TO-DATE

"We Furnish Everything
the Brickmaker Needs"

From CLAY BANK to KILNS

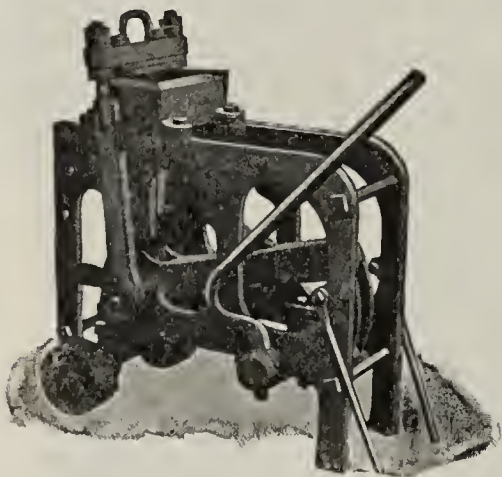


STYLE "A" BRICK MACHINE

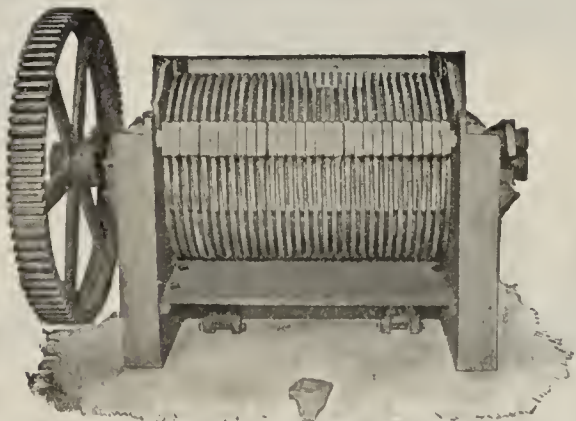
THE OLD WAY

Of Handling and Drying
BRICK==GET WISE

Let Us Figure With You on
the Most Complete and
Labor-Saving System Yet
Devised==The "Martin" Way
==The ONLY SURE WAY



HAND REPRESSES



CLAY SCREENS

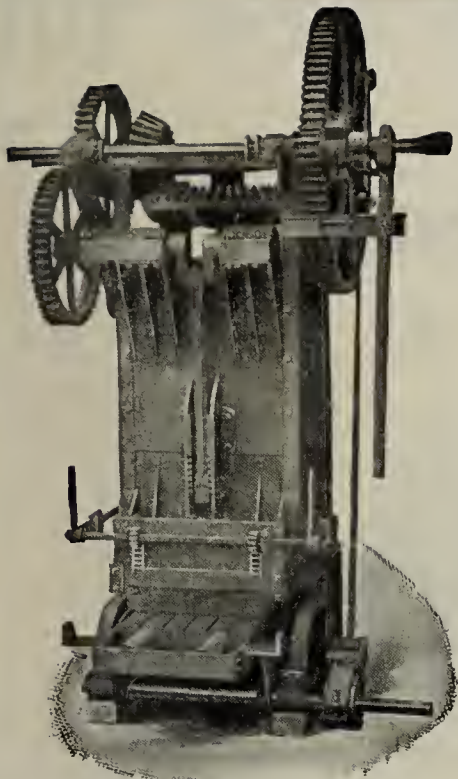


THE MARTIN COMPANY
HAS THE MOST COMPLETE LINE
OF HIGH-GRADE CRUSHING
AND PULVERIZING MACHINERY
LET US KNOW YOUR NEEDS
AND GET OUR PRICES
WE GUARANTEE SATISFACTION

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE



STYLE "P" BRICK MACHINE

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

UNITED STATES & CANADA

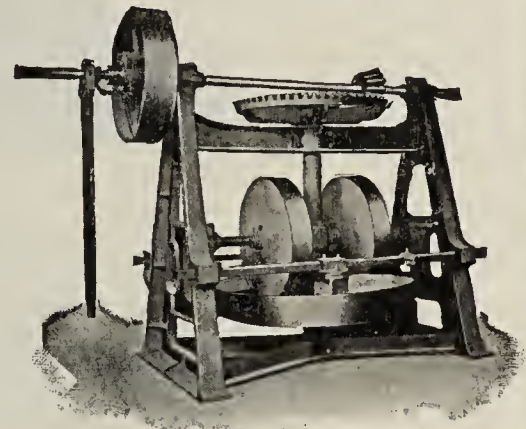


MARTIN'S SAND DRYER

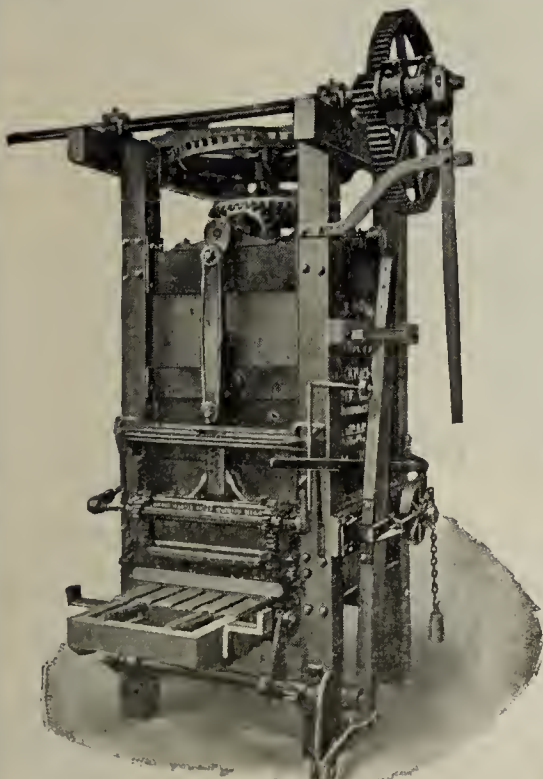


THE NEW WAY
Of Handling and Drying
Brick==INVESTIGATE

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem--Quick to Install and
Low in Price--Write Us.



DRY OR WET PANS

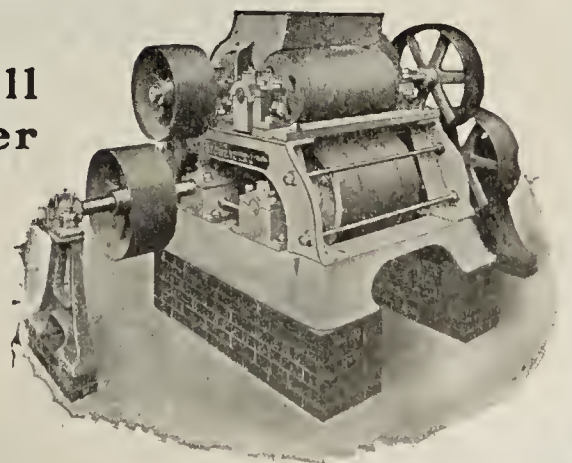


STYLE "B" BRICK MACHINE

THE "MARTIN" COMPANY
AT LANCASTER, PA.
Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —
To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

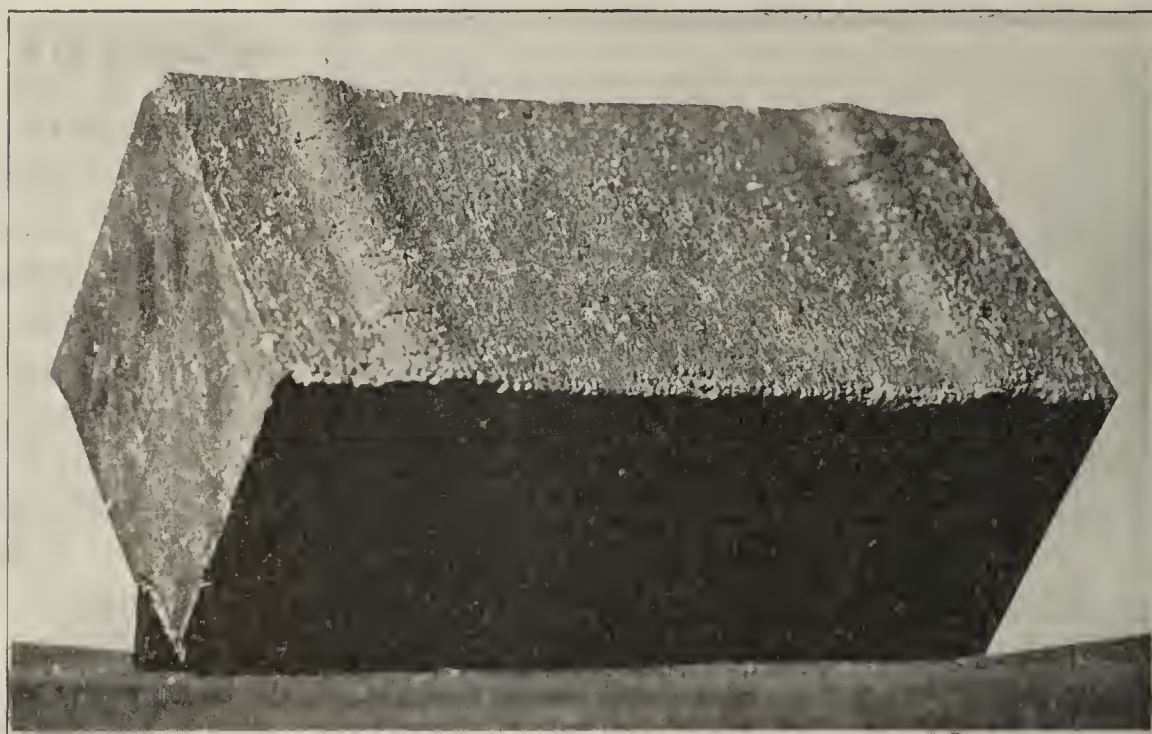
The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



DISINTEGRATORS

If you have Clay or Shale
suitable for making a
strictly first-class

PAVING BRICK



Write at once to

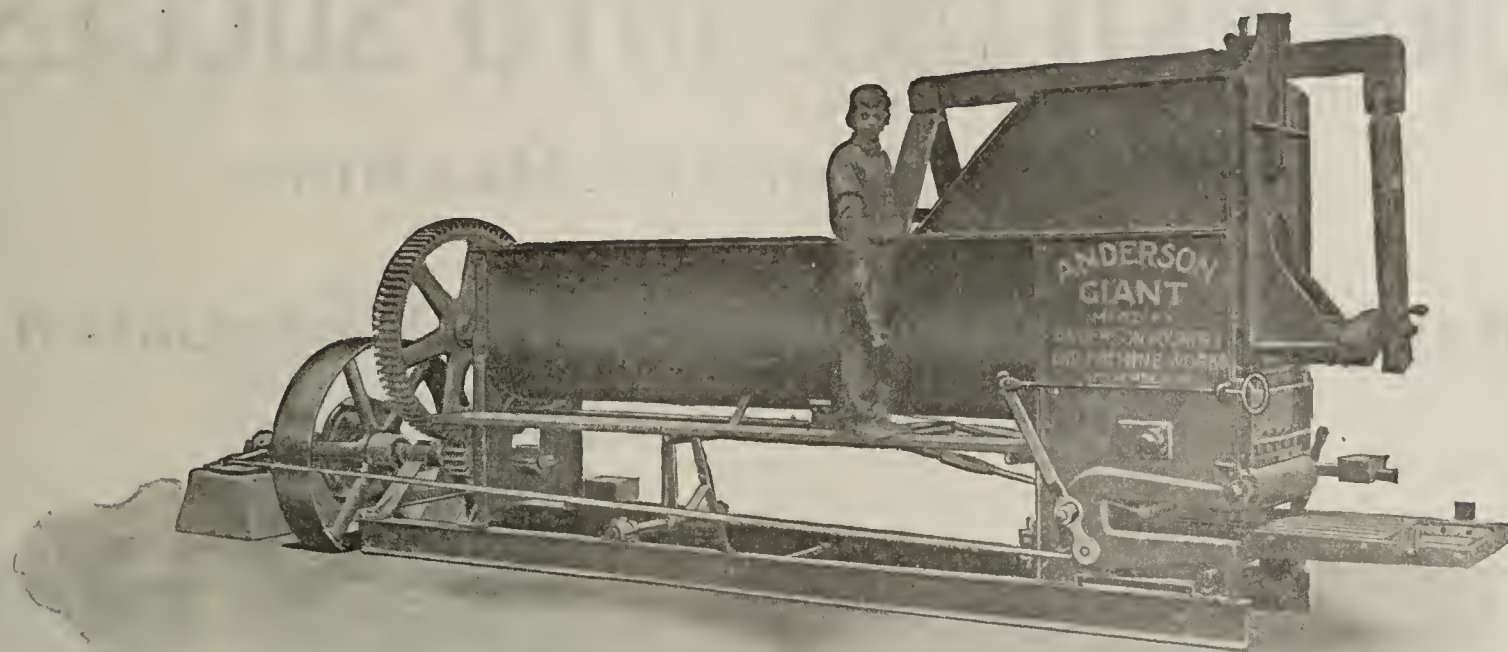
FRANK B. DUNN,

CONNEAUT, OHIO,

For information concerning his

PATENT WIRE-CUT LUG BRICK.

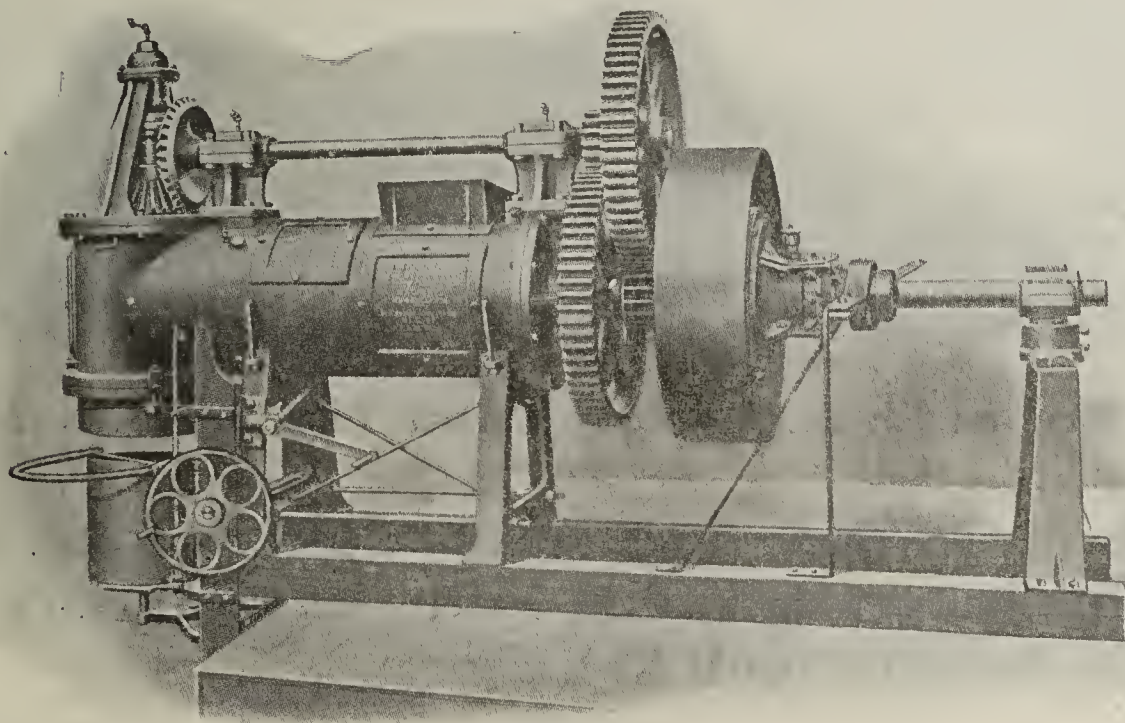
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

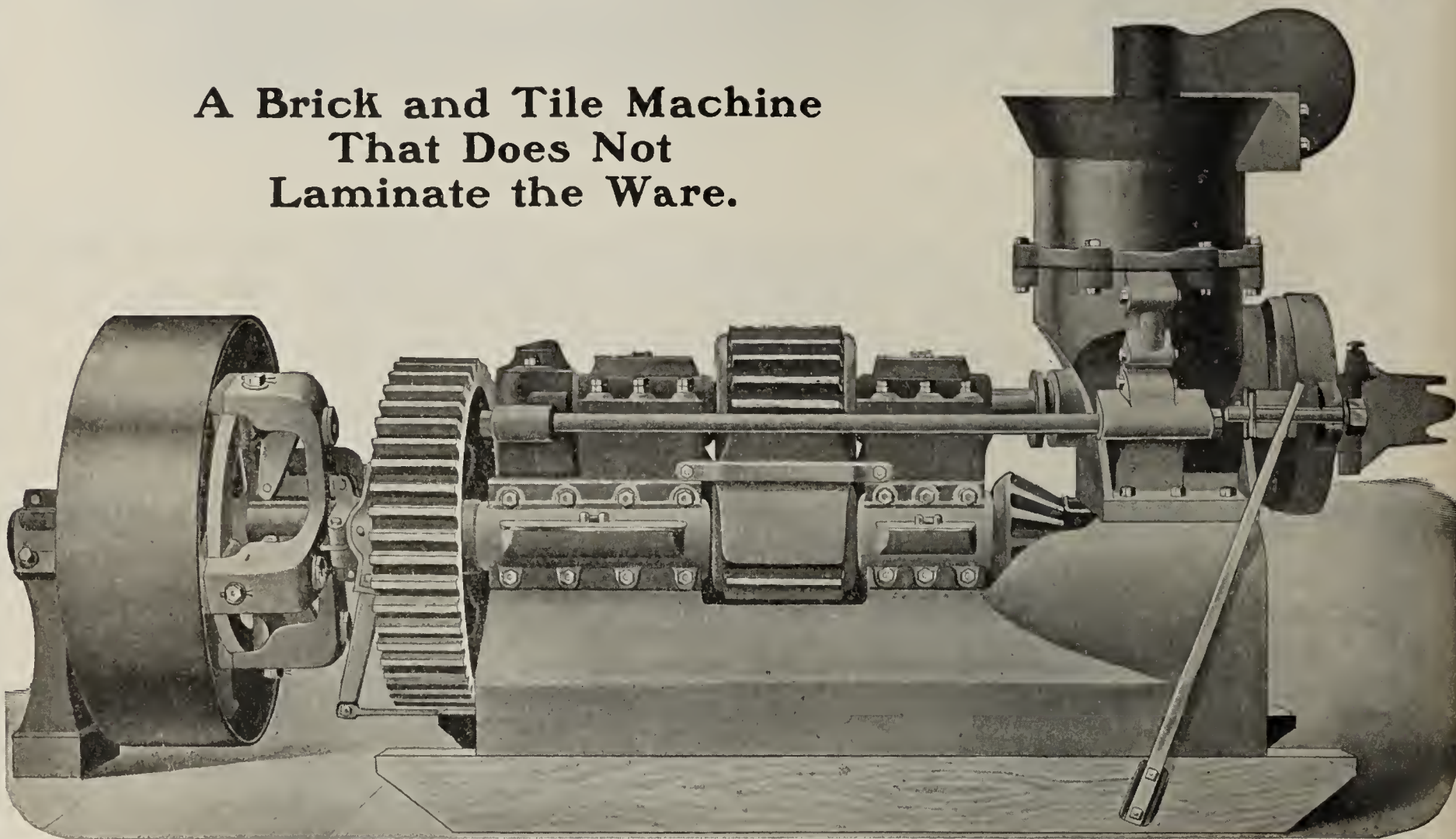
See ad on page 553.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



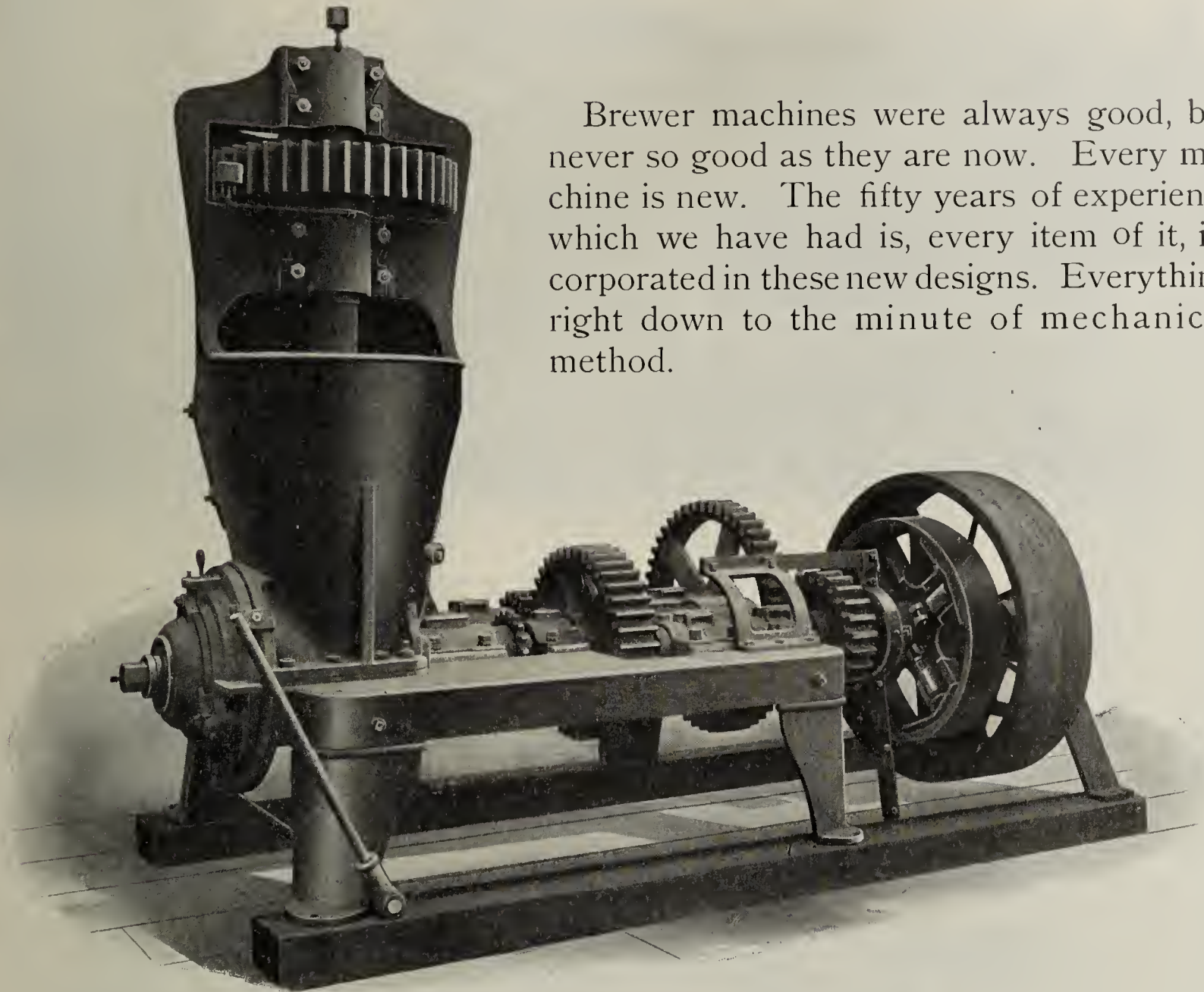
The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

Drain Tile Machines



Brewer machines were always good, but never so good as they are now. Every machine is new. The fifty years of experience which we have had is, every item of it, incorporated in these new designs. Everything right down to the minute of mechanical method.

We Build Three Sizes

ranging in weight from 5,500 to 10,500 pounds, in capacity from 1,000 4-in. tile per hour up to all that can be handled by any present day method. Every machine is a stiff one. Heavy and unyielding. Every one will do business and do it right. If you have never used a Brewer you don't know what you've missed.

Our complete catalog, full of illustrations and detailed specifications will be quickly mailed upon receipt of your request.

If Marked



It's Good.

H. BREWER & CO.,

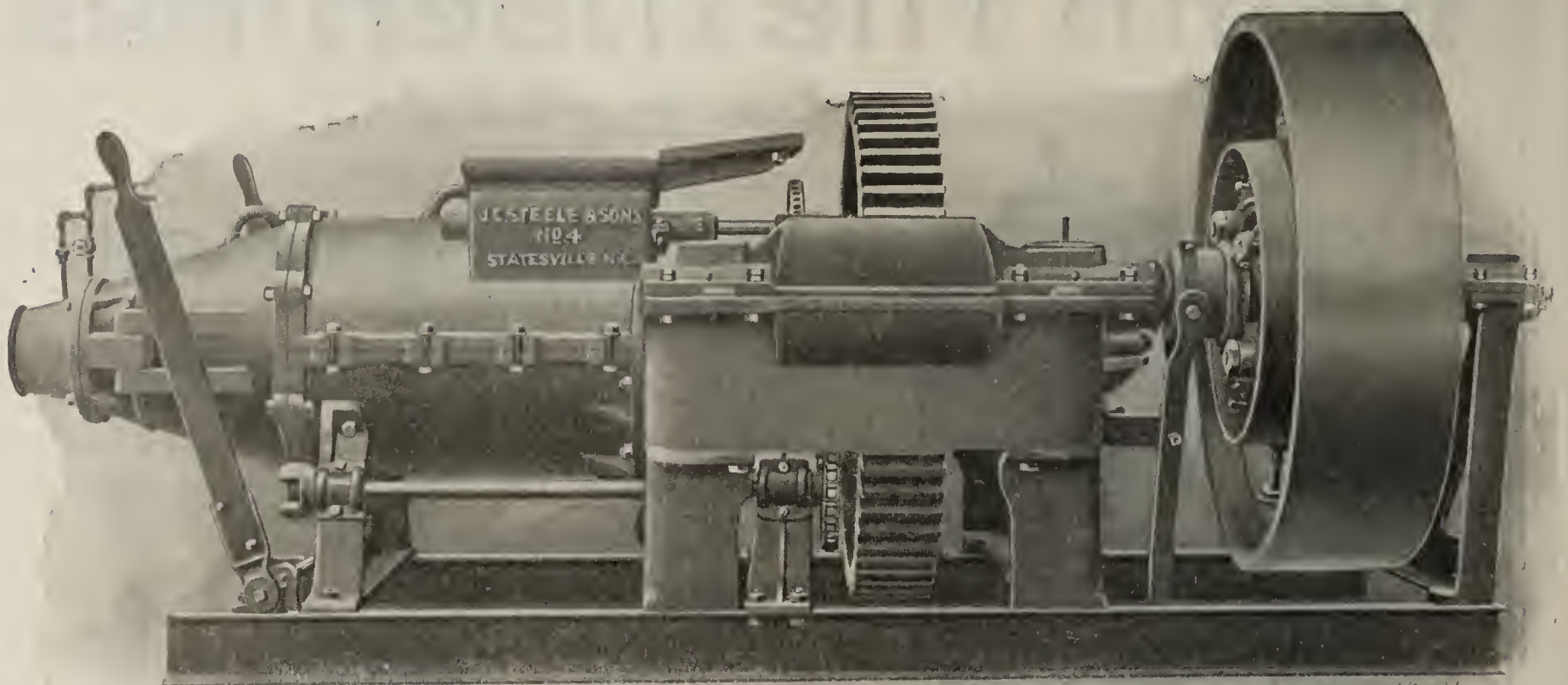
Tecumseh, Michigan.

If Marked



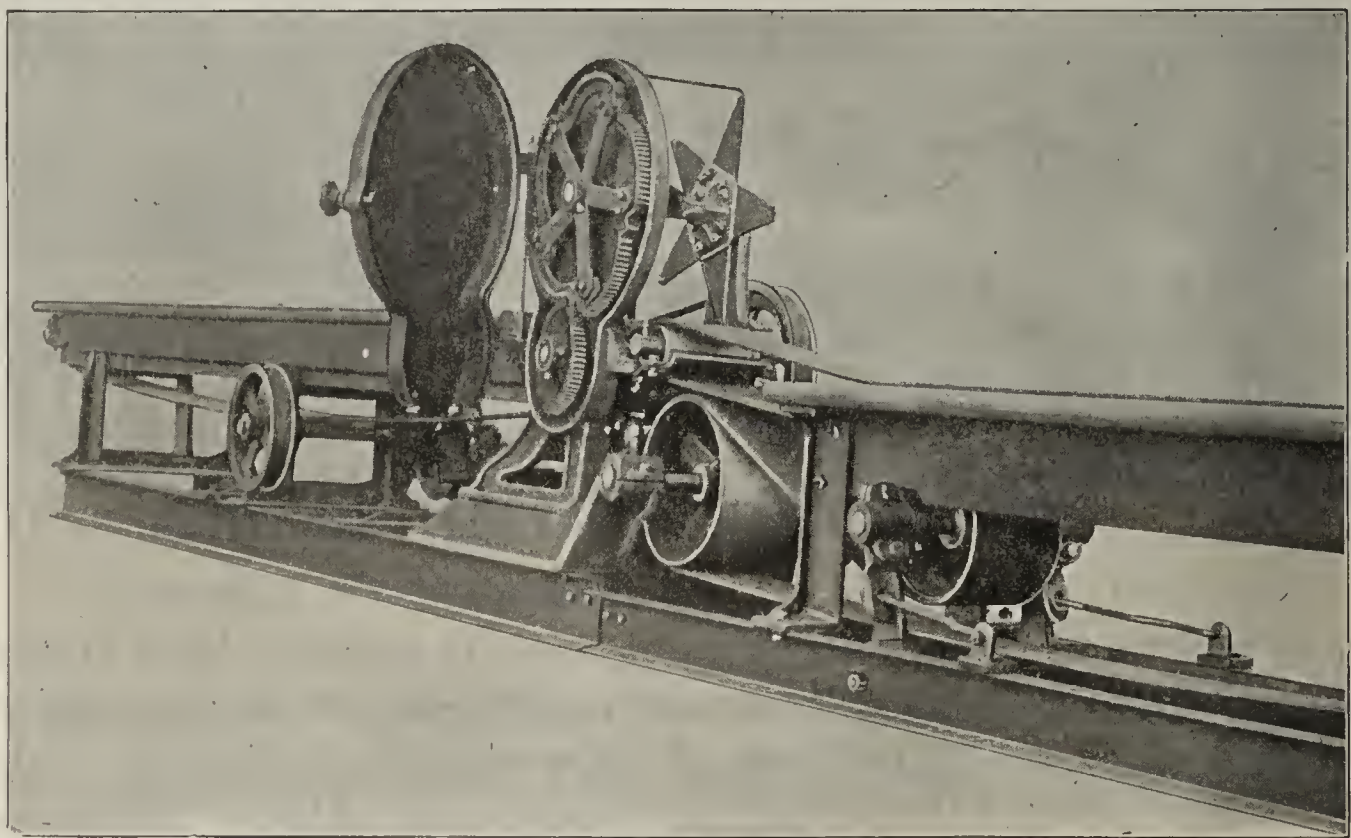
It's Good.

Ask the Man Who Owns One.



No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



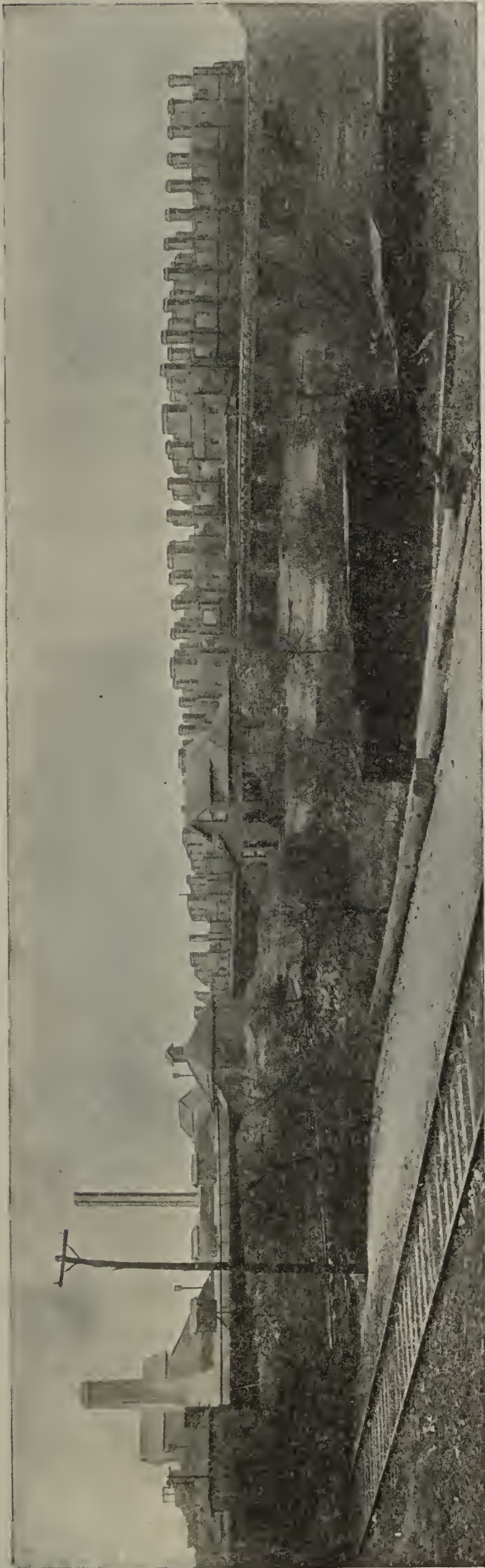
ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

J. C. STEELE & SONS

STATESVILLE, N. C.

SO BIG WE HAD TO PRINT THEM THE LONG WAY



Pictures
Cannot Tell
the
Inside Facts
about these
Modern
Plants.

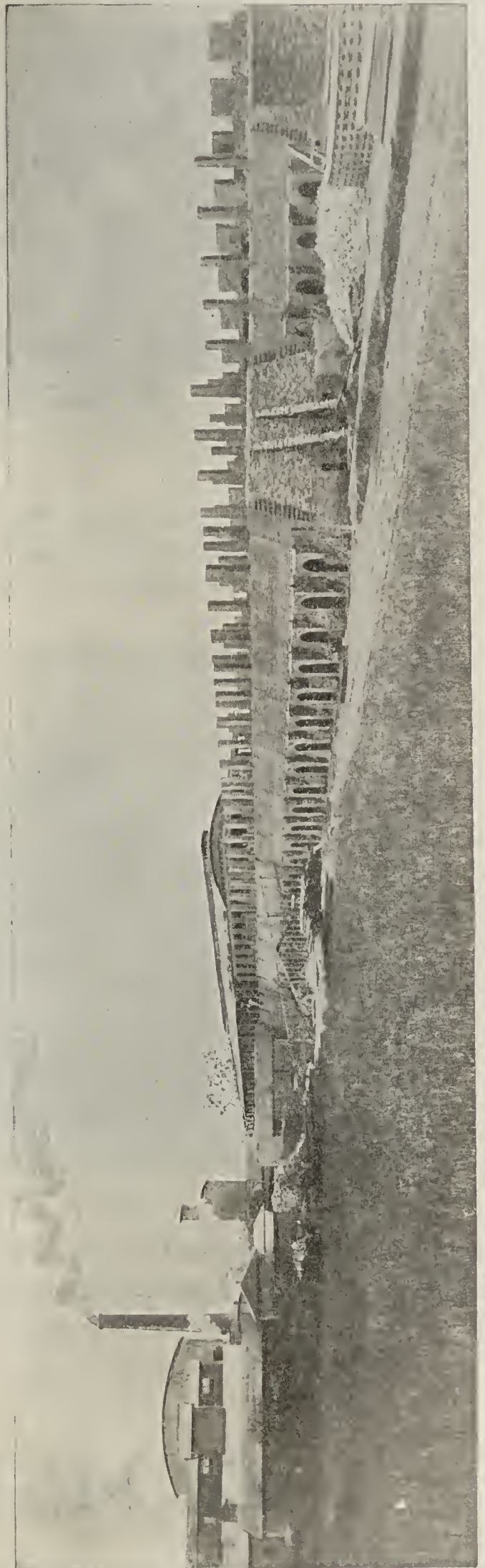
Write us
For Facts
And Figures

Plants of
Bessemer
Limestone Co.
Youngstown,
Ohio.

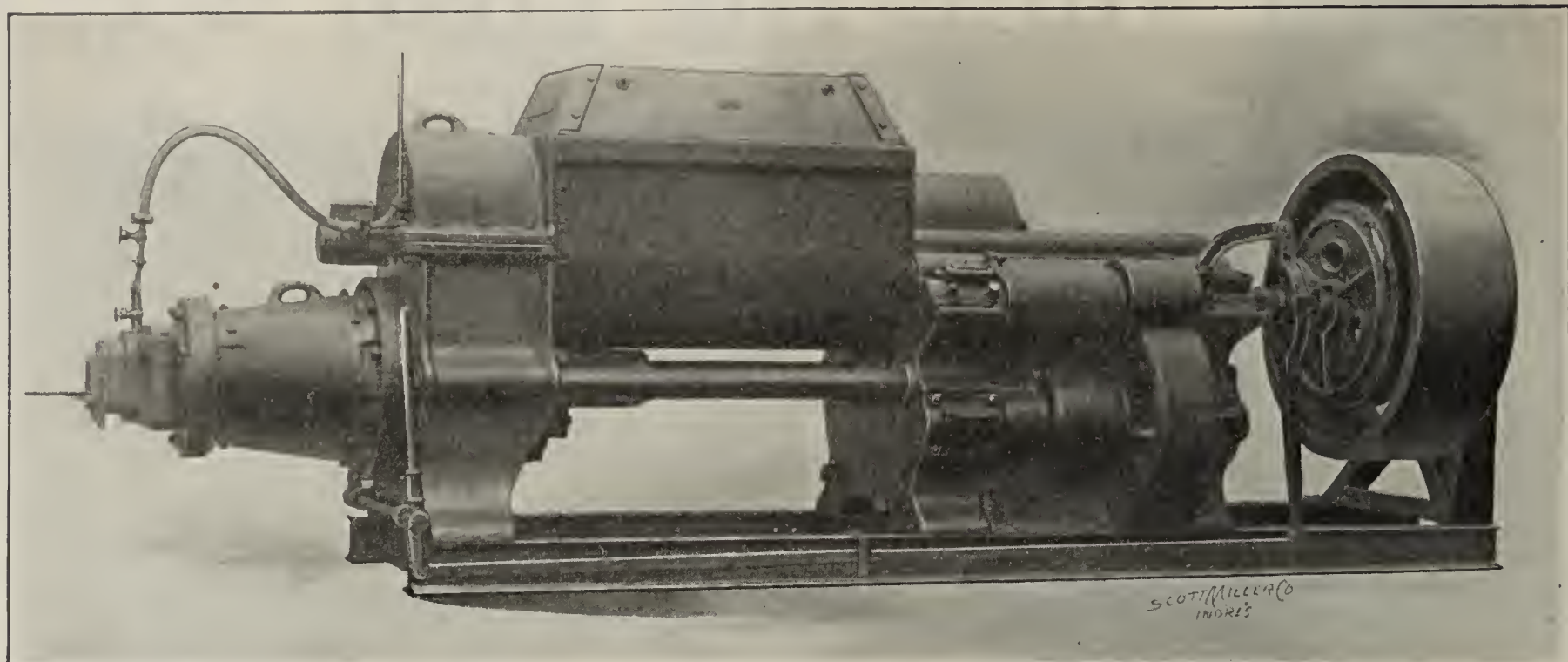
They are
EQUIPPED
WITH
BONNOT
MACHINERY

The
Bonnot Co.,
Canton, Ohio.

305 N. Y. Life Bldg.,
Kansas City, Mo.

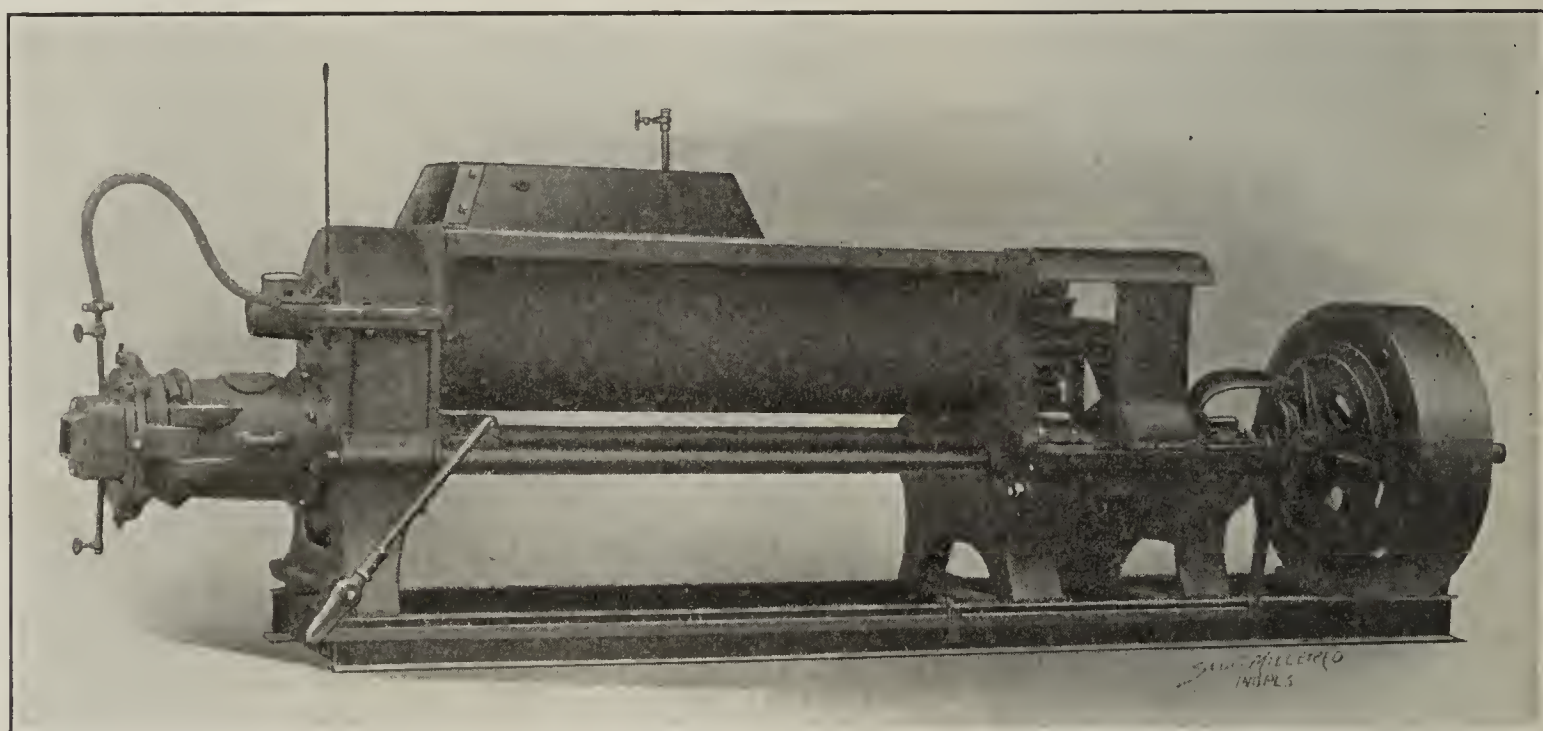


Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

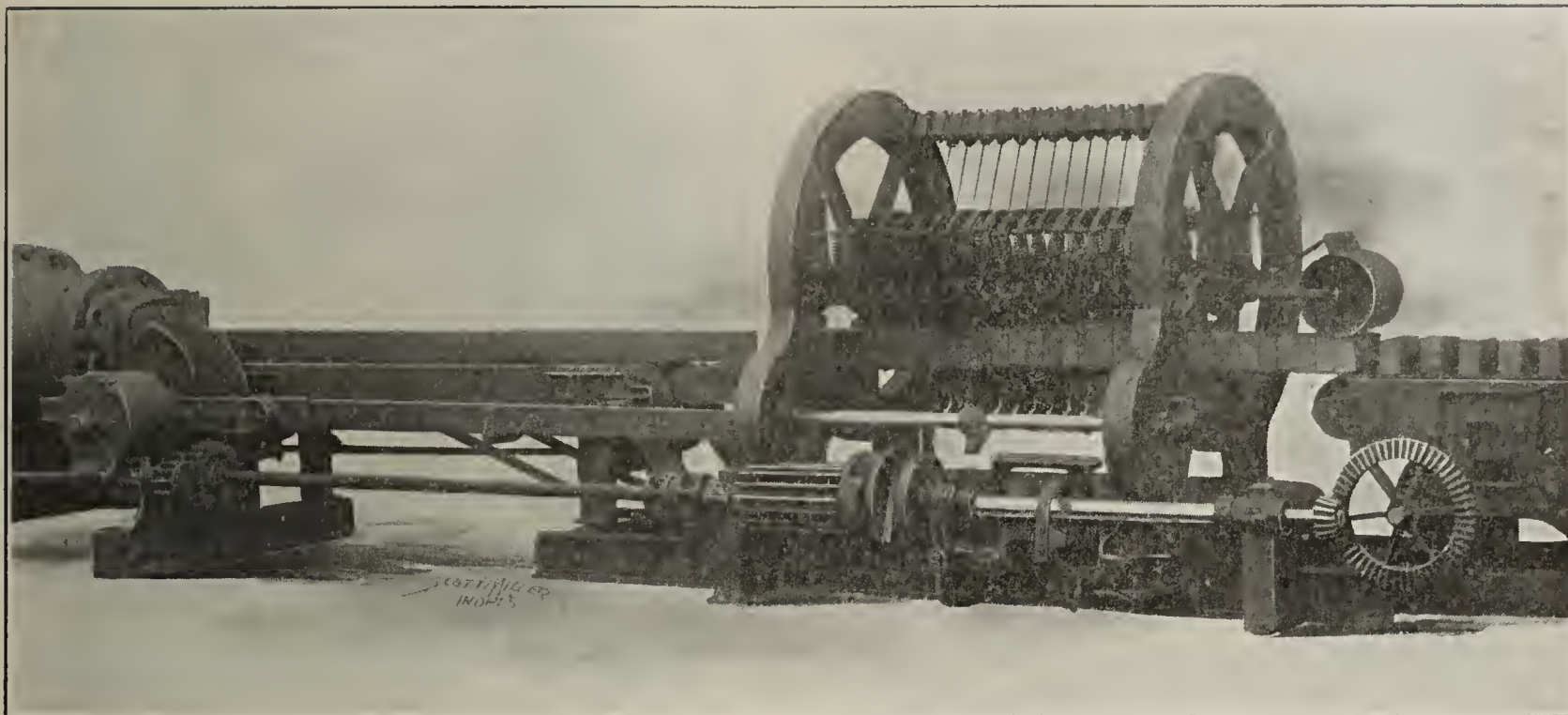
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

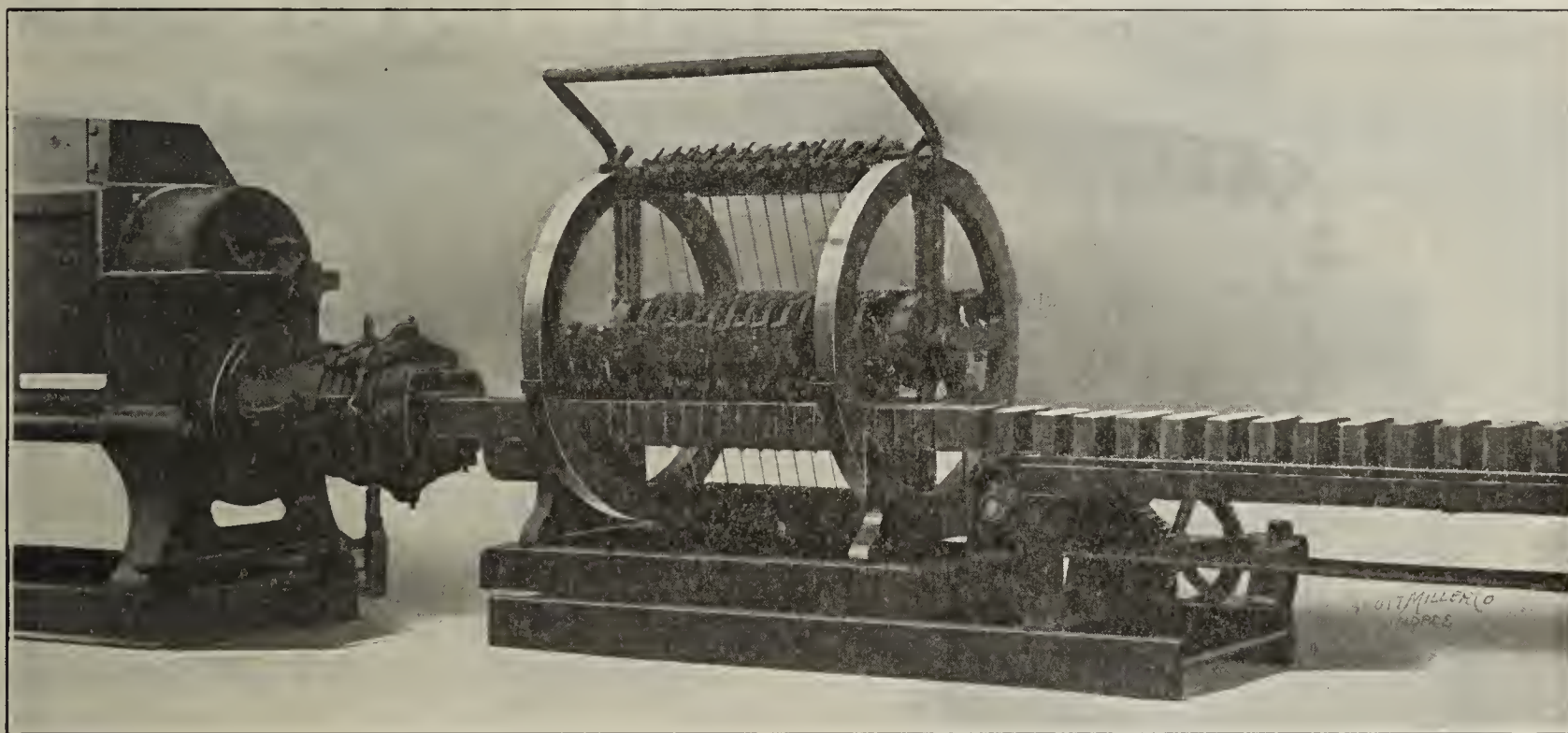
Galion, Ohio.

Write for Catalog.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

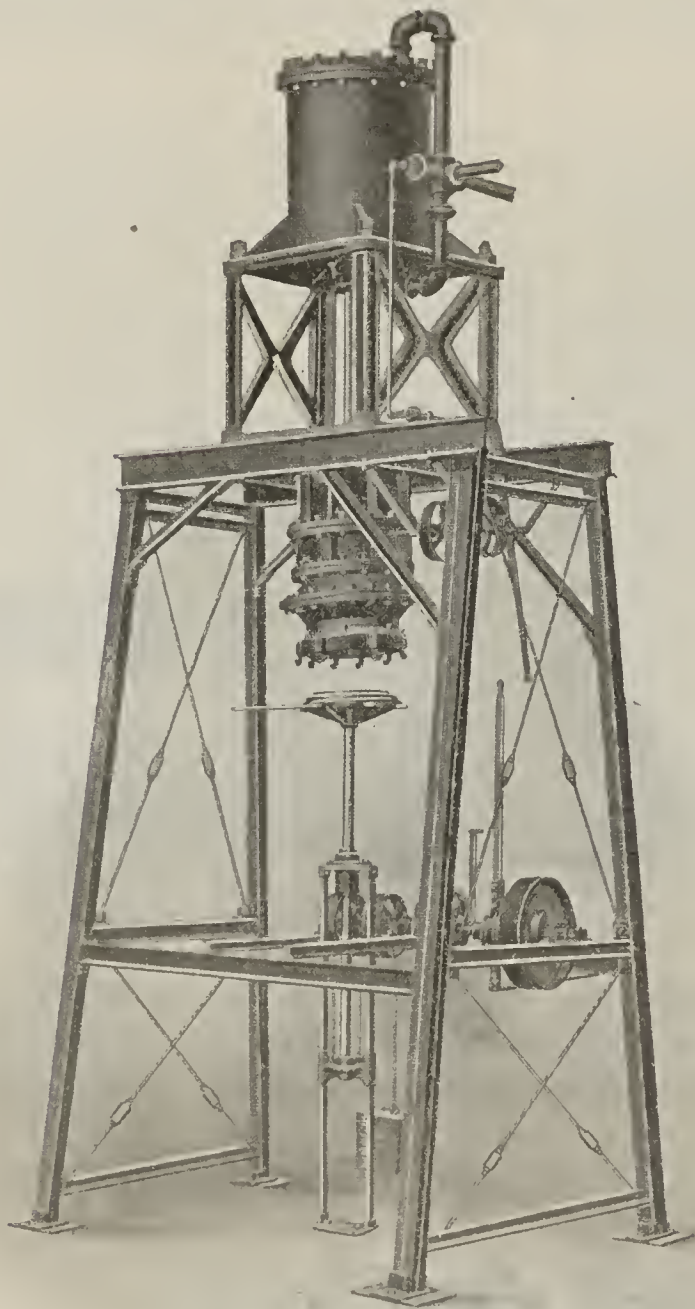
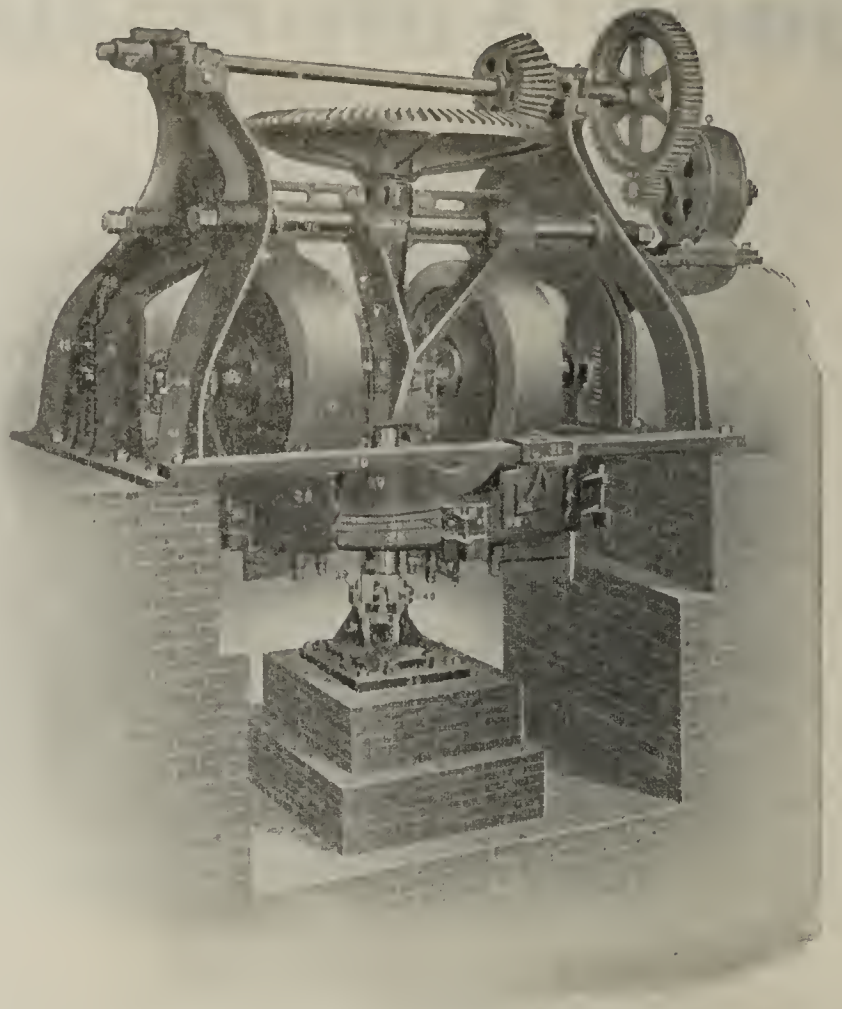
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the equal of **Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

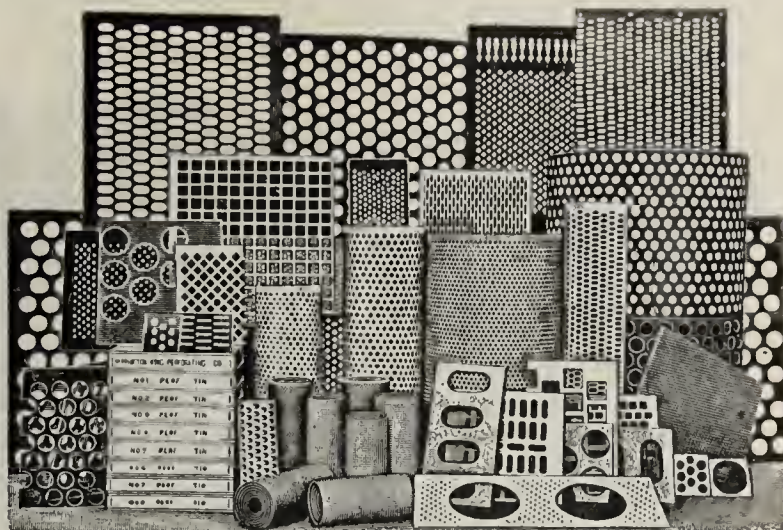
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the guage (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 231 North Union St.,
CHICAGO, ILL., U. S. A.



In Charge of a Post of Trust.

You wouldn't place in charge of a post of trust in your office an employee unable to prove ability to fill the position to your satisfaction.

The Dryer, the mechanical employee to which you intrust the drying of your brick, will hold a most important post of trust in your yard and should not be installed until its claimed ability has been equally satisfactorily proved.

Many Dryers spoil the brick. One that doesn't—and can prove its claim—is the

Rodgers Waste Heat Dryer

Designed and Installed by the

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

108 LA SALLE ST.

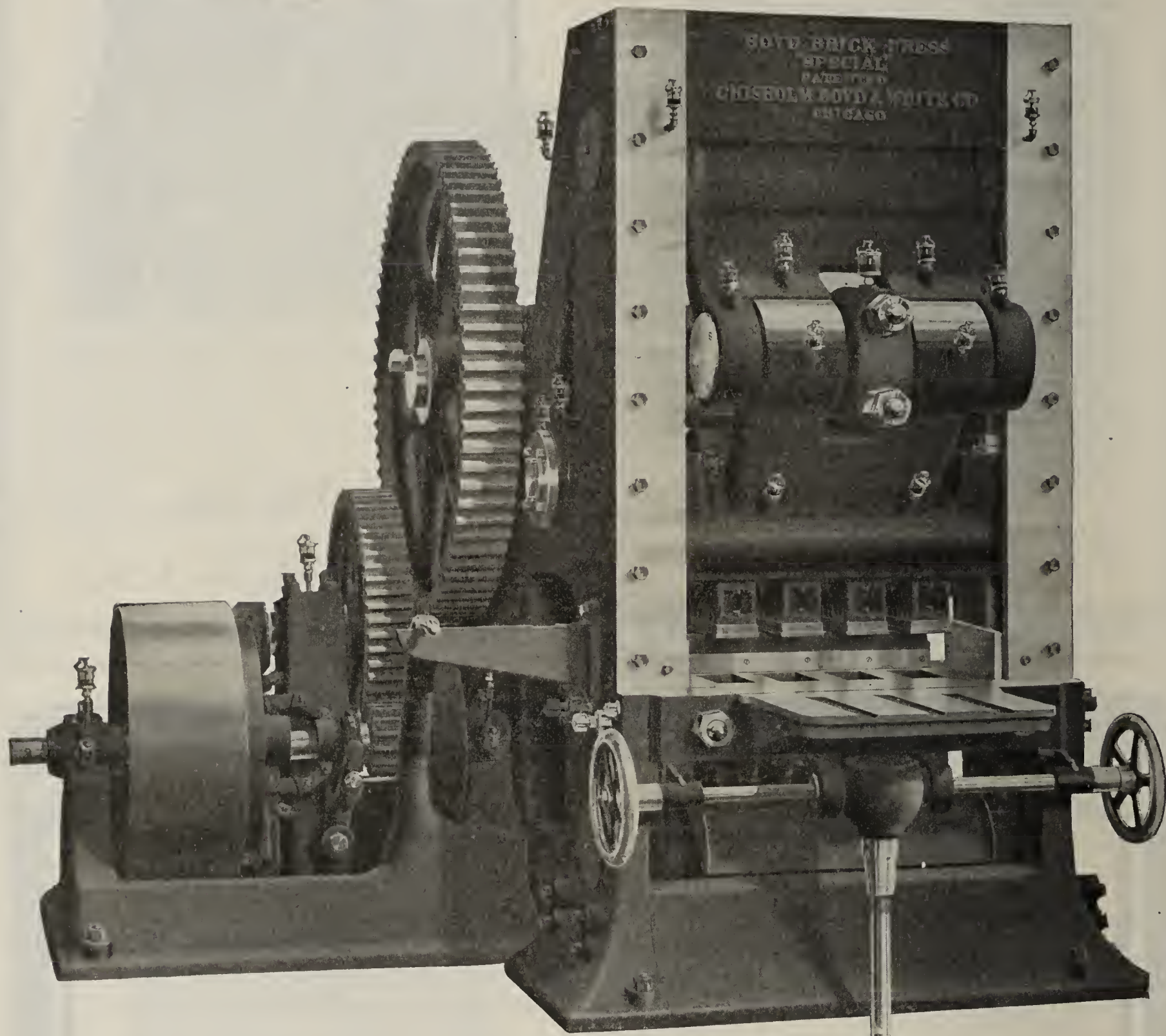
CHICAGO.



Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

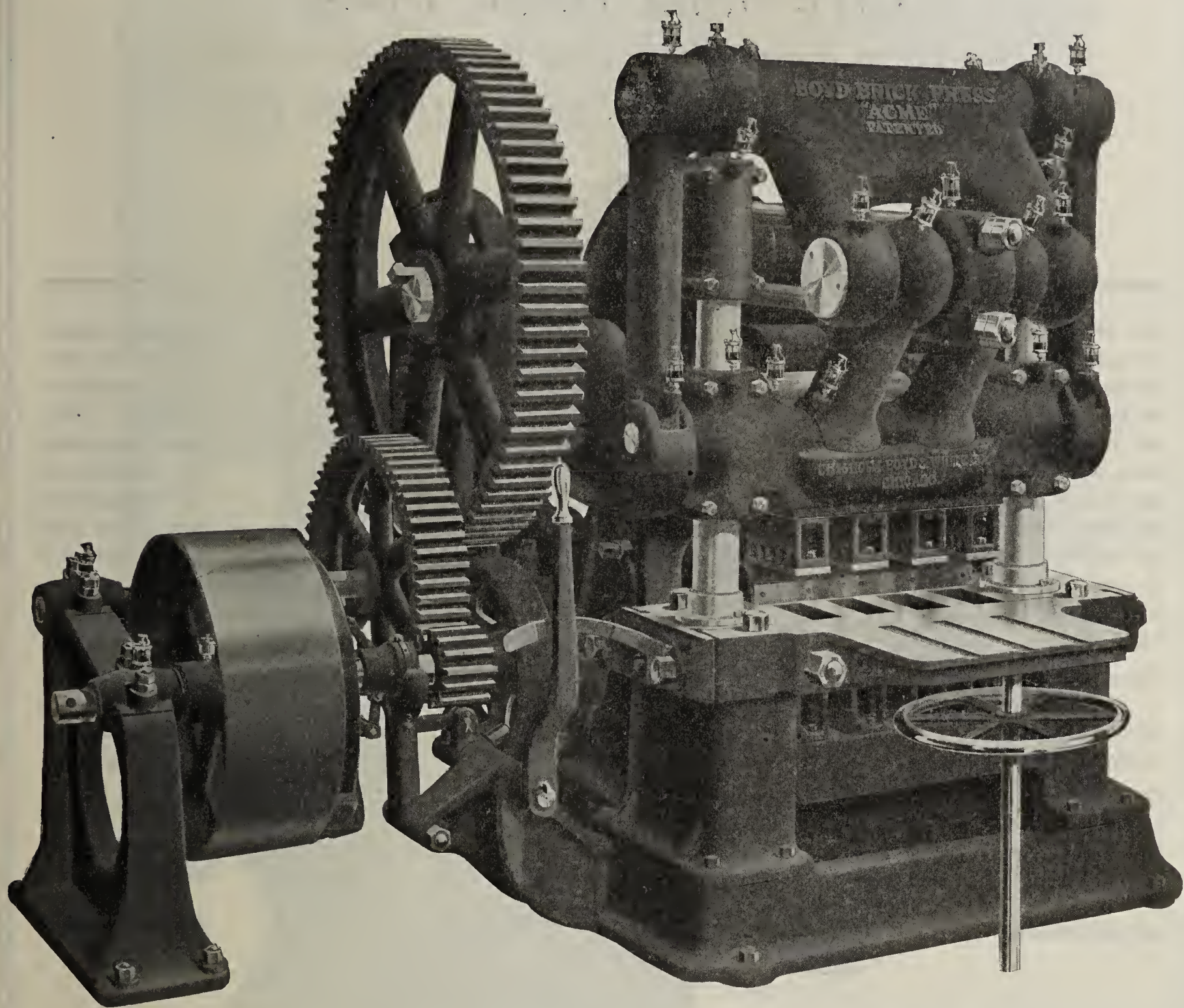
Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

THE GRATH SPECIAL

Five-Mold Brick Press

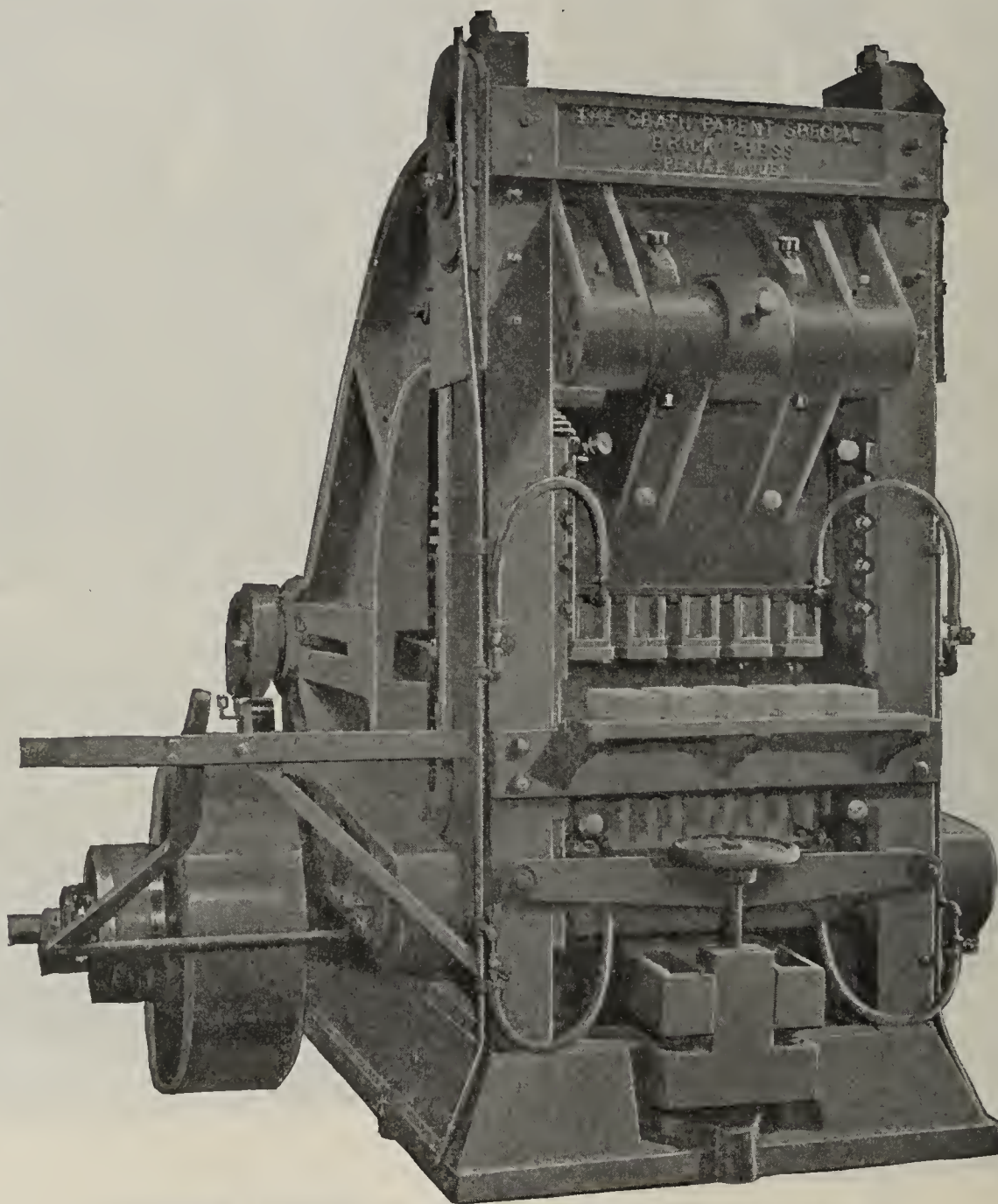
For Dry or Semi-Dry Clay Press Brick of Highest Grade

THE PRESS THAT MAKES THE PROFITS

You can not afford to make anything but the BEST brick; the kind that finds the market in dull times; the kind that gets the orders even though the other fellow bids under you. To make this BEST brick you must have BEST machinery.

That is why the **GRATH** has won its way into popularity.

The GRATH Special is built in two, three, four and five mold sizes.



It is built by experts. Embodies the most correct mechanical principles. Made from the best obtainable materials, and the best attention is given to every detail of its construction. It represents perfection in brick presses.

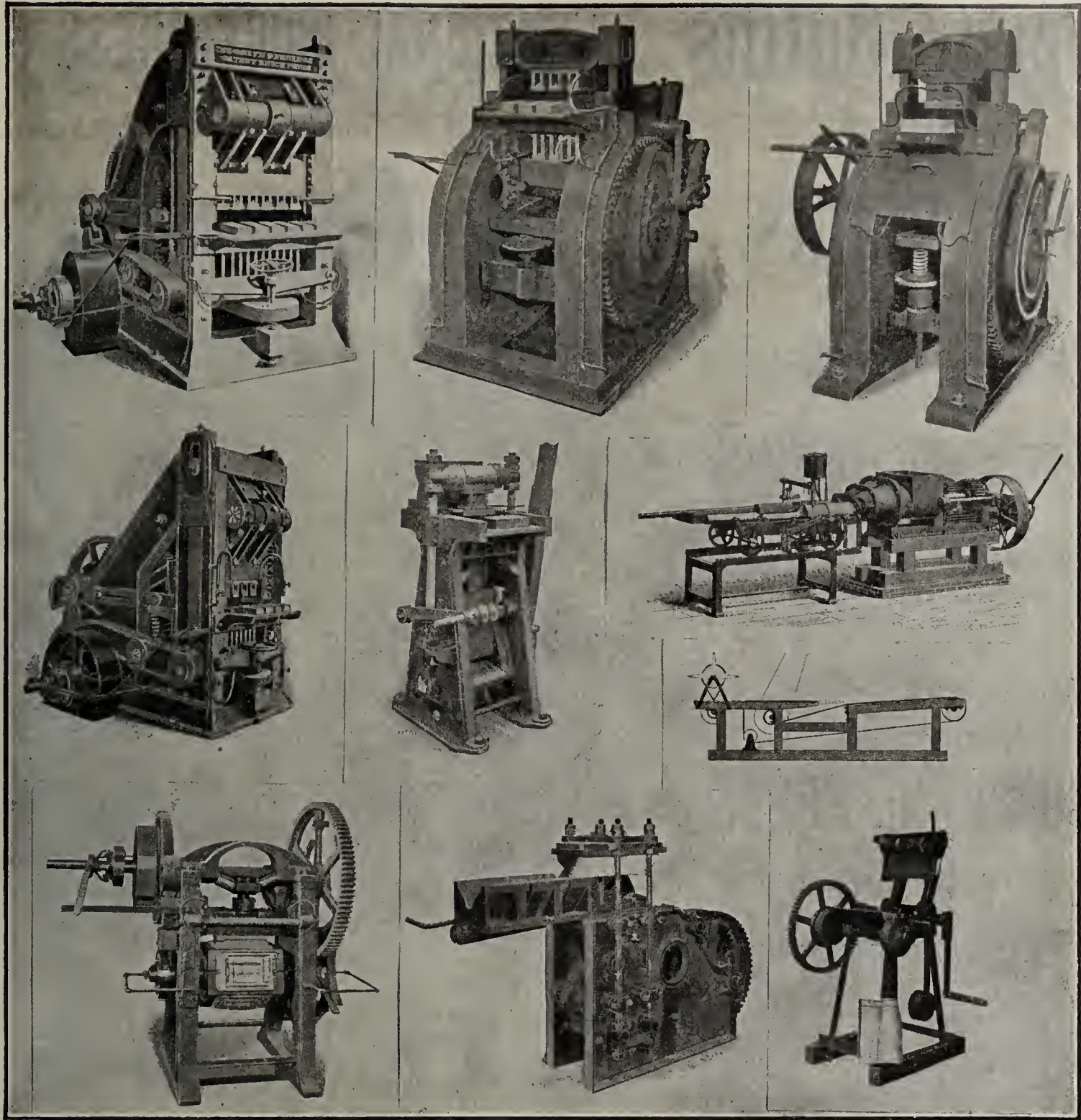
The **GRATH** presses equally from top to bottom. It is simple in construction and operation. Is strong, massive, indestructible and guaranteed against breakage.

DRY PRESS BRICK

If you have suitable clay or shale, we can show you WHY and HOW you can make more money by making pressed brick than wire cut brick. If you are not sure send us a sample of your material and we will tell you.

Send for our "Treatise on the Manufacture of Dry Press Brick" and Catalogue.

Illinois Supply & Construction Co.,
CENTURY BLDG., ST. LOUIS, MO., U. S. A.



Press Brick and Roofing Tile Machinery. All Guaranteed Against Breakage and to Give Satisfaction.



Selling Agents for The
**SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be turned upward, downward or sideways. Most economical Steam or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

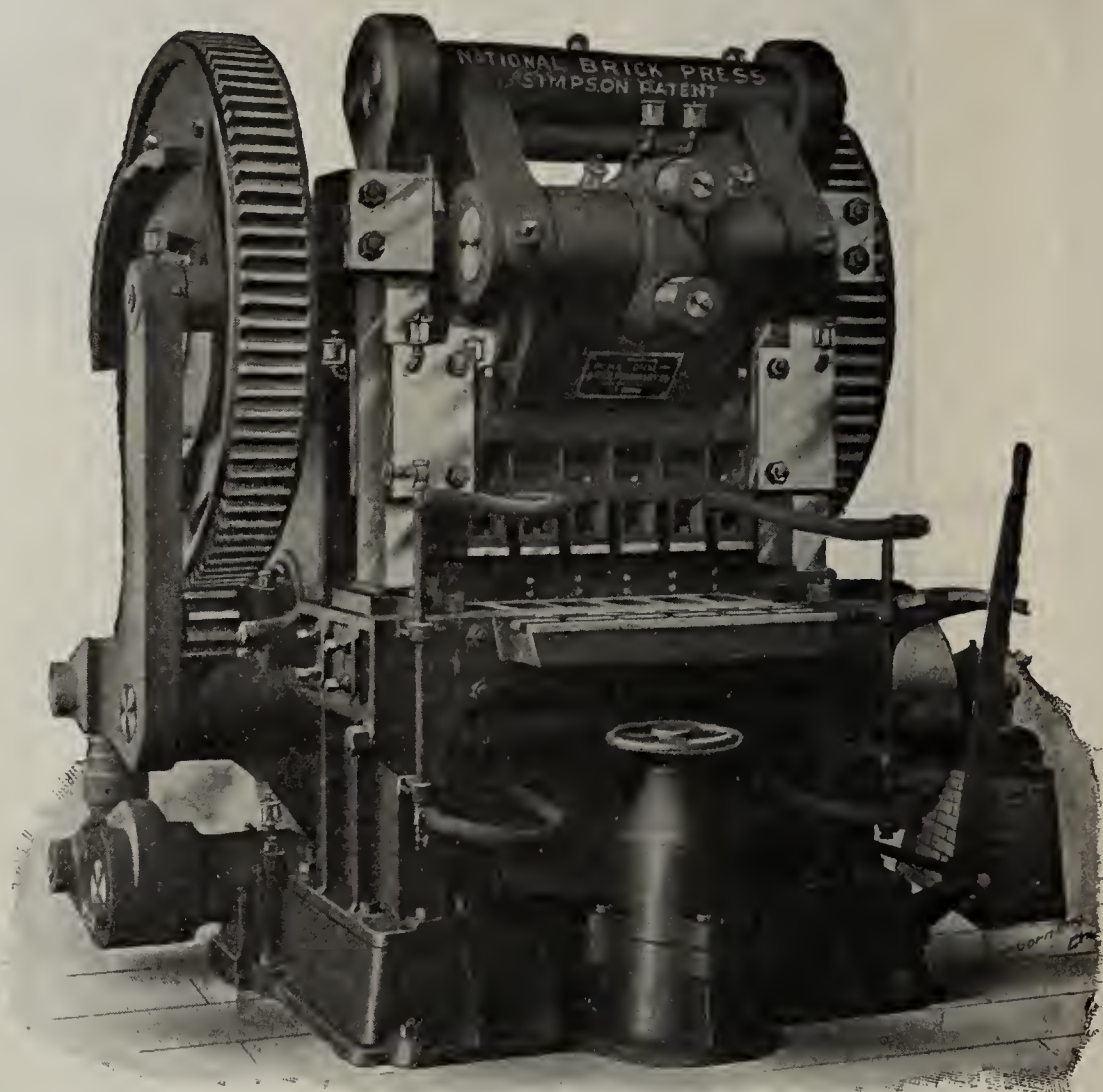
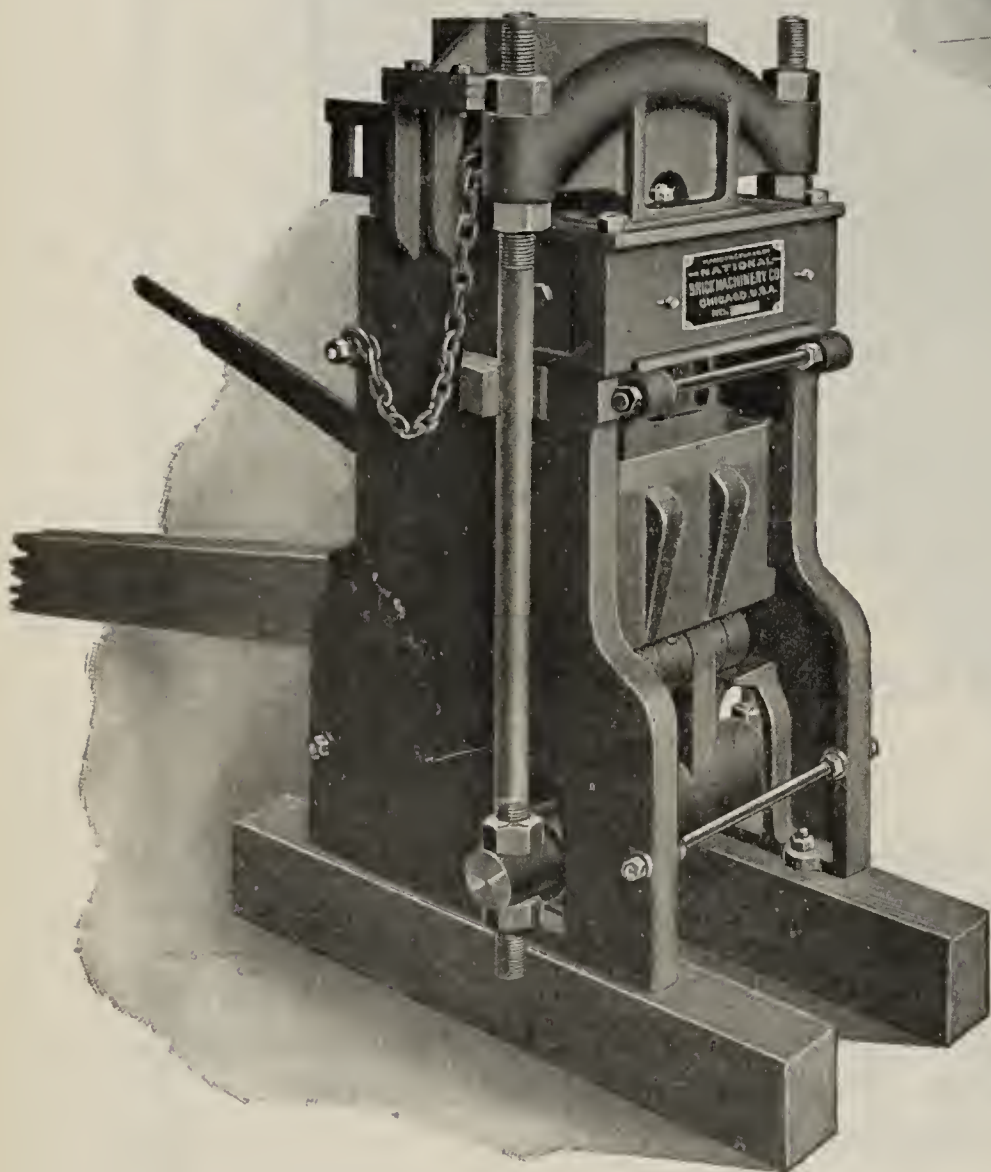
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

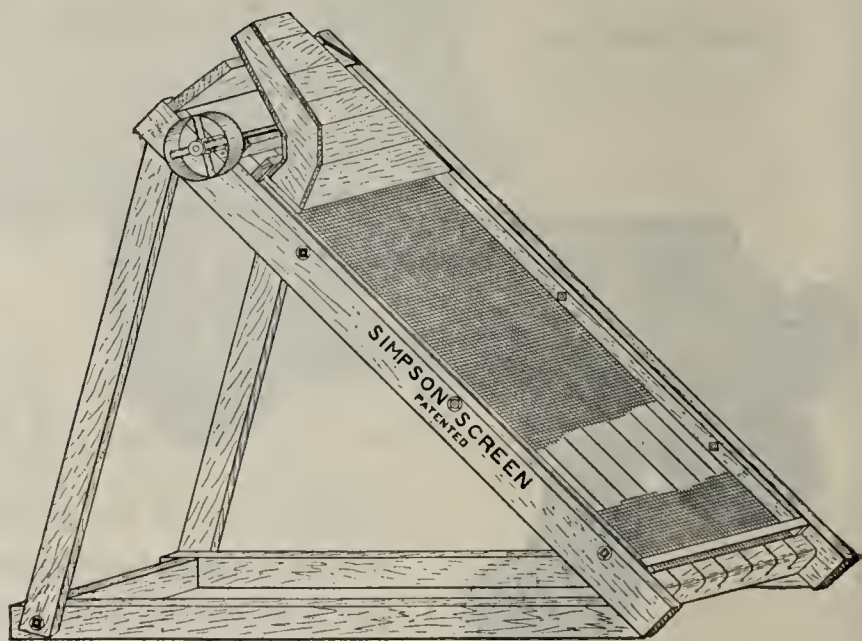
Write for prices on supplies of all
kinds for your yard.

Correspondence solicited.

SIMPSON HAND PRESS.



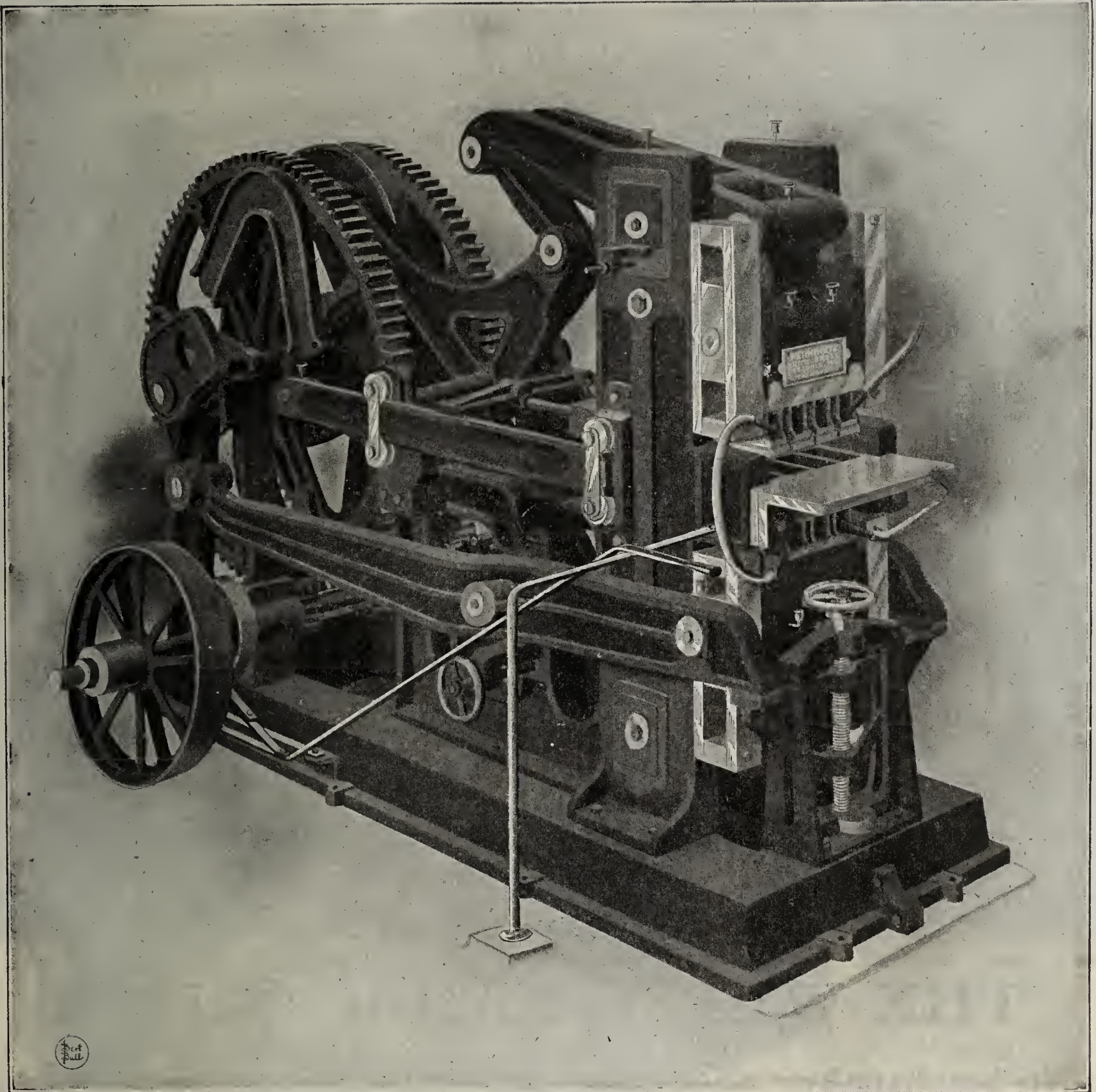
SIMPSON SCREEN.



National Brick Machinery Co.,
Chamber of Commerce Bldg. CHICAGO, ILL.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

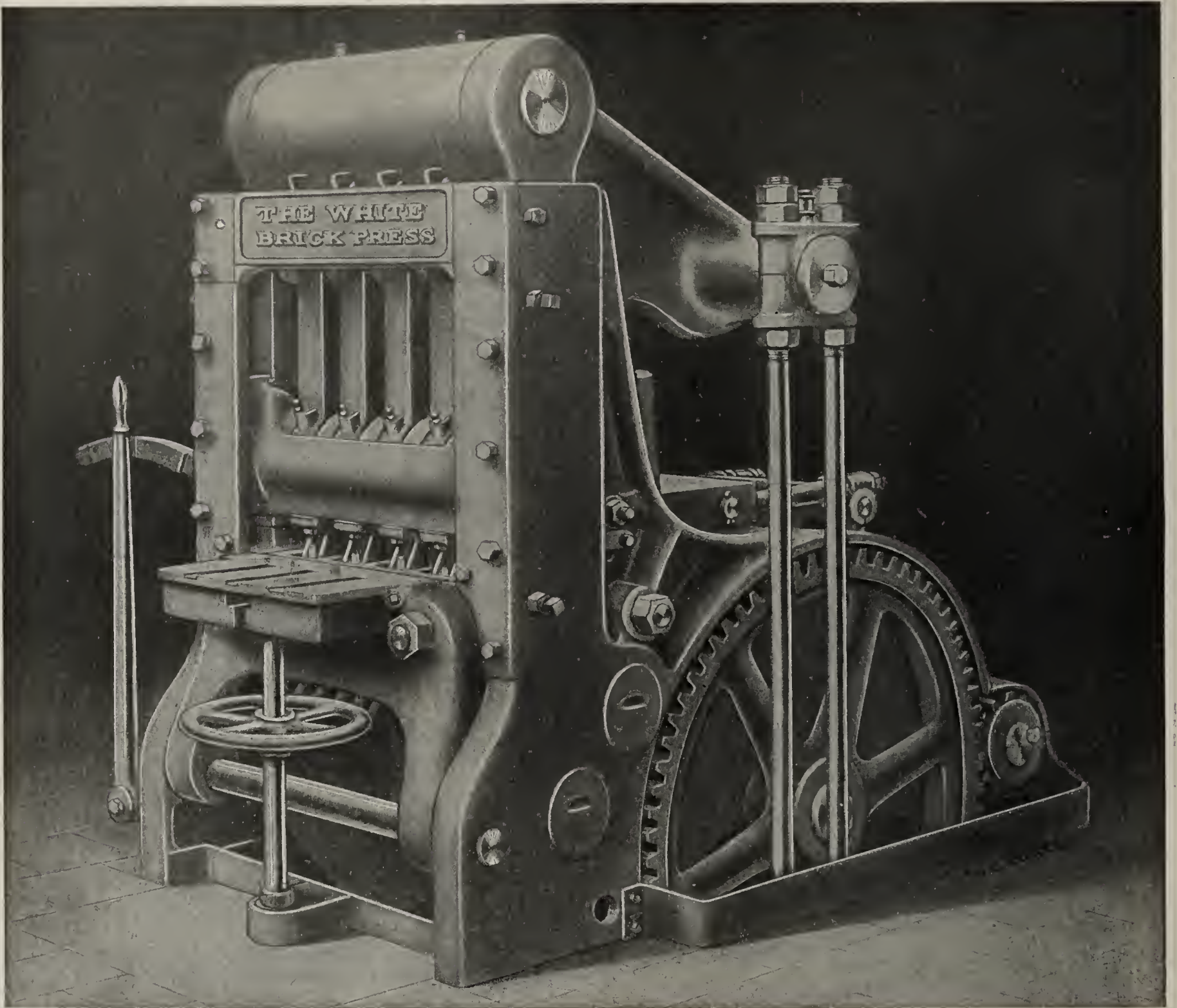


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

**Always Worth More Than
You Pay For It**



THE WHITE BRICK PRESS.

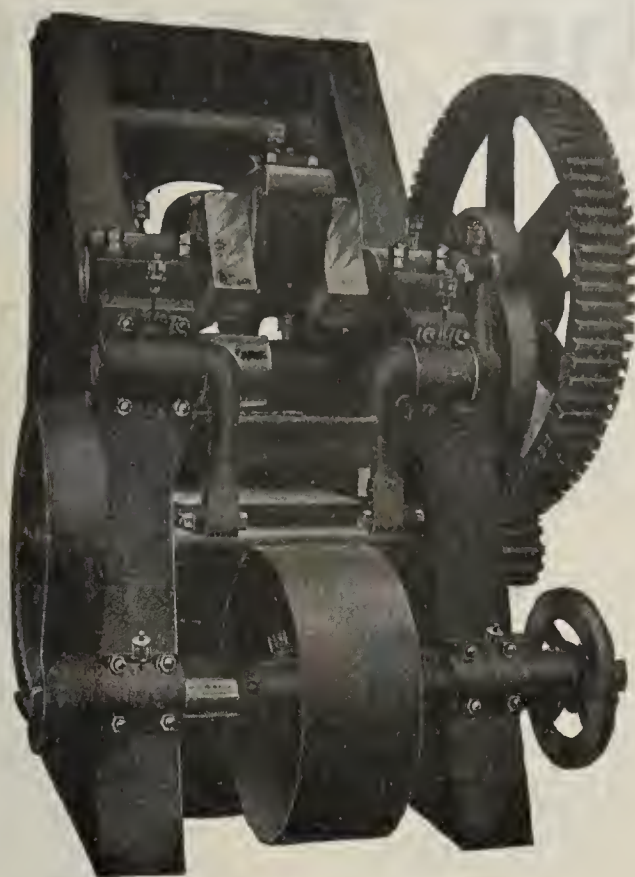
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS, ANDERSON, IND.

See ad on page 759.

The Andrus Brick Press.

24

ANDRUS PRESSES

in the St. Louis
District.

5

of them sold here
in last
EIGHTEEN
MONTHS.



The Press That Scott Builds.

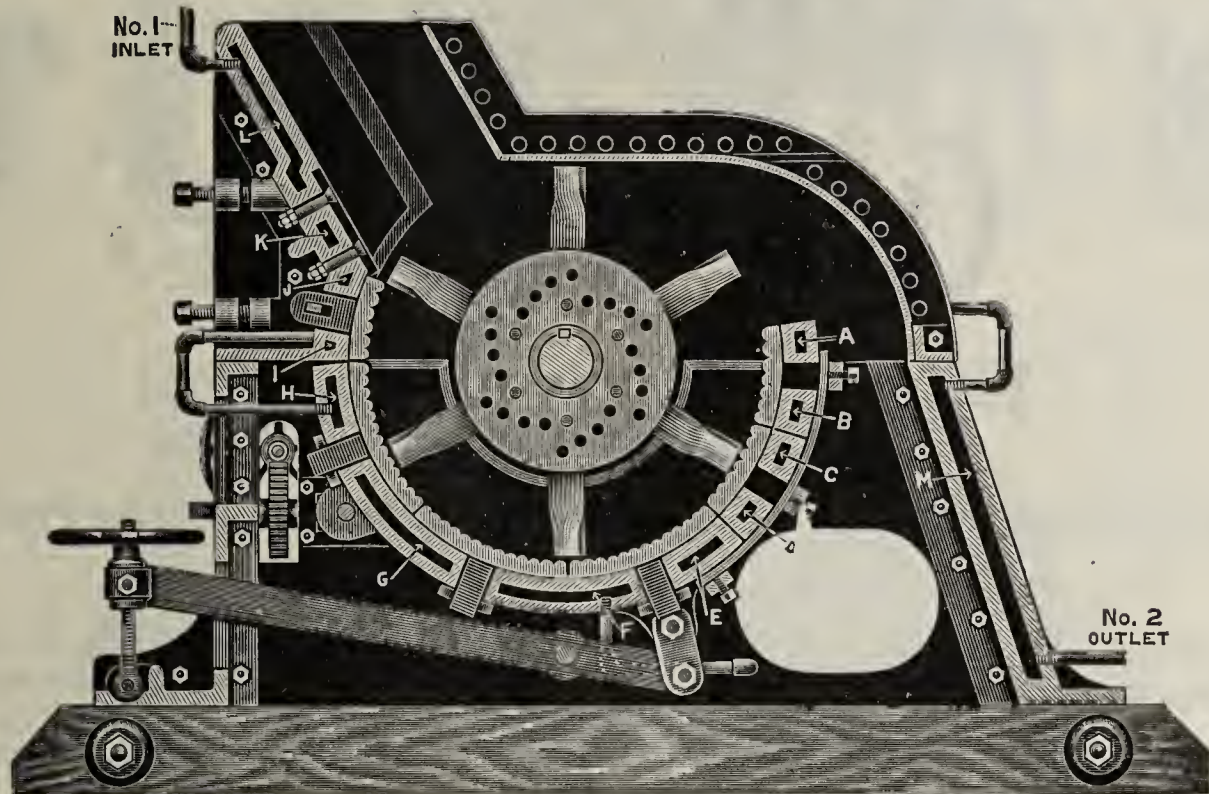
Come and see the Andrus Press Making face brick, common brick, fire brick and shale brick right here at home.

Scott Manufacturing Company,

1812 Third National Bank Bldg.

St. Louis, Mo., U. S. A.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

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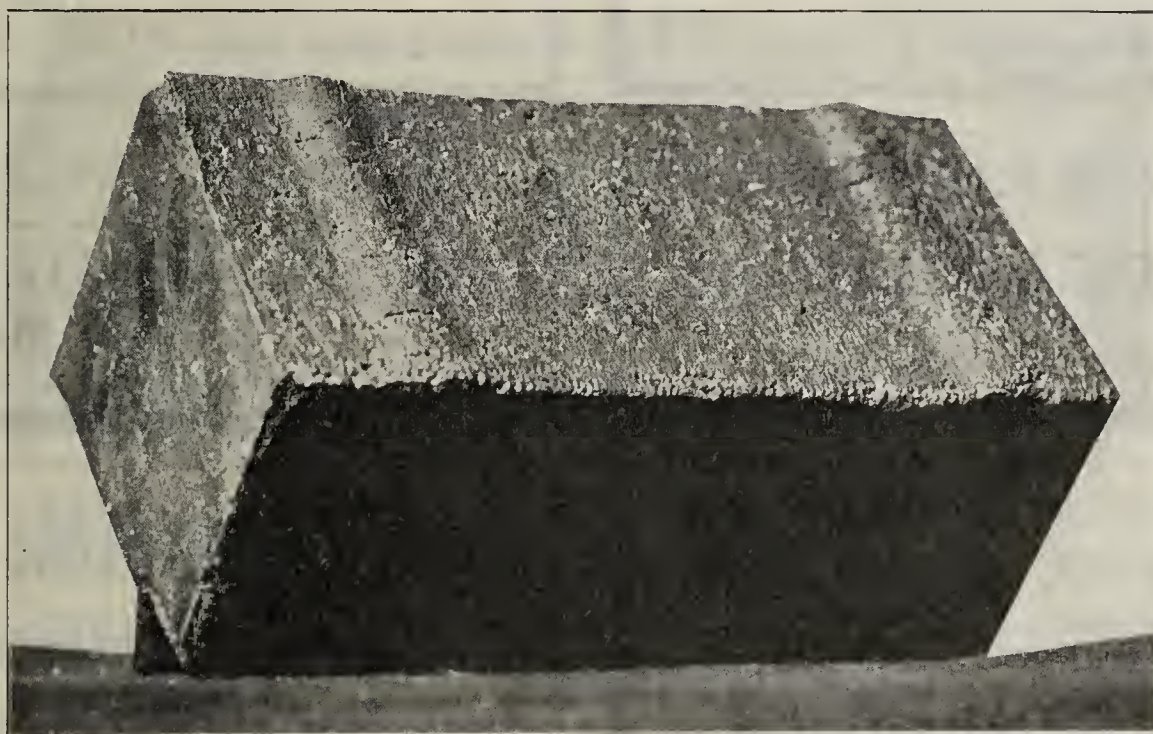
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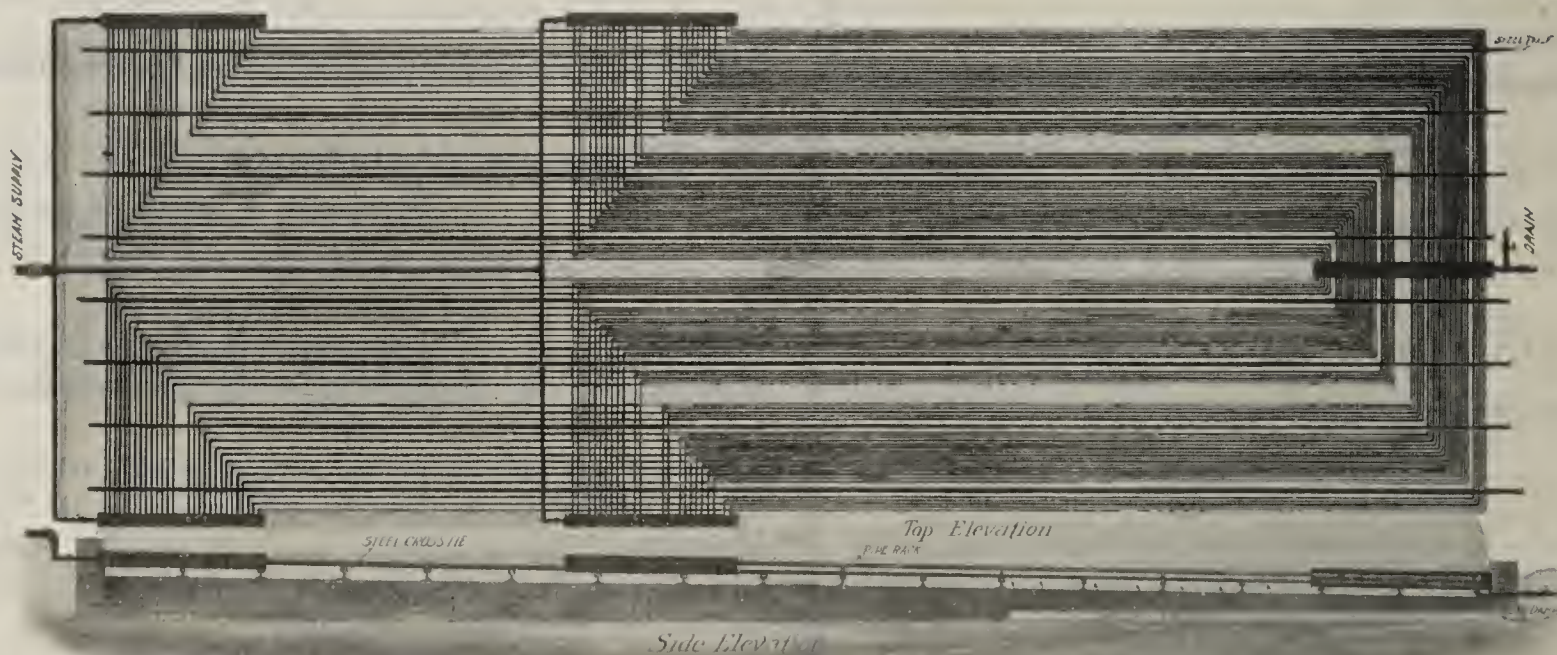
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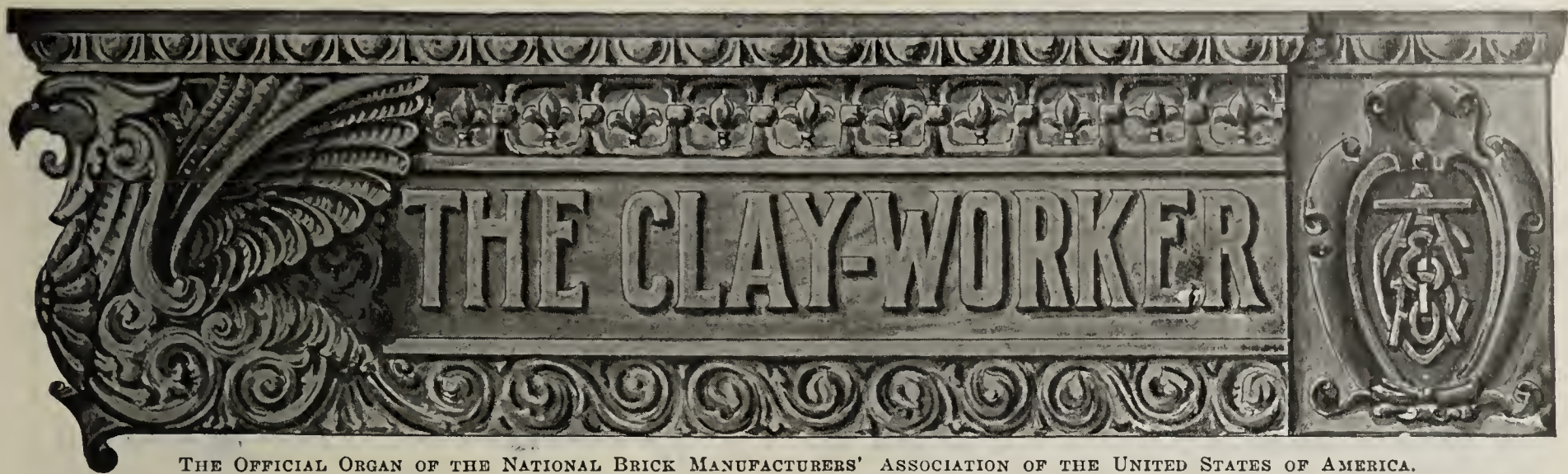
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Vol. LI.

INDIANAPOLIS, IND., MAY, 1909.

No. 5.

Written for THE CLAY-WORKER.

A MODERN MODERATE COST RESIDENCE.

Advantages of Brick as an Investment in the Construction of Permanent Dwellings.

WE ARE PLEASED to present to the readers of THE CLAY-WORKER the accompanying view, floor plan and description of the splendid brick residence recently erected on Sutherland avenue, Indianapolis, by Mr. Charles W. Craig. This residence is generally conceded to be one of the most attractive of the modern moderate-cost homes in the Hoosier capital. While it is in no sense a cheap dwelling, it is one that will prove very economical and a good investment, for there will be no need of repairs for years

to come. The exterior is almost entirely of vitrified brick, so there will be no bills for painting, and in the course of a few years this fireproof and timeproof dwelling will prove less expensive to the owner than if he had built of frame and so will lessen the first cost slightly. A brick dwelling built well, like this one, is much warmer in the winter time, so there is an annual saving in fuel bills. Then, too, the house is cooler in the summer time.

Mr. Craig's residence is attractive not only in appearance, but in location as well, standing as it does on the summit of a bluff, at the foot of which meanders a little stream—Fall Creek—the south bank of which forms the property line. The chief feature of this house is home comfort. It finds expression in the roomy porch and in the immense family room at the back of same, in which there is a large brick fire place. There is little attempt at ornamentation



A Beautiful Fire Proof, Time Proof and Cost Proof Home.

in either the interior or exterior of this splendid residence, but there is an atmosphere about it of solid comfort; a substantial home for a home man, in the building of which expense has not been spared, and yet it may be classed as a moderate-cost dwelling. The reception hall is finished in mahogany, and large beams of this same material form a part of the ceiling of the family room. The house is well lighted throughout. With less expensive finish or interior wood work, the house might be built in every way as substantial for something less than \$6,000. The following is a statement of the cost of the house, all materials used being of best grade and quality:

Excavation	\$200
Brick work and mantels.....	2,000
Plaster	515
Mill work and finish.....	1,000
Stairs	285
Cement	276
Painting	420
Tile roof and copper work.....	900
Stone	525
Cisterns and drains.....	100
Steel work	140
Hardware	90
Lumber and rough carpentry.....	1,000
Tile flooring	42
Plumbing	460
Wiring	106
Furnace	460
	\$8,519

The tile roof is especially attractive; it is constructed of green glaze tile, furnished by the Ludowici-Celadon Tile Co., of Chicago. It is much handsomer than any stained shingle roof, and as constructed is windproof, snowproof, rainproof, fireproof and timeproof, and under it the Craigs for generations to come may find safe shelter from all the elements. The brick are from the kilns of the Veedersburg (Ind.) Shale Brick Company, and, being impervious, will always remain clean and wholesome in appearance. It is estimated that a veneered house might be built after these plans at about the same cost as an ordinary frame structure. For further particulars in this connection, or for working plans and specifications, the reader is referred to the architect, Charles H. Byfield, Indianapolis, to whom we are indebted for the illustrations.

BRICKMAKING IN BIBLE TIMES.

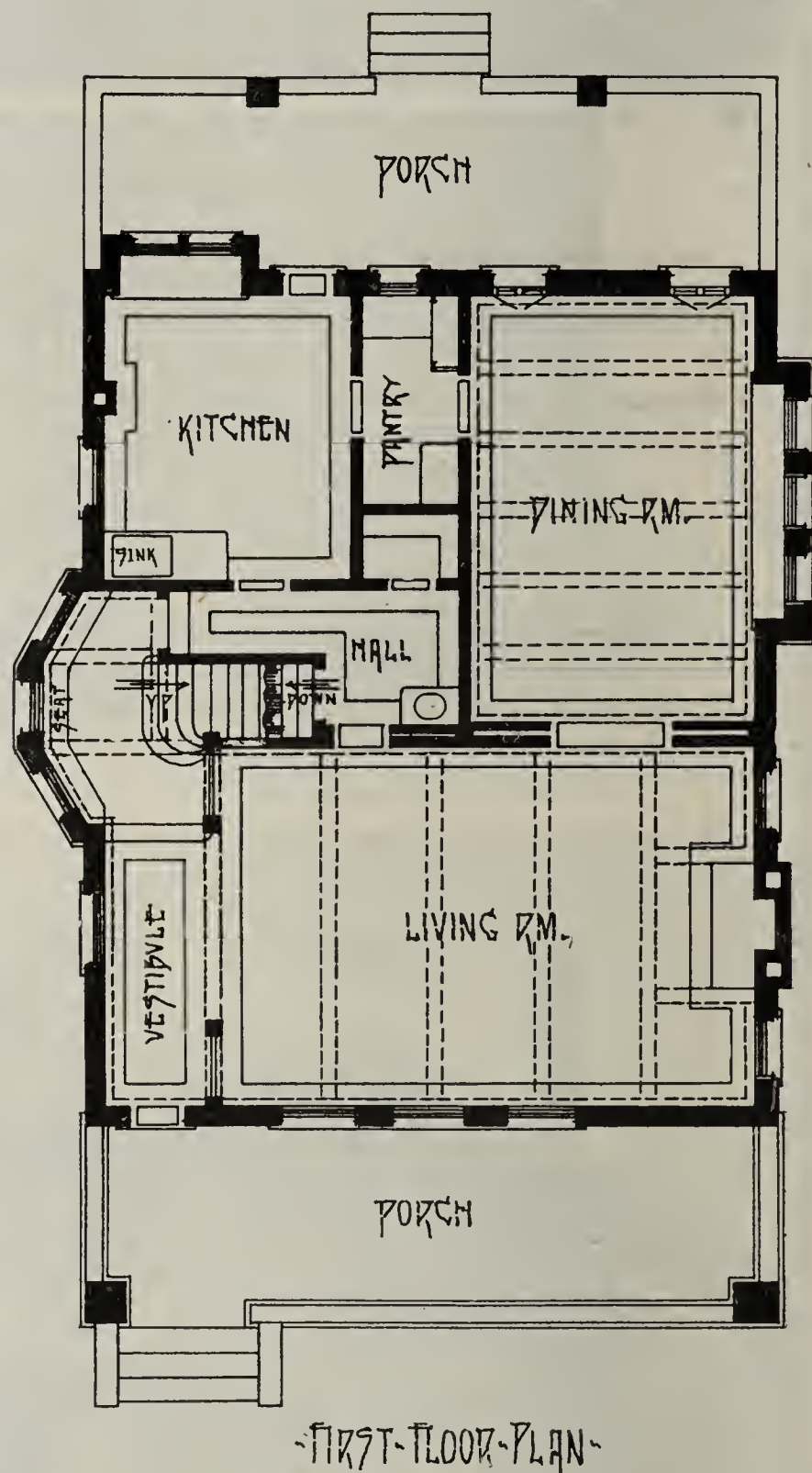
THE RECENT BABYLONIAN expedition of the University of Chicago, while excavating at Bismya, discovered that the brick was first employed in Mesopotamia nearly ten thousand years ago. In that level alluvial plain, absolutely without stones for building material, but with an abundance of clay, primitive man, when he wished for a house more substantial than one of reeds, constructed its walls of the common clay soil of the ground. Experience taught him that if clay were molded and dried in the sun, it would be more durable. When he laid a chunk of moist clay in the sun to dry, he made the first brick.

In the lowest strata of the ruins of the exceedingly ancient cities of Bismya, walls of these shapeless bricks were discovered; it was at a very early period that the Babylonians began to form the clay in a rectangular mold, as the modern Arabs of the desert still continue to do. During all of the period of Babylonian history sun-dried bricks, resembling the Mexican adobe, were employed not only in the houses of the common people, but as filling in the interior of the walls of the temples and royal palaces.

The man who discovered that bricks could be burned was that half-naked Babylonian of about 4500 B. C., who, while poking among the ashes of his old campfire, saw that the

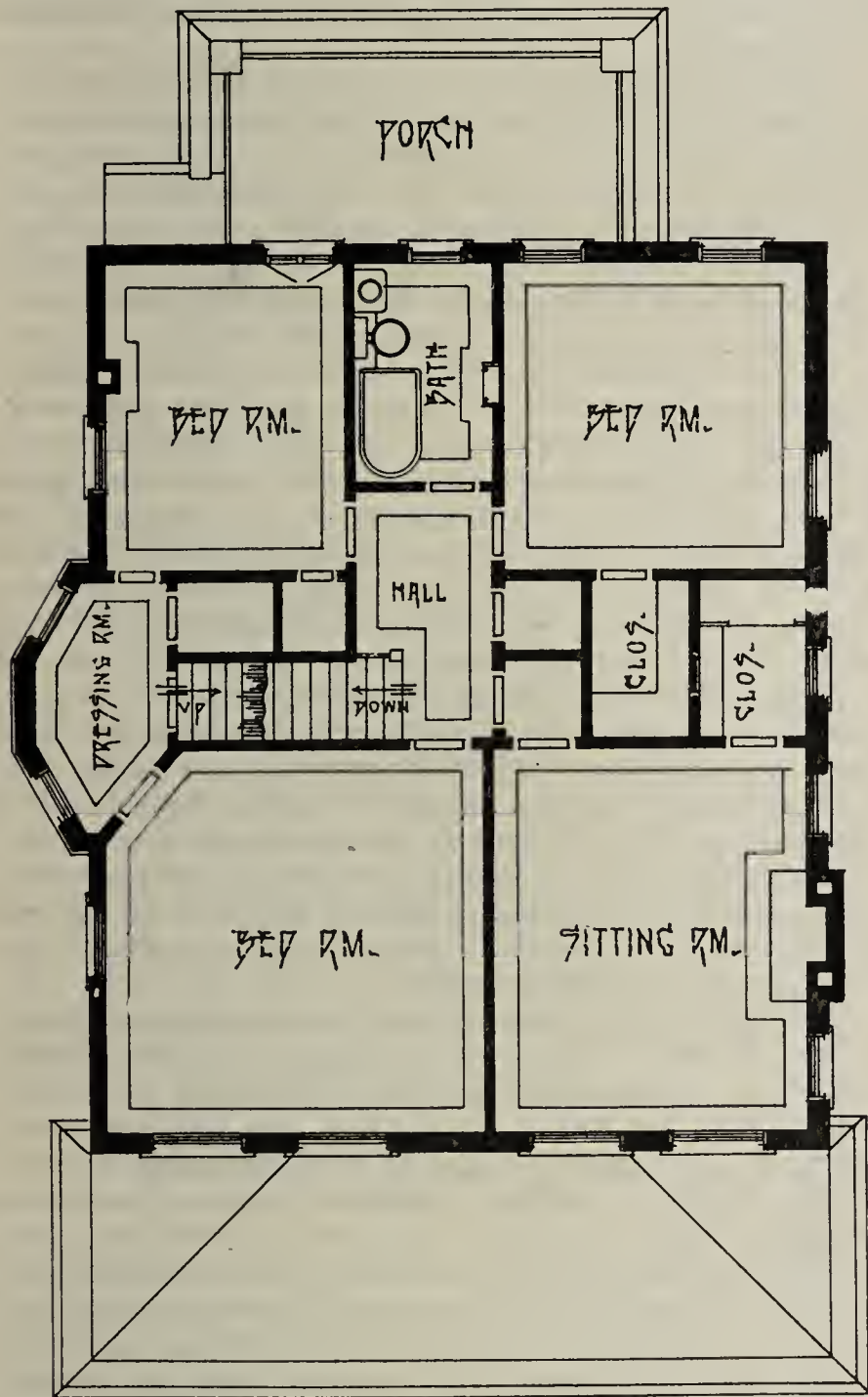
once moist clay beneath it had become hard and red. The first bricks which he burned were exceedingly crude in shape, flat on the bottom where the moist clay had rested upon the ground to dry, and rounded upon the top. Although the form was suggestive of the rectangular, the bulging sides gave it a somewhat circular appearance, as soft mud, if placed upon the ground to dry, would assume. These early bricks were small and thin, measuring about 20 centimeters in length and 5 in thickness, yet as time progressed they rapidly grew to about twice that size.

The modern manufacturer who stamps his name upon the bricks from his kiln, is but imitating the brickmaker of



6,000 years ago. The earliest known mark which appears upon the surface of the ancient brick was made by pressing the end of the trumb or of a round stick into the soft clay. As the bricks became larger, an interesting system of markings was adopted by the royal builders. The first mark of the series consisted of but a straight line drawn lengthwise along the surface of the brick; the next generation varied the mark by drawing a line diagonally, and the third added a diagonal line, forming a St. Andrew's cross. The fourth generation drew two parallel lines lengthwise upon the surface of the brick; the fifth drew them diagonally, and thus the series continued with three, four and five lines until the dynasty came to an end.

Not far from 3800 B. C. the Semites invaded Babylonia, and Sargon, the king of about that date, modified the brick to a square shape, a form which has continued in the Orient to the present time. He also discarded the ancient system of brick marks to adopt a stamped impression of his name and titles. His son, Naram Sin, finding the large bricks of Sargon, which measured 42 centimeters square and 9 in thickness, too cumbersome, reduced them to about 32 centimeters square. A thousand years later, or about 2800 B. C., the size had been reduced to about 30 centimeters, with the thickness of 6 centimeters. Thus they remained to the end of the Babylonian empire, and the palaces of Nebuchadnezzar at Babylon were entirely constructed of them.



SECOND-FLOOR-PLAN

The brick inscription, which first appeared in 3800 B. C., sometimes engraved, but more frequently stamped, was not placed upon every brick of a structure. Naram Sin marked a few of his bricks with the brief legend, "Naram Sin, the Builder of the Temple of Ishtar." Of later kings the inscriptions, which were longer, appeared upon a greater number of bricks. I found in the Bismya temple about one of every twenty bricks of Dungi, of 2750 B. C., inscribed with nine lines. Nebuchadnezzar stamped nearly every brick in his numerous vast constructions with a shorter inscription, which read:

"Nebuchadnezzar, king of Babylon,
The restorer of the temples Esagil and Ezida,
The first born son of Nabopolassar, king of Babylon."
The mason of about 2800 B. C., while laying the square

brick, found that to end the courses evenly, it was necessary to break a brick in halves. The manufacture of half bricks then began, and thus arose a brick of the shape and approximately the size of those employed in our own country and in Europe. Together with the half brick, as architecture became more complicated, the Babylonians employed other forms for binding the corners of walls, building columns and wells, and for ornamentation. Some were circular or semi-circular; some were wedge shape with a rounded base, or with the point missing; some were square, with one or more edges concave or convex, and of others a square from one corner had been omitted.

In laying the bricks those of a plano-convex shape, which were employed about 4500 B. C., were set in the wall upon one edge, and held in place with bitumen, the black pitch which comes from the hot springs at Hit upon the Euphrates, or more frequently with mud. While the use of both bitumen and mud continued, lime from the edge of the Arabian plateau was employed before Nebuchadnezzar's time. It is now the common cement of Mesopotamia.

Thus the brick and the brick stamp arose. Several thousands of years were required for its evolution from the lump of clay to the form which the Babylonians regarded as perfect. In durability and in the variety of shapes the skill of the early brickmaker has never been surpassed. At Bismya we found bricks from 4500 B. C., as perfect as upon the day they were made, and our large desert house was constructed mostly of them. Our desert well was walled up with bricks 5,000 years old, and they will still be perfect long after the ordinary brick from the modern American kiln shall have crumbled to dust. In the latter days of Babylon, after the process of glazing had been discovered, huge designs of animals in various colors were represented in relief upon the brick walls, and so perfect was the design that each brick was molded as carefully as the sculptor now shapes the various stones which are fitted together to form a richly carved monument.

To the archaeologist this discovery of the origin and development of the brick and their stamps is of more than usual interest. It not only increases his knowledge of the life of early man, but, what is more valuable, it presents him with a clue by which he may determine at a glance the comparative, if not the absolute age, of the ruins of the many buried Babylonian cities if only the fragment of a brick remains.—PROF. EDGAR J. BANKS, in *Scientific American*.

STOLE BRICK FROM CHIMNEYS.

Only recently the daily papers of Cincinnati have been telling about a colored man who had a mania for climbing housetops in the dead of night to steal brick. It was a smooth scheme, as the brick would seldom be missed, the owners when discovering the missing brick some time after would blame it onto the wind or the elements and nothing was said, they never suspecting that someone was making a good thing of stealing chimney bricks. And the negro was only accidentally caught or he would still be at it undoubtedly. One night Dr. Alfonza Aratus was called out at night, and had gone to the rear of his yard on Seventh street to get his horse, when he noticed a figure crouching in the alley. The negro was found with a load he could not run with, and he evidently thought it best to lay low until the doctor went by. But the doctor hunted a policeman as soon as he was out of sight and told him of the suspicious looking negro. The policeman nabbed him easily. The negro was found to have enough brick to build a small house, most of which was in first-class condition. He was sentenced to the workhouse, and the owners notified to claim their brick. None, however, appeared to do so.

Written for THE CLAY-WORKER.

ROUGH FACE BRICKS.

BY ELLIS LOVEJOY, E. M., COLUMBUS, OHIO.



URING THE first Philadelphia Convention of the N. B. M. A., a prominent member of the Association, in speaking of the bricks in one of the depots of that city—a light-colored flashed product in varied shades—said that such bricks were only fads and would soon die out. He was very much mistaken.

They were the beginning of a new era in brick architecture. Up to this time the finer structures, with occasional exceptions, in our cities were built of brown stone and red bricks, red bricks and brown stone. Whole streets built up sometimes with the one; sometimes with the other. The sole claim to beauty as a whole lay in the design, not in the material.

But this was to be changed for all time. Many colors with infinite shades were placed on the architect's table, and he was not slow to take advantage of them, and having used them, demanded new colors and effects. In one instance, a buff brick with an undertone of pink was called for and supplied, though we have always had our doubts about the "undertone of pink." We couldn't see it, but the architect could, which was sufficient.

In another case a builder with plans for eight or ten houses selected the bricks from one yard, every house a different color, and not a plain red in the lot. We have produced the color, but only recently have we begun to meet the architect's demand for effects.

It was at this early time that the wave of dry pressed products swept over the country, and with the variety of color there was given the architect a mechanically perfect block of burned clay, and we regret to say that many architects made use of it, to the architectural elimination of the mortar joint, which is an important feature of any brick wall. Bricks are bricks and must be laid in mortar; therefore, if a truthful brick wall is to be built the mortar joint should be a part of it. We fear that there is a present tendency to go to the other extreme and consider mortar as the building material, in which bricks are to be laid.

There are extremists in everything and perhaps they add something to the betterment and beauty of the world. We do not know. But somehow we can not help saying "amen" to the wish that some of the architectural freaks had died in infancy.

We not only gave the architect a great variety of colors, but we gave him variation in size. To the standards we added "Romans" and "Normans." The colors, the several sizes, together with the possibility of different bonds, gave the architect opportunities he had never known before.

Our cities architecturally took on a light and life and color of which we had never dreamed.

Nor was it confined to the Euclid avenues, Riverside Drives, lake fronts, etc., but extended into all the by-ways of every city.

We did our part toward a more beautiful city and the architect his, but the brickmaker and architect alike failed to consider the most essential element in building architecture—the effect of time, the problem of growing old beautifully.

Is this a lost art in architecture? Did the ancients understand how to build for all time? They lived longer than we do and had better opportunity to study the effect of time. Or was it because their materials were nearer nature than ours—everything hand-made? We can not say, but we know that our beautiful buildings became streaked with dirt and

hideous in a decade. It was no longer a question of "undertones of pink," but of the original surface color.

There was a reaction from the delicate light colors back to the reds, but only in a limited degree, which would be natural in any case. The architect and the builder had no intention of giving up the possibilities that had been offered to them.

The manufacturers of light colors began to mottle the bricks—"mottled," "speckled," "iron spot," etc., to break up the color and in an effort to make the bricks dirtproof. It was about this time that the influence of stiff mud bricks began again to be felt in the market. Also enameled bricks were under serious consideration by many manufacturers, but architects would not have enameled bricks as a general facing material.

Enameled bricks would not stay clean; in fact, they get dirty quicker than the most porous dry pressed product, nor do they wash off during rainstorms. The dirt is there and there to stay until scrubbed off. The enameled bricks can be cleaned—the only argument in their favor. They get dirty quickly because they "sweat," if we may so characterize the dew point, and this moisture collects the dirt and leaves it as a scum on the surface of the bricks.

The manufacturers of stiff mud bricks—brick that were "impervious," that would not catch or hold dirt, that would "wash their own faces"—had good selling arguments, and such products became prominent in the markets and gave the dry press product manufacturers no little concern. The only argument in favor of the stiff mud products was one not used, namely, that the wall could be cleaned, because the use of such argument would be proof that the wall would gather dirt and was not self-cleaning as claimed.

It was claimed and disputed that the impervious product made a dryer house, but this is aside the question. The story pro and con is a familiar one to those of us who went through the fight. The kettle calling the pot black. We were both black in that we were overlooking the greatest possibilities of our products. Our aim should have been not to produce a ware that would not get dirty—something as impossible as perpetual motion—but to produce that which would take kindly to dirt.

We can not resist quoting from a recent German article on the subject: "Against this (rough face) it is often argued that the smooth-faced brick is less liable to accumulate the soot and dirt of large cities. As if this were an advantage. It is generally coming to be recognized that we should not view a building as a unit in itself, but rather in connection and in harmony with its surroundings. The greatest reproach which is cast upon brick architecture of the present time is that it is not in harmony with the natural surroundings and with other buildings, and this is due, where it appears, to the fact that the smooth machine brick does not participate in the changing processes to which nature subjects all other objects. In this regard also must we therefore consider the smoothness of the burned brick as an artistic disadvantage."

We do not believe that smooth-faced products do not get in "harmony with their surroundings," but rather that they get into harmony too quickly and pass out of harmony on the other extreme.

We have in mind a building built of common sand mold bricks trimmed with white limestone. We have known this building for more than forty years and pass it nearly every day, and have never noticed any change in it except that vines covered the walls in part and since have been torn away, but apparently have left no mark. As we write we see this building in our mind's eye, but do not recall any streaks below the stone copings, or on the wall from the corners of the window sills and caps. The building meets our idea of growing old beautifully.

Another building of more recent date, built of smooth

(dry press) bricks, upon which some vines also grew and were torn away, is barred and streaked where the vines covered, and from every window sill streams down a flag of dirt.

The older building is in the heart of the city and undoubtedly many times dirtier than the newer building, which is in the suburbs, but it does not flaunt the dirt, while the latter is but a mirror from which every dirt stain is reflected. Every city has a few examples of the former and many of the latter.

The demand for a material which would not show dirt became insistent. There was a notable adoption of darker colors and rougher shades, and paving brick became a feature in the market. The latter certainly does not show dirt, and aside from that deserves a place in our building scheme, but it could not fill the place of the brighter colors.

There was an attempt by the dry press brick manufacturers to introduce rock-faced bricks, but it failed because the architects would have none of it. It was a noble building material debased into an imitation of another noble building material.

Possibly a more extended use of rock-faced bricks would have led us sooner to recognize the merits of rough-faced products.

Through it all, dry press and stiff mud, the hand-molded sand-faced brick which had been with us always, was kept from oblivion by a few architects who were fully alive to its merits.

These bricks possess a surface texture which our dry press and stiff mud bricks have not.

Texture is wherein we have failed to fully meet the requirements of the architects, and texture is a very important element. Why put burlap on our walls? As well use a smooth paper printed to imitate burlap.

A printed or painted cloth on the floor would soon hide its color and design in dirt, while a rough coated tapestry will hold the design and color to the last rag, and if it be a Persian rag will still command a high price in America. It is the tapestry idea that we need in brick—not the color effect, but the texture.

We have heard the cry of "fad" against the rough effects that are now coming out, but they are not fads. They have come to stay and multiply.

Germany and undoubtedly other countries are working to the same end, and we have several lines on the market.

In Germany attempts were made to imitate sand molding in the stiff mud by sprinkling sand upon the bar of clay and brushing it in with wire brushes, in some instances coating the bar of clay, and in others sprinkled scatteringly.

In earlier attempts baskets were pressed upon the bar of clay, leaving the woven basket impress.

The writer was offered a large order several years ago when the rough race movement began, in which the face of the bricks were to bear the impress of a rough canvas belt, but such an impress would be weak and of little effect except at very close range.

Another German brick is made by mixing clay with granular particles and brushing it into the bar of clay.

In one instance the dried bricks are treated with a sand blast, cutting off the smooth surface, leaving a slightly wavy (or heavily if desired) surface with velvety texture.

In this way various mottled effects could be produced; for instance, a coarse, white sand or burned (white) clay could be added to a red clay, and the sand blast would remove the skin coat and expose the white pebbles.

A thin layer of dried clay waste pressed into the bar of clay by a light roller gave the surface of the brick the appearance of morocco leather.

A roller die is also used in some factories in Germany, but the general tendency of such effects would be too mechanical.

The use of rolls, or fingers, or spirals to mark the face

of the bricks with sharp parallel lines, and a mixture in the wall of bricks with transverse, longitudinal and diagonal lines would be effective in some colors of bricks. The lights and shadows of these lines would give a varied effect to the wall, which would change with every position of the observer.

What we are after are effects of light and shadow, and not visible roughness—at least not visible at the distance from which the wall is viewed. We wish to break up the smooth, brilliant colored surface and give softness, and in doing this we bring out the depth of the color and its true life by the contrast of light on the high points and shadow in the depressions. Quoting again from the German article: "This smoothness eliminates the play of the light and shadows which is essential to an enlivenment of the surface, and prevents softening of the too strong colors on the one hand and the animation of the gloomy shades on the other hand." If manufacturers will keep this in mind there will be produced fewer of those freak products, whose only excuse for existence is that of roughness. Such rough effects, whose only merit is roughness, may please us today, and we bear with them tomorrow, but on the third day we would relegate them to the ash heap if we could.

At Woerdehoff, in Padeborn, Germany, a very rough brick is made by rolling brick scrap and crushed coke into the surface of the bar of clay.

The brick scrap makes projections, while the coke burns out, leaving depressions.

Another brick is made at this plant by deeply scratching and tearing up the surface, then coating with a thin slip to attach the loosened particles to the surface.

There has been an insistent demand for a green-colored brick, preferably a dull green, and such a brick might be produced by sanding the bar with coarse grains of a green frit, rolling it in, the body color of the brick to be light buff.

The production of a green brick with a mossy surface may be possible from some limey clays, and experiments now under way on a commercial scale are very promising. One or two factories claim to be producing such bricks, but we have not seen the product in the wall.

The wire-cut face brick—we mean a stiff mud brick with a wire-cut face—has developed wonderfully in this country, and a number of factories are making it almost exclusively. The same brick is being experimented upon in Germany, but with no marked success up to the present time.

So far as we know, this brick was first produced at New Lexington, Ohio, in 1903. Its discovery was accidental. In order to get a few small-sized bricks for a special purpose, a wire was stretched across the top and end of the auger machine die and the surface of the brick cut off. When these bricks came from the kiln their possibilities as a building material were recognized and steps taken toward their manufacture. Other factories quickly took up the idea, and the manufacture soon spread beyond the state in which the brick originated.

There are several patents intended to cover the method of stretching and fastening the wire, and special rigs for shaped bricks, but we believe that the fundamental idea is not patented, nor would such a patent hold, because bricks have been wire cut for many years, and we have records of wire-cut face bricks that were used in the Middle Ages.

The wire-cut face is especially pleasing. There is nothing mechanical about it. The wire in dragging through the clay roughens up the surface in a series of ragged corrugations, and no two bricks have the same light and shadow effect. At first a great deal was said about the dirt that such a surface would accumulate. The product has been on the market about six years, and the first buildings constructed show no evidence of getting dirty, and it is believed the bricks will hold their color effect longer than a smooth face brick.

The dirt may lodge upon the upper surfaces of the pro-

jecting corrugations and it may deposit in the crevices, but the under surfaces of the corrugations will remain comparatively clean and give color to the whole surface. The dirt will simply deepen the shadows and tone down the high lights, without itself becoming noticeable.

The softening and blending effect of time which should enhance the beauty of the wall, will deal kindly with this product.

The first product was a red color and the trade names of "Devonshire," "Corduroy," "Velvet," "Crepon" were given it. This was quickly followed by flashed (reducing kiln atmosphere) colors with dark brown to black color, styled "Clinker," "Gun Metal," etc., all made from red burning clays.

Within the year buff bricks with wire-cut faces, and also gray bricks, the latter having the trade name of "Astrakan," have been put on the market.

No two clays give the same degree of roughness in the wire cutting, and perhaps it is best that they should not, if the method is to become general as now seems probable.

Some sticky alluvial and outcrop clays will roughen up quite markedly, while other clays and shales make relatively smooth faces.

It seems to us that there is a wide field for development, and that every manufacturer should study his material and develop a product which will suit it and which will be distinctively his own. He should be an originator instead of an imitator—a Rookwood, a Grueby, or a Teco in brick.

So far as we know, with one exception, the wire-cut face bricks on the market are made on a side-cut machine, and the corrugations are longitudinal.

This might be varied by wire cutting an end-cut brick, which would give transverse corrugation.

It would be a simple matter to rig a mechanical device on a side-cut machine by which the face-cutting wire would slowly move through an angle of 90 degrees in a horizontal plane, and the corrugations pass from one diagonal through longitudinal to the opposite diagonal.

Buff bricks having little color to tone down would better be marked with striations, preferably smooth ones, and these striations at various angles, and bricks with different striations thoroughly mixed in the wall.

The striations would give light and shadow and prevent the development of solid sheets of dirt or stain, the variation in the angle would break up any mechanical effect, and if the striations were smooth the wall could be cleaned down.

We believe that the use of a wire brush to scratch, cross-hatch or stipple the surface will be an effective treatment, especially applicable to some clays and colors. The scratching may be coarse or fine, light or heavy as desired, and should be done by hand, though it would be practical to fasten brushes in such a way as to give results.

The introduction of pebbles, granulated burned clay, etc., of various colors into a clay burning a different color, then wire cutting or sand blasting to remove the smooth surface and expose the pebbles, is a fruitful field for investigation. There is ample opportunity for development of new lines and a good market for everything of merit.

We have given the architect color and form, and now give him texture in any degree, subject to his orders—a combination of qualifications which no other building material can give.

CERAMIC INDUSTRY OF BRAZIL.

This branch of industry has only been in existence since 1895, and is represented by three factories. Under the influence of the advanced tariff adopted in 1906, there has been some development of this industry in the finer end, though the bulk of the manufacture is in earthenware, drain pipes, etc.

Written for THE CLAY-WORKER.

SEEING THINGS IN NORTH CAROLINA.

The Home of the "New South" Brick Machinery.



IT WAS THE writer's good fortune to spend a pleasant day in early spring at Statesville, N. C. The chief object of the visit was to call on J. C. Steele & Sons, inspect their plant and see their machinery in operation. Besides these, I saw a number of other things of much interest, and, to tell the truth, was much pleased by some things I did not see. Some things usually observed and appreciated by the average traveler are now conspicuous by their

absence in North Carolina, for the state has gone "dry," and in the storerooms where formerly cafes or drink emporiums, sometimes called "booze joints," flourished, there are now shoe stores, meat markets, groceries, etc., etc.

Having heard smoking-room orators declare time and time again that prohibition does not prohibit; that when one is in a dry state and wants "booze," it is always to be had



Mr. C. M. Steele and His Runabout.

for the asking, and that dry towns and states are always wet to those who want wet goods, I was curious to learn if liquor could be had clandestinely. So, while not actually athirst, I made inquiry both openly and on the quiet for the dispensers of forbidden liquor, only to be told pleasantly but firmly that there was nothing doing in that line in Statesville, and scarcely anywhere else in the state, for that matter. That neither with a wink or by any subterfuge could a drink of intoxicating liquor be bought or begged within the corporate limits.

This was not what I had been led to expect, but after talking with the proprietor of the hotel and a number of other citizens who would likely know where to obtain the desired refreshments, were they at all obtainable, I was convinced that prohibition does prohibit. Now, when I hear the all-wise gentleman who loves to discourse in public places upon such themes declare that prohibition is an idle dream, I make comment, mental or otherwise, that the said a. w. g. does not know what he is talking about or is telling a deliberate falsehood. I am convinced that prohibition does prohibit, and that peace, plenty and good cheer abound in dry communities in a large measure as a result thereof. So, reader dear, when you go on a journey to North Carolina or any of the dry territory which now prevails in many of

the southern states, and some of the northern ones as well, just say: "Me for the water wagon" and be prepared, for the time being at least, to be satisfied with water and mixtures thereof.

But to Statesville: It is a thrifty, charming county seat,



A Revolving Dump Car Going Up the Incline.



Interior of J. C. Steele & Sons Machine Shop.



C. M. and H. O. Steele and One of the "New South" Brick Machines Ready for Shipment.

midway between Chattanooga and Washington, D. C., on one of the main divisions of the Southern Railway, and is the home of a number of important manufacturing enterprises, such as cotton mills, knitting factories, etc. The most interesting of her enterprises to clayworkers is the

shops of J. C. Steele & Sons, where "New South" brick machinery is made. The plant includes the well-equipped foundry, machine shops and woodworking department, each housed in substantial brick buildings and equipped with modern machinery for the work in hand. The founder of the business, Mr. J. C. Steele, still keeps a watchful eye over the business in a general way, but leaves the details to the sons, who have grown up in the shadow of the shop, as it were.

Though trade has been a little dull during the past year, the shop has been kept running right along, and while they now have a good supply of their standard machinery and supplies in stock, they are not overburdened therewith and anticipate the demand will keep them running to full capacity the balance of the year. Evidences of success and prosperity are to be seen both in the plant and the substantial brick homes near by. Evidently the Steeles are among Statesville's most influential and respected citizens, notwithstanding the fact that each owns and runs his own automobile. This may be a handicap in some places, but not so in Statesville—automobiling is both a safe and pleasant pastime in a dry territory.

Steele & Sons' Brick Plant.

In company with the elder son, I took a spin in his runabout to their brick plant, which is located at the edge of town and which serves in part as an experimental station.



A Row of Workmen's Cabins Way Down in Dixieland.

It is a small yard, the supply of clay being limited. It is a surface deposit, averaging but a couple of feet in depth, so the plant is temporary in character, and only a million or two of brick are made each season and these are made in a somewhat primitive way. The clay is dug by hand and hauled in revolving dump cars by cable and dropped into a disintegrator and thence into a small "New South" stiff clay machine. The brick are dried in a furnace-heated tunnel dryer and burned in common clamps. The dryer has been studied carefully during the past year and improvements have been made in it which will be offered to the trade a little later. With the improvements contemplated, they think their dryer will prove exceptionally economical and effective. Only common building brick are made.

Turning back toward the city and ascending a hill which tested the climbing capacity of the runabout, we passed a row of workmen's homes which, though they afford ample protection in that mild climate, would hardly answer in a zero temperature. Even here in Dixie these humble cabins contrast strangely with the spacious homes of the well-to-do, not to mention the elegant brick mansions of the rich. Statesville has a number of fine brick structures, school-houses, churches, public buildings, etc., the most notable being the County Court House. In front of the latter stands a beautiful soldiers' monument, and both form an unusual background for a snapshot of Mr. Steele and his auto. The latter, by the way, has an attachment, an invention of the

owner which ought to come into general use—a self-starting device which does away with cranking and which is operated by a pedal similar to that which governs the brake.

An atmosphere of unusual peace and quiet was observable at the Court House. Comment on this elicited the information that "Since the sale of liquor has been prohibited, criminal suits are rare, consequently the sheriff and court officials have very little to do." To a disinterested observer, it seems that a dry state is better than a wet.

THE RECLAMATION OF SWAMP LANDS IN INDIANA.

BY J. D. RAUCH.

INDIANA, EVEN before systematic drainage was attempted, could not be considered a swampy state, as compared with Illinois, Missouri and other central states. Its swamp and overflowed lands were for the most part confined in that section lying north of the Wabash Valley, but, owing to the wonderful fertility of the soil, its close proximity to Chicago, and the advantage it possessed of being traversed by nearly all of the great east and west trunk lines, its reclamation received especial attention, and

etc., and the use of a single wire rope running direct from the dipper to the hoisting drum over but one sheave of 4 feet diameter. This arrangement is accomplished by the use of a compound-gear hoisting engine, instead of using the three-sheave arrangement at the end of the boom, and presents the most ideal conditions for the life of the cable and for smooth and continuous operation without loss of power. At the same time this arrangement permits of a greater reach for a given length of boom, and is made possible by the use of the compound-gear hoisting engine, whose steel gears, with machine cut teeth, reduce internal friction to a minimum.

When we note the length of time that this reclamation work has been progressing in Indiana and the energy with which it has been carried on, and the present speed in construction that is possible with this modern machinery, and then consider that from Government statistics there yet remain about 1,250 square miles of swamp and overflowed lands susceptible of drainage and cultivation, and that thirty-five other states have an aggregate of 118,722 square miles, we are compelled to accept the theory advanced that this work is still in its infancy—especially so when we consider it in connection with the recent great movement look-



A Modern Ditching Dredge at Work on Drainage Canal.

from its very inception the work has been prosecuted with an energy and determination exercised in but few localities. In the earlier days many attempts were made to construct channels by various methods, but the possibility of systematic drainage did not appear until the introduction of the floating dipper dredge about twenty-five years ago. Since that time Indiana has held a place second to none in the part she has played toward bringing these machines up to their present high state of perfection. Probably in no other section of swamp land of like size is there a greater variety of material encountered, embracing, as it does, nearly every description of soil from soft muck and sand to hard pan, boulders, glacial deposits and solid rock, which presented difficult problems from the outset and demanded machinery of more substantial and better design and greater speed and efficiency. The results obtained by the many improvements are felt today in the reduced cost and speedy execution wherever such work is being carried on.

The accompanying picture shows the highly improved and modern ditching dredge as it is employed today, demonstrating clearly the application of steel exclusively in the construction of the boom, turntable, "A" frame, spuds, dipper handle,

ing toward the improvement of our internal waterways for transportation purposes, which even now plans to place the very section referred to in direct water communication with the Atlantic seaboard; on the east by the proposed canal across northern Indiana, joining Lake Michigan with Lake Erie, and to the south by the already approved route connecting Chicago with the Mississippi River.—American Wire Rope News.

OPEN DITCH NOT DESIRABLE.

Some people, without giving any thought to the matter, seem to think that an open ditch will serve about the same purpose that an under-drain will in draining the land. But those who have tried both know that an open drain in a field that is cultivated from year to year is a nuisance in plowing and in the use of harvest machinery. Besides, it is a waste of so much land, and weeds and brush are likely to grow along the sides of the ditch, making it an abominable nuisance.



NEW YORK STATE DRAINAGE ASSOCIATION.

AN ORGANIZATION of this association was effected on February 24, 1909, at the Agronomy building of the State College at Ithaca, N. Y. The following officers were elected: President, Elmer O. Fippin; secretary, George A. Crabb, Ithaca, N. Y.; treasurer, Fred E. Gott, Spencerport, N. Y. Vice-Presidents are to be elected from each local grange or other agricultural societies of the state. The "Rural New Yorker" says that the object of this association is the promotion of better drainage on the farms of New York State by the dissemination of knowledge concerning its effects upon the soil, the crop, the farmer and the community; by the encouragement of investigations which will demonstrate the best practice in the installation of drains on all kinds of soil and with different crops, facilitating the individual and co-operative practice of drainage by the removal of all hindrances to its application, and the establishment of adequate methods of procedure where necessary. Members of the association shall be active and associate. Any person may become an active member who is engaged in the pursuit of agriculture. Others may be elected to associate membership and are entitled to all the benefits of active membership except to vote and hold office. The vice-presidents, elected by each local grange or other agricultural society in the state from among its members eligible to active membership in the association, shall constitute the advisory board, and shall have authority to organize local chapters or committees of the state association for the promotion of its objects. The president, secretary, treasurer and chairman of the advisory board shall constitute the executive committee of the association. Applications for membership shall be in writing to the secretary and accompanied by an admission fee of \$1.00, which shall entitle each member to receive a copy of all general publications of the association. The annual meeting shall be held in February of each year at such time and place as the executive committee may decide, and provision is made for calling special meetings when necessary. A copy of the constitution may be obtained by addressing the secretary.

At a glance it will be seen that the organization contemplates a far-reaching influence, including, as it does the possible co-operation of all of the granges and other agricultural societies in the State of New York. As to how far this association will extend its influence and success in bringing to the attention of the farmers of that state the great need of systematic drainage as a means of bringing their lands into a higher state of productiveness, will depend very much upon the activity of the officers, committees and active membership. We do most heartily commend this effort to secure better land drainage, better farming, and the consequent prosperity that will come to those who will enter into the work intelligently and enthusiastically. As we see it, the undertaking will give a great uplift to progressive farming throughout the state. The thought comes to us that other states would greatly profit by such an undertaking, especially those states located in what is called the Great Corn Belt.

HOW WIDE APART?

"How wide apart should drains be placed to thoroughly drain and areate the land?" is a question that keeps coming up in the underdrainage of farm lands. The distance apart for drains should be determined by the character of soil

and subsoil, the fall or inclination and the character of the work done in the construction of the drains.

Two rods apart is as close as is thought necessary in the most retentive clay soils, the drains being laid at a depth of 3 feet. If the soil and subsoil is more open and easily freed from an excess of water, 3 or even 4 rods apart will be satisfactory if the drains are 3 or more feet deep. In some very open soils, with the drains laid at a depth of 3½ or 4 feet, the drains may be laid at 80 or even 100 feet apart and do very satisfactory work.

If put in at this distance under the conditions before named, the soil will be drained and aerated sufficiently. As fast as the water is removed by the drains the open spaces are filled with air. The water, before being removed, kept out the air and the heat needed in warming the soil and causing the chemical action necessary to plant growth and was used in the evaporation of the water, making the soil cold. When we consider what a vast amount of heat is dissipated in evaporating the water of wet soils, we begin to realize the need of underdrainage and the benefits derived from it.

A DRAINAGE EFFORT.

Three or four years ago, H. E. Hoggatt, of Warrick County, Indiana, became interested in the beneficial effects of land drainage, and, having a little money in hand, purchased a large tract of low-lying retentive clay land that had been in partial cultivation for years and abandoned in part because it could not be made to yield a satisfactory return for the labor expended in the effort to grow farm crops. Mr. Hoggatt determined to underdrain it, and, being a young man, full of energy and foresight, after carefully planning the system necessary to make the undertaking successful, began the work. Many of his neighbors, who knew but little as to the benefits of drainage, tried to get him to abandon the work. They insisted that it would be a waste of money and labor. His banker also thought it a very hazardous expenditure of money, but he persisted in going on until he could test for himself the practicability of reclaiming such land. After having tile-drained a few acres, he sowed a few acres to timothy for meadow. The crop of timothy the year following was so heavy and the heads so large that he was greatly encouraged to go on with the work. Crops of corn and wheat subsequently grown was a further encouragement to go on and finish the work as first planned. A few weeks ago the writer wrote Mr. Hoggatt, making inquiry as to his progress with the work. He kindly wrote as follows: "I have thus far tile-drained 550 acres 4, 5 and 6 feet deep, ranging from 3 to 5 rods apart. This will be the first year that I will be able to fully demonstrate the practicability of my work. I have 200 acres of growing wheat; it looks well and I feel assured of a good, profitable crop. I have sold the crop at \$1.00 per bushel, to be delivered at my station in July. I anticipate as much as twenty bushels or more per acre. A few years later, I believe that after clover I can have a yield of thirty-five or more bushels per acre on the same land. I confidently expect to grow the best wheat in this locality on this gray land. Some of my neighbors on land not tile-drained have plowed up their wheat and will plant to other crops this season. I will have 250 acres in corn. The land to be cultivated in corn has more humidity in it, and I anticipate at least seventy-five bushels per acre. In a few years the full benefits of drainage will enable me to have the season for crop production practically under my control. Thorough underdrainage, deep cultivation and generous treatment will eliminate the evil effects of wet or dry seasons. In the fall, after I have gathered and marketed the crops, I will give you more in detail the results obtained in crop yield and soil conditions."

What this young man with intelligence and persistent energy has done, others can do, not on so large a scale perhaps, but there is such a thing as having eyes to see things and brains to contrive how to do things. There are

thousands of farms that have many acres that it does not pay to cultivate because of the want of underdrainage, and there are multiplied thousands of acres in cultivation which, if thoroughly tile-drained, the crop yield would be doubled.

Written for THE CLAY-WORKER.

MILWAUKEE BRICK AND BUILDING NEWS.



MILWAUKEE'S record-breaking building season of 1908, when, despite the financial storm, the amount of building permits exceeded even that of the best previous year, will go far above in 1909. Conditions have rarely been so favorable.

In 1908 the construction of two large office buildings brought the total of buildings up to the high notch. Such work does not form a true gauge of conditions, for it is extraordinary in Milwaukee to see two big office buildings go up in one season. The Majestic building, rising fourteen stories and costing \$1,500,000, formed the largest single piece of construction work in Milwaukee's history. It is a steel skeleton structure, with brick walls and tile and terra cotta facing. The Caswell block, eight stories, is built on a reinforced concrete skeleton, with brick walls and terra cotta facing on two sides of the triangle. It cost \$850,000.

This season conditions are changed. There is no single extraordinary piece of construction, but a huge amount of building running between \$25,000 and \$100,000—solid brick structures for light manufacturing, warehousing, wholesaling and heavy manufacturing. This season's total figures will form a real criterion, for the work under way and projected is of the "steady" sort, showing a consistent growth and nothing remarkable.

The spasm of reinforced concrete construction is believed to be about over. For the last two seasons big builders, hearing the wonderful stories told by "specialists" in the new class of construction work, plunged into it with both feet, but they found out when the time came to pay the bills that the new method costs a lot of money. Consequently, this season there is a demand for brick structures and the trend seems to have turned. The reinforced concrete method has not reached the residence construction field to any degree, and the chances are that it will not. Persons who can build a good, brick house for \$7,500 will not spend \$10,000 to build by the concrete method, and then take the chances of the experiment.

Milwaukee is growing with remarkable rapidity, and this season is going down as a record-breaker for the construction of combination stores and flats in the outlying districts, where real estate agents are building frame cottages by the score. These combination structures are, as a rule, substantial, of solid brick construction throughout, and cost from \$10,000 to \$15,000. No less than fifty of these are being built this season.

During the first week of April in 1908, building permits to the amount of \$170,729 were issued in Milwaukee; for the same period of 1909 the permits aggregated \$202,560. This shows the gain in a small way. A better criterion is the Building Inspector's report for March. In 1909, permits to the value of \$1,048,551 were issued; in March, 1908, \$743,856. This presages the biggest year in the history of Milwaukee, says E. V. Koch, the inspector. He is confident that \$12,000,000 worth of new buildings will be erected in Milwaukee during 1909.

February, 1909, saw \$601,291 worth of permits issued; February, 1908, \$292,320. January, 1909, \$238,541; January, 1908, \$122,330.

Building Inspector Koch expresses the uncertainty over reinforced concrete better than its out and out opponents when he says that this method of construction has held up the new Milwaukee building code longer than any other feature. The Council has been haggling over a model code for several years, principally because engineers and builders can not come to an agreement over that kind of work. It is so uncertain that engineers hesitate to express favorable opinions, and the builders who are specializing in that

kind of work are erratic in their enthusiasm. It is small wonder that investors hesitate in using the new method.

Brick paving in Milwaukee will amount to about twenty block lengths of street during this season, it is roughly estimated. There is quite a little dissatisfaction in many parts of the city where asphalt pavements were laid last season, because this stuff can not stand the wear and tear of traffic. The property owners, who see in the asphalt paving a costly venture, point to the brick-paved streets existing in the city. Some brick pavements have been in use for six to eight years without showing the wear of asphalt pavements that have been down only one or two seasons, conditions of traffic being nearly equal.

The city of Fond du Lac, Wis., has 15,954 lineal feet of paved streets already, and will add several hundred feet more this season. Asphalt is next, with 12,076 lineal feet. The smaller cities of the interior are finding brick paving



Terra Cotta Tile Column in National Fireproofing Co.'s Testing Station, Chicago.

the most economical and lasting, and residence streets, as well as the business districts, are being paved with vitrified brick.

Oshkosh, one of the largest cities of Wisconsin, will lay \$2,000 worth of brick pavement this summer.

The city of Sheboygan, Wis., will pave Pennsylvania avenue, from Eighth street to the North-Western tracks with vitrified brick, replacing the cedar block pavement. A 12-inch sewer will be laid in Illinois avenue, extending two blocks. Oshkosh, Wis., and Fond du Lac will install several hundred lineal feet of pipe sewers also.

Among the solid brick buildings or additions to be erected in Milwaukee this summer are: Y. W. C. A., addition, \$50,000; Espenhain Realty Company, addition to department store, \$100,000; Uihlein Bros., three light manufacturing buildings, \$400,000 aggregate; Frederick W. Sivy,er,

light manufacturing building, \$100,000; August Uihlein, business block, \$100,000; Milwaukee Drug Company, building, \$100,000; Fehr & Trottnan, theater, \$20,000. About five garages, ranging in cost from \$10,000 to \$75,000 are being erected in various parts of the city.

Jacob Hockes, a leading clay products manufacturer of Depere, Wis., will increase the capacity of his plant one-third. He will install an 80 h. p. engine.

At the annual meeting of the Standard Brick Company, of Milwaukee, the following officers were elected: President, George E. Burnham, promoted from secretary and treasurer, succeeding Albert Kroening; vice-president, Albert E. Kroening, succeeding John Hugh Burnham; secretary and treasurer, Robert Krepschner. The offices are at 496 Clement street.

The Davy Clay Ballast Company, of Kenosha, Wis., has



The Column in Testing Machine at Phoenixville, Pa., After Conclusion of Test.

disposed of one-half of its extensive holdings to a big manufacturing concern.

The Eau Claire (Wis.) Commercial Association is negotiating with outside manufacturers for the opening of the clay industry. There is a fine plot of ten or eleven acres that has hardly been touched.

The LaCrosse Brick Company has been incorporated at LaCrosse, Wis., to manufacture a new process brick invented by Ernest J. Wege, of LaCrosse, who will be president and general manager. Glazed, enameled brick and tile will be manufactured.

The Stephenson Training and Agricultural School at Marinette, Wis., founded by United States Senator Isaac Stephenson, of Wisconsin, has established a course in drain-laying. Two new machines have been purchased.

A. BADGER.

A TEST OF A TERRA COTTA TILE COLUMN.



SEEMS RATHER peculiar that in the tremendous development of concrete for factory building construction that so little attention has been given to the possibilities of other masonry materials for the same purpose.

Hotels, warehouses, apartments and other buildings of similar type have been successfully and economically erected with the use of tile and brick alone, or in combination with concrete or steel; but apparently there has been little done in the way of factory building in these materials.

In this connection it is interesting to note the data which have been presented to the engineering profession by the National Fireproofing Company, Chicago, relative to floors, walls and roof construction, and more recently on column construction, demonstrating the availability of terra cotta tile, both hollow and solid, for this purpose.

The Julin warehouse is a Chicago building which has proved a complete success in the use of columns built of almost solid terra cotta tile without reinforcement, the web of the blocks being exceedingly heavy and the hollow spaces being comparatively small.

The most interesting data on this subject, however, are embodied in the test which was recently made by R. W. Hunt & Co. on a column of solid terra cotta tile, built by and tested for the National Fireproofing Company in Chicago, the test being made at the Phoenix Iron Works, Phoenixville, Pa.

As the official report of Robert W. Hunt & Co. gives the most complete information regarding the construction of this column and the history and results of the test, it is here given substantially in full.

This column was built of special shaped, hard burned terra cotta tile, laid with $\frac{1}{4}$ -inch Portland cement mortar joints, and is reinforced by $6\frac{3}{8}$ -inch twisted steel rods. The special shaped tile consisted of two concentric rings, the inner one being composed of three tile and the outer of seven tile. The reinforcing rods are in the joints between the inner and outer rings. One of the accompanying illustrations shows a cross-section of the columns.

The column is $21\frac{3}{4}$ inches diameter and 21 feet $9\frac{1}{2}$ inches high. Through its center there is a $2\frac{7}{8}$ -inch opening. The thickness of the tile is approximately $2\frac{1}{4}$ inches and there are 106 courses of tile in the column. The mortar in the horizontal joints is one part Owl Portland cement, one part torpedo sand and one part fine sand. In the first seven courses of the column the mortar in the vertical joints is one part Owl Portland cement and three parts torpedo sand. In all the vertical joints of the remaining courses the mortar is the same as in the horizontal joints, except the joints between the tile in the outside ring, where from 7 to 10 per cent. plaster of paris was added to the mortar. This plaster of paris was added in order to make a stiff and quick-setting mortar. In the outside layer of tile there is a 1-inch groove, $\frac{1}{4}$ -inch deep, and in this groove on each course there was placed a round ring of 3-16-inch wire, 16-inch diameter.

The weights of the material entering into the construction of the columns are as follows:

	Pounds.
Fine sand	424
Torpedo sand	520
Cement	440
Plaster of paris.....	30
Reinforcing rods and rings.....	106
Terra cotta tile.....	6,296

Total approximate weight..... 7,816

About 20 per cent., by weight, of water was added to the sand and cement in making the Portland cement mortar.

Samples of all the materials used were taken, and tests were made as in Table 1:

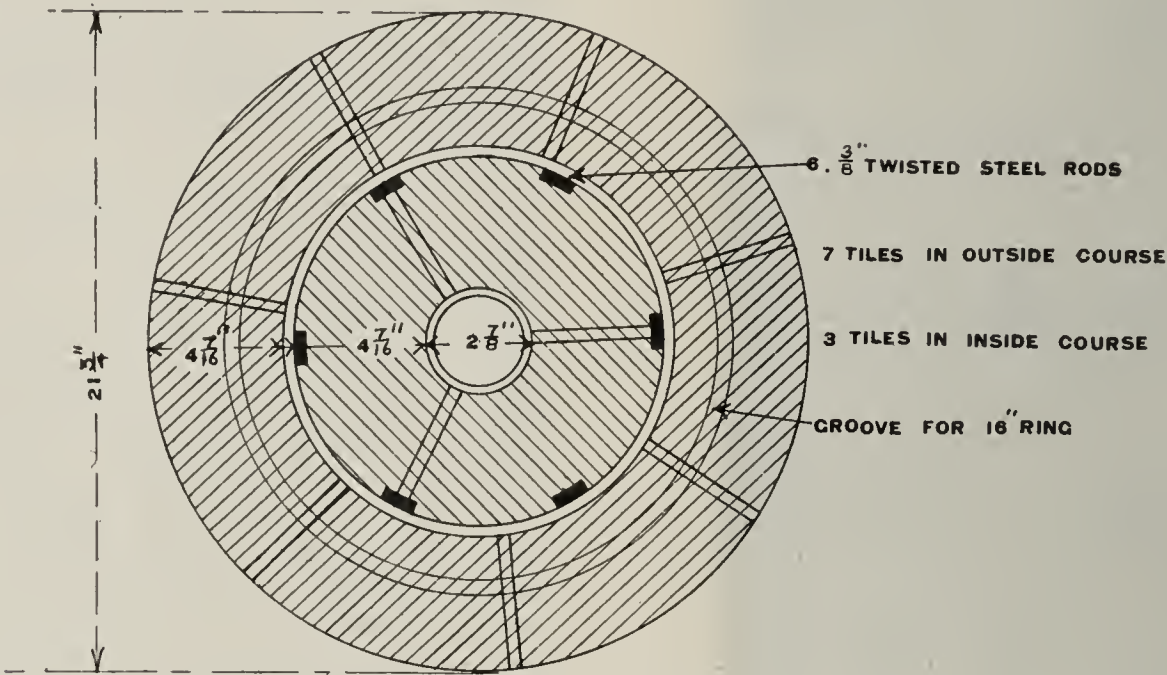
Table 1—Specifications of Tile Columns.

STEEL.			
Twisted Steel Rods:	No. 1	No. 2	No. 3—Bend
	$\frac{3}{8}$ -in.	$\frac{3}{8}$ -in.	$\frac{3}{8}$ -in.
Specimens cut from.....	sq. rods	sq. rods	sq. rods
Original dimensions	0.382	0.380	0.380
Dimensions after fracture.....	0.240	0.245	
Original area, square inch.....	0.115	0.113	
Fractured area, square inch.....	0.045	0.047	
Elastic limit, pounds, actual.....	8210	7620	
Maximum load, pounds, actual....	10660	10680	One piece bent
Elongation in 8 inches.....	0.84	0.80	180 deg. flat
Elastic limit per square inch.....	71390	67430	without signs
Tensile strength per square inch..	92690	96100	of fracture.
Per cent. elongation in 8 inches...	11.05	11.	
Per cent. reduction of area.....	60.8	58.3	
Weld			
Test (pulled across weld)			
Wire Ring:	No. 1	No. 2	
Specimens cut from hoop of 16 inches diameter			
Original dimensions	0.190	0.190	0.190
Dimensions after fracture.....	0.136	0.134	
Original area, square inch.....	0.028	0.028	0.028
Fractured area, square inch.....	0.014	0.014	
Elastic limit, pounds, actual.....	1370	1450	
Maximum load, pounds, actual....	2540	2420	1600
Elongation in 8 inches.....	0.13	0.12	

The column was finished August 18, 1908, and was shipped to Phoenixville, Pa., on an ordinary flat car the early part of November. The column arrived at Phoenixville in good condition, and was tested there on November 10, 1908.

In making adjustment of the heads of the machine a small piece 2 inches square and $\frac{1}{8}$ -inch thick was knocked off of one of the tiles at the top of the column. After taking care to secure a uniform bearing of the heads of the machine upon the ends of column the load was applied, with the following results:

Time.	Load, pounds	Compression, inches
2:10 p. m.	00000	0.000
	50,000	.000
	100,000	.002
	150,000	.008
	200,000	.015
	250,000	.021
	300,000	.027
	350,000	.033
	400,000	.040
	450,000	.048
	500,000	.057
	550,000	.065
	600,000	.075
	650,000	.085
	700,000	.093
	750,000	.100
2:19 p. m.	800,000	.110
Stopped 10 minutes for examination.		



Cross Section of Tile Column.

Elastic limit per square inch.....	48900	51780		2:29 p. m.	800,000	0.119
Tensile strength per square inch..	90710	86420	57100		850,000	.125
Per cent. elongation in 8 inches...	10.1	10.1			900,000	.133
Per cent. reduction of area.....	50.	50.	Broke		950,000	.142
Character of fracture.....	silky	silky	in weld		1,000,000	.152
	2-3 cup	2-3 cup			1,050,000	.161

TILE—HALF TILES TESTED

		Thickness	Area	Crushing load		Load lb.	Kind
No.	Mark	inches	sq. in.	Actual lb.	per sq. inch		
1	"1"	2.26	17.21	205,960	11,967		Inside
2	"2"	2.25	15.40	154,510	10,003		Outside
3	"2-2"	2.16	16.24	164,030	10,100		Inside
4	"1-4"	2.06	16.21	200,000	12,338		Outside

FULL SIZE TILE TESTED

1	"1"	2.16"	33.09	300,000*	9,066	Outside
2	"1"	2.17	34.03	300,000*	8,812	Inside

*Capacity of machine. Tiles did not crush, but cracked slightly.

CEMENT

Boiling O. K.

Fineness on 100-mesh sieve.....	94.22%
Fineness on 200-mesh sieve.....	75.32%

TENSILE STRENGTH—LB. PER SQ. IN.

24 hr.	7 day	28 day	24 hr.	7 day	28 day
Neat	Neat	Neat	1-2	1-2	1-2
270	654	735	85	288	320
245	640	712	95	261	336

% Voids on fine sand	47
% Voids on torpedo sand	34

The accompanying curves are the loads on the columns and the compression under them. Inasmuch as the cross-

section of the column is 365,051 square inches, the total load applied per square inch of section was 4,109 pounds.

When the load upon the column reached 1,500,000 pounds the load was rapidly released and readings were taken at intervals, as shown in above table. The final compression after the load was taken off was only 0.006-inch in 19 feet. An examination was then made of the columns, and it was found to be unharmed.

At a point 6 feet 4 inches from top end of the column a slight scale, at points on the opposite side of the column, had fallen from three different tile. One of these was less than $\frac{1}{2}$ -inch diameter, the other about $\frac{1}{2}$ -inch, and the other nearly $\frac{3}{4}$ -inch diameter. These were merely the glazing off the outside of the tile and were less than 1-32-inch in thickness. There was absolutely no sign of failure in the tile themselves, nor in the joint adjoining.

The column was then taken out of the testing machine and reshipped to Chicago.

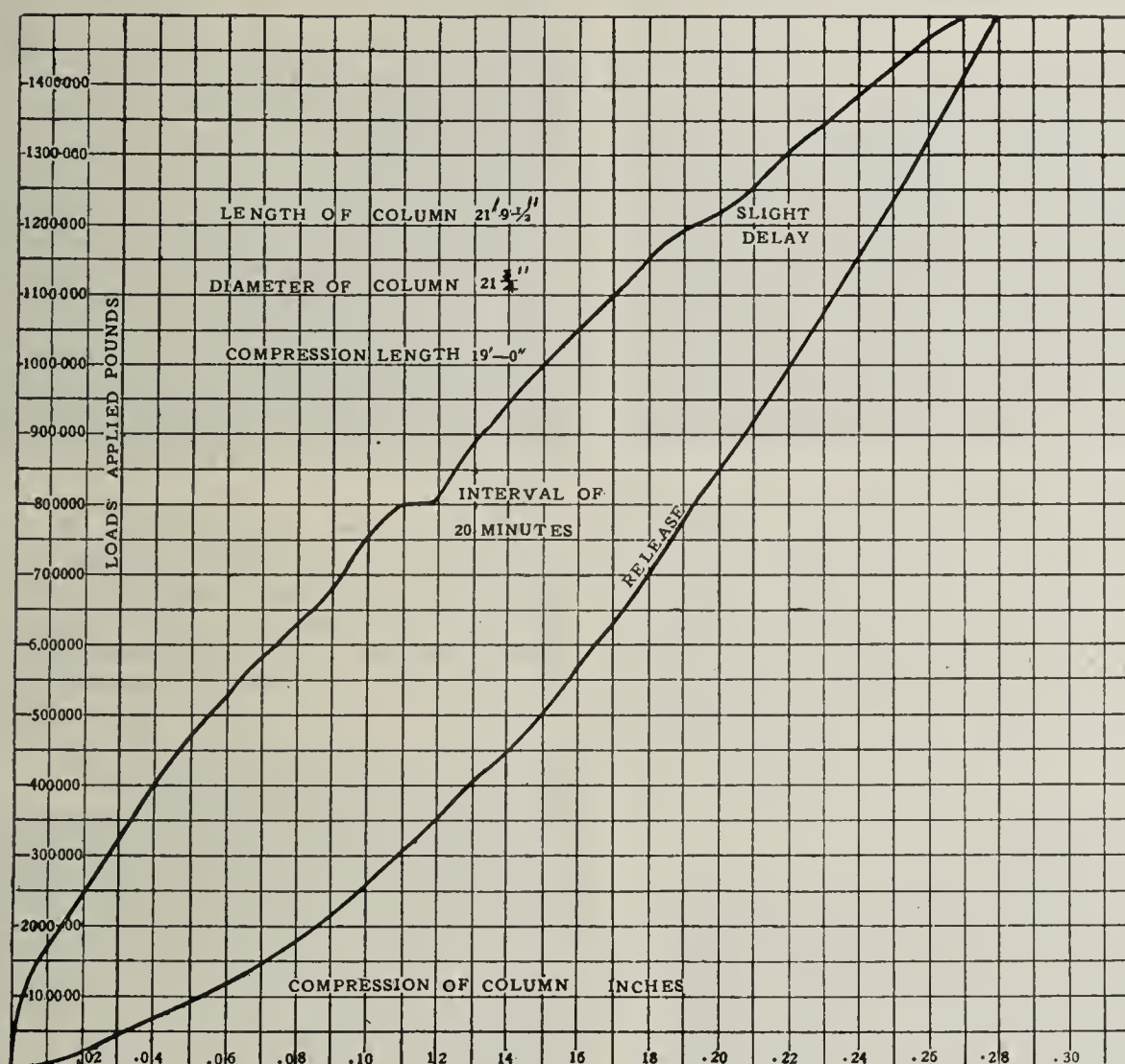
The witnesses of the test were: L. V. Rice and F. D.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



LOCAL BUILDING activities have increased considerably in the last two months, the permits for March totaling \$3,141,958, and for April, \$2,827,054, in comparison with \$2,296,209 for February. The amount of brick work under contract shows considerable increase, and with very favorable weather conditions since the end of February, rapid progress has been made on all the buildings under construction. With the approach of the summer season, much more work is being started in the suburbs, as well as the towns in the interior of the state. Aside from municipal work, comparatively few contracts have been closed in the last few weeks for large buildings in San Francisco, and at the present prices of land and firm rates on money, there is not much inducement for putting up business structures. The western part of the burned district, however, is beginning to build up rapidly, and the



Load Diagram on Reinforced Terra Cotta Tile Column Tested by Robert W. Hunt & Co.

Lewis, for Robert W. Hunt & Co.; D. J. Gainor, engineer of tests, Poenix Iron Works; John C. McMynn; John Arrington, engineer, and E. V. Johnson, vice-president of the National Fireproofing Company.

This test shows the great strength of terra cotta tile used for structural purposes and particularly as used in this column.

It will be observed from this report that this column carried a load of 4,109 pounds per square inch of net section without reaching the elastic limit of the material.—Industrial Engineering.

"A penny saved is a penny earned." One way for clay-workers to save is to sell discarded machinery and appliances, instead of allowing them to rust and decay in fence corners. Either house and preserve such machinery, or sell it to some one who can make good use of it. There are many such who can be reached through the "For Sale" columns of THE CLAY-WORKER.

major portion of this work is of a class which requires large quantities of brick. Van Ness avenue is almost deserted by business houses now, and many of the temporary buildings there are being torn down. It is believed that this street will be built up within a few years with large apartment and family hotel buildings, which, according to the present regulations, must be of fireproof construction. While local land values are believed to be greatly inflated, dealers in building materials feel that a readjustment is coming about in this respect, and with money becoming more plentiful all over the country they consider that by the middle of summer much greater inducements will be offered to prospective builders than at present.

A great deal of new sewer work has come up in the last few weeks, and several large contracts have been let both in San Francisco and the outside towns, while a number of other projects are now awaiting the disposal of bond issues. The local work is taking large quantities of both sewer pipe and vitrified brick, the latter being used to line the larger concrete mains. Business in face brick and architectural

terra cotta is of only moderate proportions, and some of the manufacturers see little encouragement in the situation, though the summer's requirements are sure to be fairly large. The common brick situation remains fairly satisfactory, and the price is firmly held at \$9.00 per thousand on cars or wharf in this city. Several of the plants around the bay have started up in the last few weeks, and the output at present is larger than for many months past. While no definite figures are obtainable, it is probable that the present production is larger than for over a year. Little difficulty, however, is found by most plants in disposing of their product, and only a few have any large accumulation on hand. A large number of the manufacturers have made arrangements in advance for the disposal of most of the season's output, and while there is no definite agreement and the market is not controlled by any one firm, all the manufacturers are determined to hold out for about the present quotations. A good deal of second-hand brick is still offered, but the only large lot is from the ruins of the City Hall, and aside from this it is now impossible to secure quantities of any importance, the small piles being scattered among the different holders in all parts of the city.

The Carquinez Brick and Tile Company is keeping very busy, and finds considerable difficulty in taking care of orders for immediate delivery. It has been impossible to accumulate any stock at the yards during the winter run. Good progress is being made on the addition to the plant, a new dryer being nearly complete. A new steam shovel has also been put in operation, and as soon as a new kiln can be constructed the capacity will be increased to about 100,000 a day.

The Patent Brick Company started up its plant about a week ago, and will run on common brick through the summer at least, as an improving market is expected within the next three or four months. A number of orders were taken last month, and all of the old stock on hand has been disposed of.

The Pacific Clay Works and the Vallejo Brick and Tile Company, with plants located at Vallejo, Cal., and offices in the Santa Marina building in San Francisco, were consolidated recently, under the name of the Vallejo Brick and Tile Consolidated; F. W. Beardslee, president, and Samuel Hubbard, Jr., secretary. The company is at present devoting most of its attention to paving brick. It has a large deposit of fine clay, well adapted to the manufacture of paving brick, red face brick and ornamental pottery or terra cotta, and its paving brick have stood up decidedly well under the usual tests. A contract has been taken for about 600,000 paving brick for three new piers in San Francisco, to be laid in the driveways where the teaming will be too heavy for asphaltum. The plant is now only about half completed, but has been running for several weeks with an output of about 40,000 a day, and the first delivery was made this week for Pier 40. The price asked for these brick is about \$25.00 per thousand.

This contract is worthy of some attention as the first demand of any consequence for paving brick in San Francisco or vicinity, and it is to be hoped that more business in this line will develop from this beginning. A look at some of the streets of this city should convince anyone that brick are badly needed. The property owners on the better streets, such as Market, are unwilling to use the unsightly basalt blocks adapted to heavy teaming, while the bituminous rock laid only a year or two ago appears utterly incapable of sustaining the traffic, even with constant repairs.

The Great Western Brick Company started up its common brick plant about three weeks ago, and is now working at full capacity. All the old stock was sold off early in the spring, and the present output is sold as fast as it can be shipped.

The contract for three large brick buildings for the U. S. Navy Hospital at Bremerton, Wash., has been awarded to W. N. Concannon & Co., of San Francisco, for \$143,971. The work is to be completed in fifteen months.

The Corona Pressed Brick and Terra Cotta Company, of Corona, Cal., have secured a contract from the city of San Diego, Cal., for 100,000 feet of vitrified sewer pipe.

The Western Brick Company's plant at Richmond, Cal.,

has installed a lot of new machinery and started up for the season about the first of the month.

Gladding, McBean & Co. have let the contract for the erection of their new two-story warehouse on Mission street.

The Corona Pressed Brick and Terra Cotta Company, of Corona, Cal., has made a considerable addition to its fine brick machinery, and has enlarged the storage capacity of the sewer pipe department.

M. A. Murphy, of the Carnegie Brick Company, one of the largest producers of face brick in the state, says: "I do not look for anything big in the building line this year. There are too many big buildings in San Francisco already for the size of the city. There is a great deal of sewer work on hand, both here and in the smaller towns, but building is not rushing."

The Southwest Brick Company has taken over the plant and business of the Independent Brick Company at Inglewood, Cal. A. F. Andres, the president, and A. Rosenfeld, the secretary of the new company, have opened offices in Los Angeles. The plant started in April for a nine months' run.

A rather sensational story appeared in the San Francisco papers recently to the effect that the common brick manufacturers had combined to form a "trust" and maintain prices at an abnormal figure, putting the control of the combine in the hands of Gray Bros., of the San Francisco Brick Company. About the only fact underlying the story seems to be that Gray Bros. have secured the selling agency for several of the kilns around the bay, and are getting the regular market values for the product. The price is by no means abnormal, giving merely a fair profit to the plants which are favorably situated and have good transportation facilities. The market is not, and in fact can not be, controlled by any one firm, as several of the largest factories in the vicinity of San Francisco are marketing their own output without difficulty, and some less favorably situated are still idle, being unable to make a profit at the present prices in this city.

B. W. Dennis, of the Holmes Lime Company, says: "The common brick manufacturers expect a very prosperous year. Prices are well maintained at \$9.00 per thousand, f. o. b. wharf, San Francisco. A great many Class C buildings are being figured on at the present time, and there is also a large amount of municipal work in prospect which will consume many million brick. The lime market is in a more prosperous condition than for two years past, and dealers are securing satisfactory prices."

The E. B. McNear Brick Company, which has a plant at McNear's Point, on San Francisco Bay, and whose product is handled by the Holmes Lime Company, has completed a large Hoffman kiln, which will give it a capacity of 75,000 brick per day. The company has also built another barge for the transportation of the brick to the Holmes yards in San Francisco. This gives the company three barges, with a capacity of 150,000 brick each, and a gasoline tug for handling the same, which is about the finest transportation equipment in the bay section.

The Ione Fire Brick Company, of Ione, Cal., represented in San Francisco by the Holmes Lime Company, has finished the extension work which has been going on during the winter and started the first of May on the manufacture of fire brick. Between May and December the plant will turn out about 2,500,000 fire brick, and has contracts now on hand for about half this amount. The company is making a brick which is most suitable for gas company work, and it has been adopted by a number of smelters, oil refineries and power companies around the bay.

Things have been a little quiet at the big pottery works of Gladding, McBean & Co., at Lincoln, Cal., during the winter, but the plant is now busier than for several months, and a good many employes have been put to work again in the last few weeks. The company has a number of good-sized contracts on hand, and it is expected that the plant will soon be running at full capacity.

The Pyrmont Brick Company, which has a large clay bed near Lincoln, Cal., is now shipping considerable clay to factories around San Francisco. The company has also disposed of quite a lot of brick which had been held over from last year. The plant is now in charge of H. N. Pratt.

San Francisco, Cal.

SUNSET.

Written for THE CLAY-WORKER.

AT VIRGINIA'S CAPITAL.

Busy Times for Those Engaged in the Building Trades at Richmond.

PERHAPS IT would be overstating it to say that a building boom is on at Richmond, Va., but it is true that Richmond is holding her own industrially and her builders will be kept busy during the coming season, as they have for a number of years. A local authority claims that this old southern capital is an example of almost unparalleled manufacturing development, and declares that this is "The logical sequence of natural conditions, reinforced by the

the building brickyard of W. Benjamin Davis. Originally, this was a hand yard, but in February, 1907, an equipment of stiff mud machinery was put in and a King radiated heat, six-tunnel dryer and a King up-draft, calorific kiln was installed under the supervision of Mr. Joseph W. Holt, an experienced brick manufacturer, to whom the proprietor, Mr. Davis, gives the credit for the successful operation of the plant. Mr. Davis is a brick builder and contractor and devotes his time to that work, leaving the management of the brick plant almost wholly to Mr. Holt. In the fall of 1908 it was decided that the clay was better adapted to the soft mud process and so a change was made, the stiff mud machinery being replaced with a soft mud machine and the necessary auxiliary appliances, including some 220 rack pal-



Snapshot of Mr. Davis and His Superintendent.



The King Up-Draft Kilns.



The Davis Brick Works Office.



General View of the Davis Plant.

energy, enterprise and business sagacity of its people. These natural conditions are a magnificent water power, direct railroad connection with inexhaustible coal mines, insuring cheap fuel, an empire of raw material to draw from, and a practically limitless territory to supply with manufactured products."

The same authority declares that there are employed in manufacturing enterprises in Richmond more men, women and children, in proportion to its size, than any other place in the United States save one. The city certainly has grown rapidly of recent years, and the result has been a demand for brick that has kept the local plants running to their full capacity.

A number of brick plants are located in the suburb of Manchester, and one of the oldest and largest of these is

let cars and 15,00 steel pallets, which were furnished by the King Engineering Company.

At the beginning of the present season, the drying tunnels were increased to ten in number and improvements made in the construction of same, which gives a largely increased daily capacity. Mr. Davis speaks in very complimentary terms of the good work done by the King Engineering Company in overhauling and enlarging the dryer, and has given that company an order for two new kilns and will rebuild the old ones, adding Mr. King's improvements as the work on the yard will permit. At the time of our visit, when the accompanying pictures were taken, the soft mud machine was turning out an average of over 50,000 brick per day. The superintendent was especially pleased with the operation of the New Champion brick mold-sanding machine, in-

stalled by the Cohoes Iron Foundry and Machine Company, Cohoes, N. Y.

For some years past Mr. Davis has been operating another plant in Richmond, but recently sold same to Cheatwood & Blunt, who will operate the plant as it is for the present season, after which they contemplate making changes that will give them an increased capacity. Mr. Blunt was the superintendent of the plant for Mr. Davis, and now that he has become a part owner will keep the plant going to its capacity, 30,000 a day. The yard is equipped with American Clay Machinery Company's soft mud press, mold sander, etc. The brick are dried by rack and pallet system and burned in ordinary up-draft kilns.

Neighboring Plants.

But little more than a stone's throw from Mr. Davis's Manchester plant is the brickyard of the G. E. Redford estate. This plant has been operated as a hand-molding yard under the direction of Mr. N. C. Redford, as manager. They are now installing a full line of Martin machinery and a Martin steam dryer, and hope to have same in full operation before long.

There are several other hand yards in the vicinity, all of

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE TWIN CITIES AND THE NORTHWEST.



OTWITHSTANDING the fact that the spring has been late this year, the building season has developed in a way that is encouraging, and it is already evident that the present season will be one of the largest in the way of building totals that the Northwest has experienced. The results of the recent financial stringency have been numerous; the most noticeable and certainly the most salutary has been the more conservative attitude of the general public. People are much more careful in making their investments, and it is but fair to assume that no work will be started except such as good business judgment indicates will be necessary and advisable. This will mean that there will be less of the reckless expenditure in new structures which characterized the work of two seasons back, and all work undertaken will be such as will form a fair indication of the business situation in this section. Last season was largely one of residence building, and while it



Panoramic View of W. Benjamin Davis Plant, Richmond, Va., Showing King Dryer and Kilns.

which will be operated during the ensuing season, turning out common red building brick.

As stated, Mr. Davis devotes his time almost exclusively to contract work and has a number of important jobs now under way, the largest and most important of which is the building of an immense armory for one of the local military organizations known as the Blues. This is one of the oldest military organizations in the country; it has had an active membership for more than 100 years. They are now to have a permanent home, a beautiful armory building built specially for them by the city, and, like most of the other large buildings of Richmond, it will be constructed almost exclusively of brick. The fact that Mr. Davis has the contract is a guarantee that it will be the best that good material and good workmanship can produce.

Burning of Fire Clay Products.—Fire clay products are usually burnt in ordinary continuous kilns. The kiln should be in first-class condition; the lining should be made of fire brick, otherwise the kiln will soon be ruined, as the temperature at which fire brick are burnt is very much higher than common brick heat. The temperature for burning fire brick ranges between Cone 11 and 14. The cost of burning fire brick at that temperature is from \$3.00 to \$3.50. —Tonind. Z., No. 12, 1909.

looks as though this class would keep up its record, the indication is that the heavy construction will exceed that of last year. Numerous new buildings of size have already been started, and a number more are projected and doubtless others will be started later in the year. Both Minneapolis and St. Paul are having quite a decided rush in the erection of hotels, notably the new million dollar palace in St. Paul and the Radisson Hotel in the mill city. There are also several others of smaller size being erected. Both cities have long been short of proper hotel accommodations, and the present activity is merely a rush in that line to catch up with the growth of the cities in other ways, and the action is undoubtedly well advised.

One of the largest building projects ever proposed in the Northwest has been delayed considerably by the action of the citizens of St. Paul in an endeavor to prevent Armour & Co. constructing the proposed packing plant north of Minneapolis. The matter was taken into the Legislature, but that body frowned heavily on any attempt to keep out so large an industry and rejected all bills tending to hamper the movement. Although the location would doubtless prove somewhat disagreeable to some portions of both cities, the chief animus of the objections seemed to be the natural but foolish jealousy which has always existed between the two

cities. The advantages which will accrue to the whole Northwest are so great that the objections put forth seem to be rather small in comparison. It is possible that the matter will be taken into the courts, which would hang up any action being taken this year, although it seems hardly likely that the erection of the plant will be prevented. Possibly a more serious result will be the hard feeling which the agitation has fostered, and which it will take years to overcome.

Minneapolis.

Two large office building additions will be erected in the grain market district of Minneapolis this summer. One is a twelve-story addition to the Chamber of Commerce, costing \$125,000. The other is the erection of seven additional stories to the Flour Exchange building, which is owned by W. H. Eustis. This work will cost about \$150,000. Both buildings will be of pressed brick.

Minneapolis Lodge of Elks have purchased a site on South Seventh street, on which it is proposed to erect a \$200,000

end of the month. The building will cost in the neighborhood of \$350,000.

Among the other new buildings for educational work in St. Paul this season, there will be \$300,000 worth in new buildings and improvements at St. Thomas College on plans by E. L. Masqueray, architect. This work has been made possible by the donation of Andrew Carnegie, together with others of smaller size.

C. H. Johnston, architect to the State Board of Control, is preparing plans for the new State Prison buildings to be erected at Stillwater. The total cost is estimated at \$2,282,000.

Northwestern Notes.

The Columbia Silica Company has established a sand-lime brick plant near Pardeeville, Wis.

John Moog, of St. Cloud, will establish a brick plant at Grand Rapids, Minn.

The Minneapolis Sand-Lime Brick Company has begun operations at University and Thirty-third avenue, Northeast.



Steam Shovel at the Clay Bank of the W. Benjamin Davis Brick Company.

lodge and club building. Zuhrah Temple, Mystic Shrine, has also purchased a site on Eighth street, with the intention of erecting a temple costing from \$200,000 to \$300,000.

It is announced that bids will be taken in July for the foundation of the new Post Office building. The structure will be 300x330 feet, two stories and basement. Plans are well along towards completion.

Among other fair-sized buildings in Minneapolis to be erected this season are five brick buildings costing \$100,000 for the Consumers' Malting Company, a \$75,000 brick building for the Chicago Bakery Company, and the addition of two stories to the Soo Line building, at a cost of \$50,000.

Minneapolis building permits for March were \$752,320, an increase of 82 per cent. St. Paul showed an increase of 108 per cent., being \$772,998.

St. Paul.

C. H. Johnston, architect, is preparing plans for the new West End High School, and they will be ready about the

W. C. Brix is president and Edw. Skahen secretary of the company.

H. Whiting, of Minneapolis, proposes to establish a pottery plant at New Ulm, Minn. He will capitalize at \$300,000.

A pressed brick plant may be established at West Duluth, Minn., by L. Merritt, of Duluth, and W. A. Whitney, of Superior.

E. Beutler will put in machinery at his plant at St. Augusta, Minn., for the manufacture of tile and hollow brick.

A brickmaking plant will be established at Feeley, Minn.

F. E. Wright has completed his new brick plant at West Concord, Minn.

The Morton (Minn.) Brickyard has filed articles of incorporation, with a capital of \$50,000. H. A. Sodegreen is president and J. A. Nelson secretary. The plant will be enlarged.

A tile plant at Pipestone, Minn., is proposed.

Dr. Fish has sold the brickyard at Aberdeen, S. Dak., to F. X. Carr.

T. WIN.

Burned Clay Versus Concrete Construction.

IF CONCRETE IS GOOD IT ISN'T CHEAP.
IF ITS CHEAP IT ISN'T GOOD.

Written for THE CLAY-WORKER.

REINFORCED CONCRETE BUILDINGS.

THE REINFORCED concrete craze that struck the country a few years ago seems to be subsiding. There have been collapsing of buildings and such other troubles as to convince engineers that the material, though theoretically very good, was altogether too uncertain a quantity for practical use. An expert in an article in May "McClures" tells us that the famous concrete piles in Baltimore Bay are rotting at the water's surface, and adds that "Concrete of the modern reinforced variety has been the cause of more bitter disappointment than any material we use." The "Architectural Record," that has generally been most favorable to reinforced concrete construction, editorially bemoans in the May number that "There are those who assume to be experts in reinforced concrete, but they are generally representatives of systems which are competing against each other;" and adds editorially, also, that concrete, according to the most reliable experts, is subject to surface disintegration, according to the intensity of the heat and its duration, and that if this can not be prevented the concrete in turn must be protected and that this can best be done with a hard-burned fire clay tile covering, and avers that experiments in actual fires have demonstrated that when these tiles are properly secured in place, so that they can not be thrown off, they are the best practical protection to the exposed surfaces of concrete construction.

It would seem that the layman had better steer clear of experimental concrete construction, and if he has anything to build use the old reliable brick and steel and fire-proof tile.

CONCRETE BRIDGE FAILURE AT PEORIA.

THE FIRST of May brought reports of the failure of a great concrete bridge at Peoria, Ill. The bridge proper cost \$150,000, but seemingly the bridge, together with the approaches, would total up to about \$200,000. Three arches of the bridge fell into the river and it now lies a mass of ruins. It was built by the Marsh Bridge Company, of Des Moines, Iowa, and all of the sum agreed upon has been paid to the contractors but \$25,000. Fortunately, at the time of the collapse of this bridge no one was on it, and the only damage done is the loss of property and money invested in the bridge. Had the collapse taken place sometime when the traffic was heavy, there would have been loss of life as well as loss of property.

As to the cause of failure in this, as in many other instances, there will probably always be more or less difference of opinion, and it might be found, too, as in other instances, that several factors contributed to the failure. F. R. Carter, of Peoria, in replying to a letter of inquiry as to the cause, says:

"I think the cause of the collapse was due mostly to the mistake of putting the piers on piling, instead of carrying them down to hard pan. The main piers to the draw are still standing all right. They went down to bed rock. Three arches went down and three piers are out of shape. There

is one arch standing on each side of the river with the draw and five piers. Three of the piers standing are to bed rock and the other two on piling.

"The pier on the east side of the river was built on piling. It settled and cracked the first arch. Then they went to work and built from the bottom of the pier to the rock with cement, taking out the piling."

It is admitted even by concrete people that an absolutely firm foundation is essential to successful concrete work. In other words, it probably requires a more stable foundation for concrete construction than any other kind. It has great weight and when there is giving away of any of the parts of the foundation the weight of the concrete structure produces cracks, and when once it has cracked there is no remedy. If it is a steel structure it might settle



One of the Piers of the Collapsed Concrete Bridge.

and strain a little, and can be jacked up and made firm again. If it is brick it can be repaired, both in the foundation and in the structure, but if it is concrete, when from any cause there is settling and cracks, it is done for. All this but emphasizes again the uncertainties of concrete and its unreliability as a thing to depend upon.

There is seldom a concrete failure but that it is excused on the ground that this precaution or that precaution was not taken, or this was faulty or that was faulty, or something was not done properly. Therefore, it follows that to insure any fair degree of safety or dependence with concrete construction it must be safeguarded in every manner; nothing left undone that should be done. In fact, it requires more precautionary measures than are commonly practiced. Otherwise faults are liable to develop. All of which brings us back again to the point that has been reiterated time and time again, that there is too large an element of uncertainty about concrete construction, and to safeguard it in this respect calls for precautions that render it extremely expensive, which brings us again to the slogan that if it is cheap it is not good, and if it is good it is not cheap. It

has its place in the world and its mission to fill, but when it branches out into the field of steel and clay products beyond certain limited uses it becomes, in many instances, the most expensive form of building that could be undertaken. This is one instance of it, its use in this bridge at Peoria, because the builders are out an immense sum of money and have nothing for it but a mass of wreckage. It matters not just where they discover the fault, nor how it is pointed out if this had been done or that had been done it would not have happened, the fact remains that it is an expensive experiment that will not likely be tried again by the same people.

EXPERIMENTS TO TEST STRENGTH OF REINFORCED CONCRETE.

The resistance to failure by shear and diagonal tension and the effectiveness of metallic web reinforcement are discussed in Bulletin No. 29, Tests of Reinforced Concrete



A Portion of the Remains of the Collapsed Bridge.



One of the Wrecked Piers of Peoria's New \$200,000 Concrete Bridge.

Beams; Resistance to Web Stresses, by Arthur N. Talbot, just issued by the Engineering Experiment Station of the University of Illinois. This bulletin of eighty-five pages gives the results of tests made in the Laboratory of Applied Mechanics of the university. The strength and quality of the concrete itself are shown to have a marked effect on web resistance, and the importance of securing a high grade of concrete in beams subject to large web stresses, even if metallic web reinforcement is used, is brought out strongly. Data is given on which to base the age necessary to enable concrete to take shearing stresses. It is established that the less the ratio of length of span to depth of beam the greater the shearing resistance developed per unit of cross-section, and also that the greater the amount of longitudinal reinforcement the greater the shearing resistance. Both

effects depend upon added stiffness, a relation which has not been formulated before. Several types of web reinforcement were investigated—bent-up longitudinal bars of different forms, unit frames, vertical stirrups of different sizes and proportions, smooth and deformed bars, etc. The notes and discussions given add to the value of the matter for those who wish to study the details of the tests. The analytical treatment of web stresses, the discussion of the experiments, and the remarks on proportioning stirrups may all be helpful to engineers. Although a considerable fund of information bearing on the part taken by the resistance of longitudinal reinforcement and the compressive resistance of concrete has accumulated, the data of web stresses are less definite and less complete. This monograph is therefore timely, and it ought to take rank as an important contribution to the literature of reinforced concrete.

Copies may be obtained gratis upon application to L. P. Breckenridge, director Engineering Experiment Station, Urbana, Ill.

FIRE-RESISTING PROPERTIES OF VARIOUS BUILDING MATERIALS.

Tests by Geological Survey.

The United States Geological Survey has undertaken to make a series of comprehensive tests for the purpose of determining the fire-resisting properties and rates of heat conductivity of various building materials and the comparative efficiency of different methods of fireproofing, the investigations having the further object of lessening the liability of loss by fire in Government buildings and reducing their cost through more efficient methods of construction.

As a preliminary part of this series, tests of thirty panels constructed of various building materials were made by the Survey at the Underwriters' Laboratories, Chicago, to determine the effect of fire and subsequent quenching with water on mortar building blocks made of river and slag sands; common, hydraulic-pressed, and sand-lime brick; gravel, cinder limestone, and granite concrete; glazed building and partition terra cotta tile; and limestone, sandstone, granite, and marble building stone. The mortar building blocks and the concrete were made in the structural materials testing laboratories of the Survey; the other materials, except some of the common brick, were obtained in the open market at Chicago, Ill.

The materials were subjected to the direct application of heat for five hours and were then, except in five panels, immediately quenched with water. Wherever possible tests were made to determine the compressive strength of the materials after this treatment. Temperatures were observed at intervals, and the behavior of the materials during the test and the condition of their surfaces before and after the heating and quenching were noted. Photographs of the panels were taken to show the effect of the tests.

The tests of the different materials were carried on under conditions as nearly identical as possible, but there was some unavoidable variation in the conditions. The furnace was in almost constant use by the Underwriters' Laboratories, and it was necessary to arrange the tests so as not to interfere with the regular work of those laboratories. It was also necessary to make half of the tests in winter and the other half in summer, and many of the building blocks used in the first tests were subjected to freezing weather just prior to testing. The results of the tests are presented in a report by Richard L. Humphrey, which the Geological Survey has just published as Bulletin 370. Although the tests were conducted primarily for the purpose of obtaining information essential to the Government, it is believed that the results will prove to be of much importance to the general public. Heretofore fire tests of building materials have

been made at random, and scarcely any two tests have been comparable. The results of the Survey tests are not critically analyzed in the bulletin, although a few of the more important features are pointed out. They are presented merely as preliminary data regarding the relative fire-resistive qualities of the building materials tested.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



THE SUPPLY of building brick in the city of Toledo at the present time is lower than it has been for a great many years. Careful estimates made by local brick men show that there are on hand not to exceed a million and a half of building brick in the city, and some place they estimate as low as a million. This condition has been brought about by the fact that last year was an unusually dull season in the building brick business and five out of nine local yards were closed down during the entire summer, while the remaining four yards manufactured on a limited scale. Stocks were permitted to run down to almost nothing, as prices at that time were so ridiculously low, being only \$4.50 per thousand, and the demand was so limited even at those figures that there was little object in making brick at all. While this season thus far has not brought a heavy call for building brick, there is, nevertheless, a very marked improvement over last year's business, and the prospects point toward a reasonably good consumption before the season is closed. The low supply in the city, together with the increased demand, has had the effect of raising prices and kiln run are now selling at about \$7.00, with select grades running as high as \$7.50 net. The higher price level has also led to more extended operations and nearly all of the yards are busy at the present time in some degree, while some of them are apparently quite busy.

Paving block industries are finding a fair call for their product, and there is at present a large amount of street paving well under way in various municipalities in this section. The supply is not abnormally large and prices are well maintained. Sewer plants and other clayworking establishments are beginning to show improvement, and there is every reason for hoping that the year's business, taken as a whole, will yet strike a very fair average.

The city of Lyons, Ohio, will have a handsome pressed brick school building ready for occupancy by September, to take the place of the old building erected in 1886. A number of Toledo parties are interested in the job. F. E. Walker, of Toledo, was the architect, and V. M. Gettins, also of this city, was given the contract for the building at \$14,647.85.

John B. Streicher, one of the leading contractors and oldest resident of Toledo, died recently from liver trouble at St. Vincent's Hospital, where he had undergone an operation. He was born at Duerbach, Alsace, in 1828, and settled at Toledo in 1845. For many years he was recognized as a leading contractor in this territory, and many of the paved streets of Toledo, as well as many of its most important buildings were the result of his work. He was a member of the Toledo Pioneer Association and of several German societies. He leaves a widow, two sons and a daughter. He was eighty years old at the time of his death. His will, which has been filed for probate, leaves numerous liberal bequests to churches and charities. After meeting these bequests, his estate is valued at about \$75,000.

A. Bentley & Sons were recently awarded the contract for the new six-story Nearing block to be erected at Summit and Adams streets, in place of the large structure which was destroyed by fire some time ago. The structure, which is to be 120x114 feet, will be of reinforced concrete, but will require a large number of brick in its construction. The

work of excavating for the basement has been completed and the building will soon be well under way.

Edwin L. Houck, of Springfield, Ohio, recently died at his home in that city. Mr. Houck was eighty years old and for fifty years had been a brick manufacturer. He is survived by four children.

The city of Lima, Ohio, is coming to the front with an unusually large amount of street paving this season. Contracts were recently awarded for paving thirteen streets, involving an expenditure of \$425,000, and thirteen additional streets will be contracted for in the near future. The city's share alone will be \$105,000, bonds for which will be sold later.

T. O. D.

Written for THE CLAY-WORKER.

A COMBINATION PAVING BRICK AND CURB.

A. B. Lea, County Engineer for Cuyahoga County, of which Cleveland, Ohio, is the seat, has invented a combination paving brick and curb which is to be used in the build-



A. B. Lea, Engineer Cuyahoga County, Cleveland.

ing of the splendid roadways which radiate from the city out into the rural districts.

The brick, or vitrified tile, is to be used at the side of the roadways. It is 15 inches high, 7 inches wide at the base, and tapers to a width of 4 inches at the top. It will be made in 2-foot lengths. The center is a space, being about 2 inches wide and 4 inches high. In this space the water is expected to accumulate and drain away. The joints will not be closely closed, but left in such a shape that the water may percolate into the tile.

Heretofore it has always been necessary to place a common drain tile parallel with the sides of each roadway to care for excessive moisture. This frequently became dislodged through frost or other causes and stopped up. Engineer Lea says he believes his new combination brick-tile will work well, and that it will be uniformly adopted.

The county is specifying this brick for several new pavements to be laid this year. It will be given thorough tests before being generally adopted.

Each 150 feet will be drained by one of the bricks having a 4-inch drain tile open from it into an adjoining ditch. All

corners of the brick-tile are rounded to prevent chipping. Several thousand are being turned out for the first job. Lea believes it is particularly adapted for use in paving country roads.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

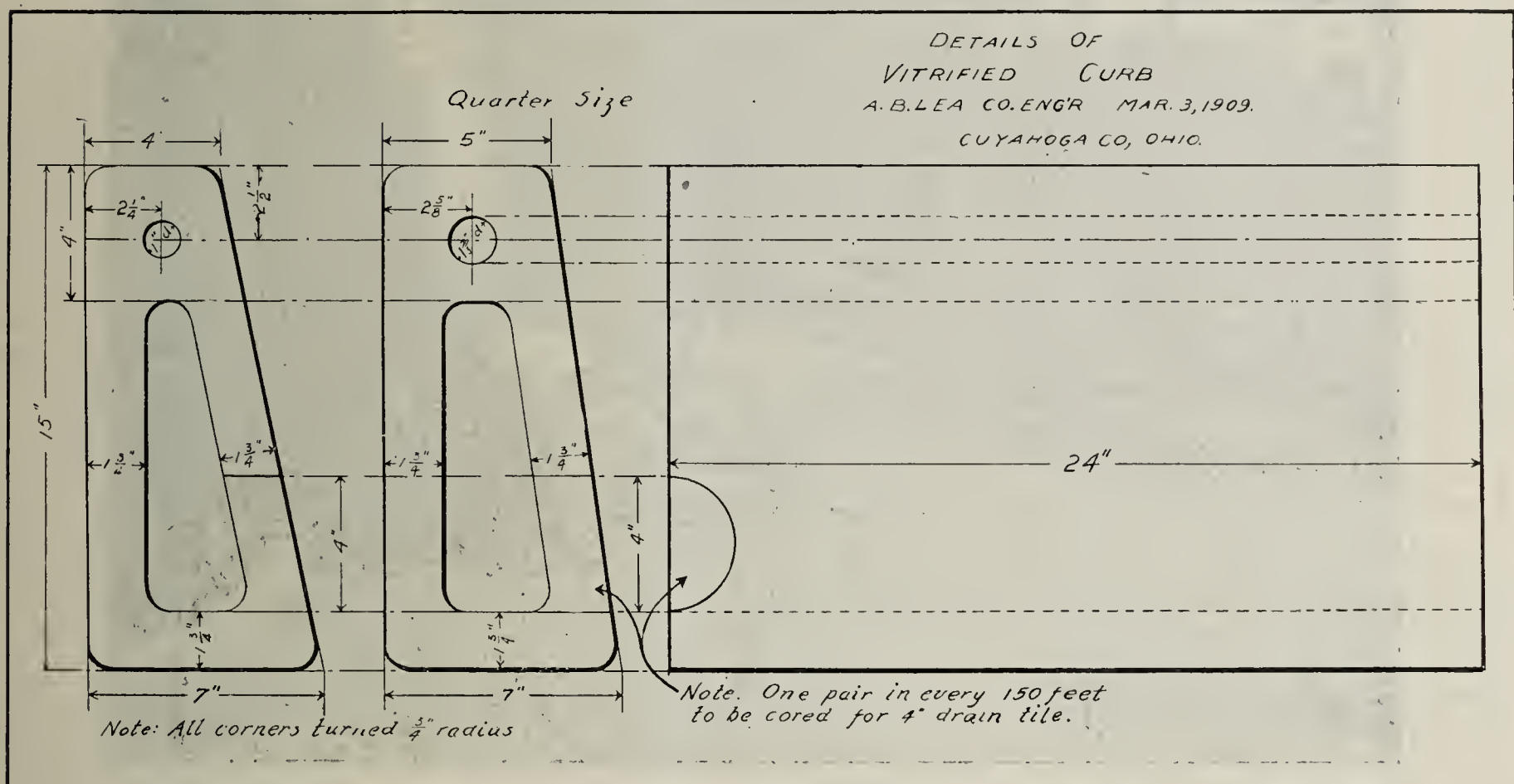
THE BUILDING permits for the city of Seattle in the month of April did not only exceed that of any previous April in the history of the city, but was nearly twice that of any other April. In fact, the records show that only during two months in the history of Seattle has the building exceeded that done during the past month. the total permits for the month were \$2,137,385, as against \$705,875 last year. This brisk building record has been a good thing for the brickyards around Seattle. Not anticipating such a large building activity, some of their yards sold their winter supply early in the spring to outside towns; especially Vancouver, B. C., took a large quantity, some three to four million. When the local demand became known

this last month, under the management of Mr. A. J. Dexter, who recently returned from California, where he regained his health. The yard has been closed down for two years, and with some new improvements the capacity of the plant will be greatly increased. The first kiln will hold 200,000 brick.

In all probability a brick company will be organized at Spalding, Idaho, for the manufacture of brick. J. H. Wann, of that city, owns the clay beds, from which some good brick samples have been made.

The Far West Clay Company, of Clay City, has started to build their new down-draft kilns for the burning of hollow block and partition tiles. F. W. Eastman, the manager of the firm, states that the outlook is very good for his new product, and that the different tests of their clay bed have proven very satisfactory.

The Denny-Renton Clay Co. are again enlarging their Renton paving plant. Being alone in the field in that line, the demand has been far greater than their output, and in order to take care of their large trade, they will double their brick capacity at once. They secured a large sewer



there was a shortage of common brick in Seattle, and prices which had been down and low for nearly a year went boosting over night. Common brick, which was selling this spring for \$7.00, sells today for \$8.50. The supply is very low, and many a building is delayed on account of the shortage. Looking at the point of supply and demand, it is certain that the local yards are unable to take care of the market. The total capacity of all yards combined is not more than 300,000 brick per day, and the demand is easily 500,000 per day.

Seattle is not the only place where the demand is larger than the supply; Tacoma, Everett, North Yakima and other western Washington cities have the same trouble. In order to complete the new big freight sheds of the Great Northern Railroad in Tacoma, it was necessary to rush brick from all parts of western Washington to Tacoma in special trains, and the large amount of brick necessary for this work did cripple the city supplies. With this increased demand for common brick, the establishing of new yards should be looked upon as good investments.

The Dexter brickyards of Dayton were reopened again

pipe contract of some twelve miles in Port Townsend, and they are now shipping the different pipe on this job by scow from Seattle.

The Northern Clay Company, of Auburn, has secured some large terra cotta work in Helena, Mont. They have completed their new terra cotta kiln, and business is very brisk at present.

The Red Rock Brick Company was recently organized in Tacoma for the purpose of manufacturing common brick. Mr. John B. Champlain is the main interested party.

The Kettle Falls Brick Company has again started operation, and Herman Zapel has taken the management of the plant.

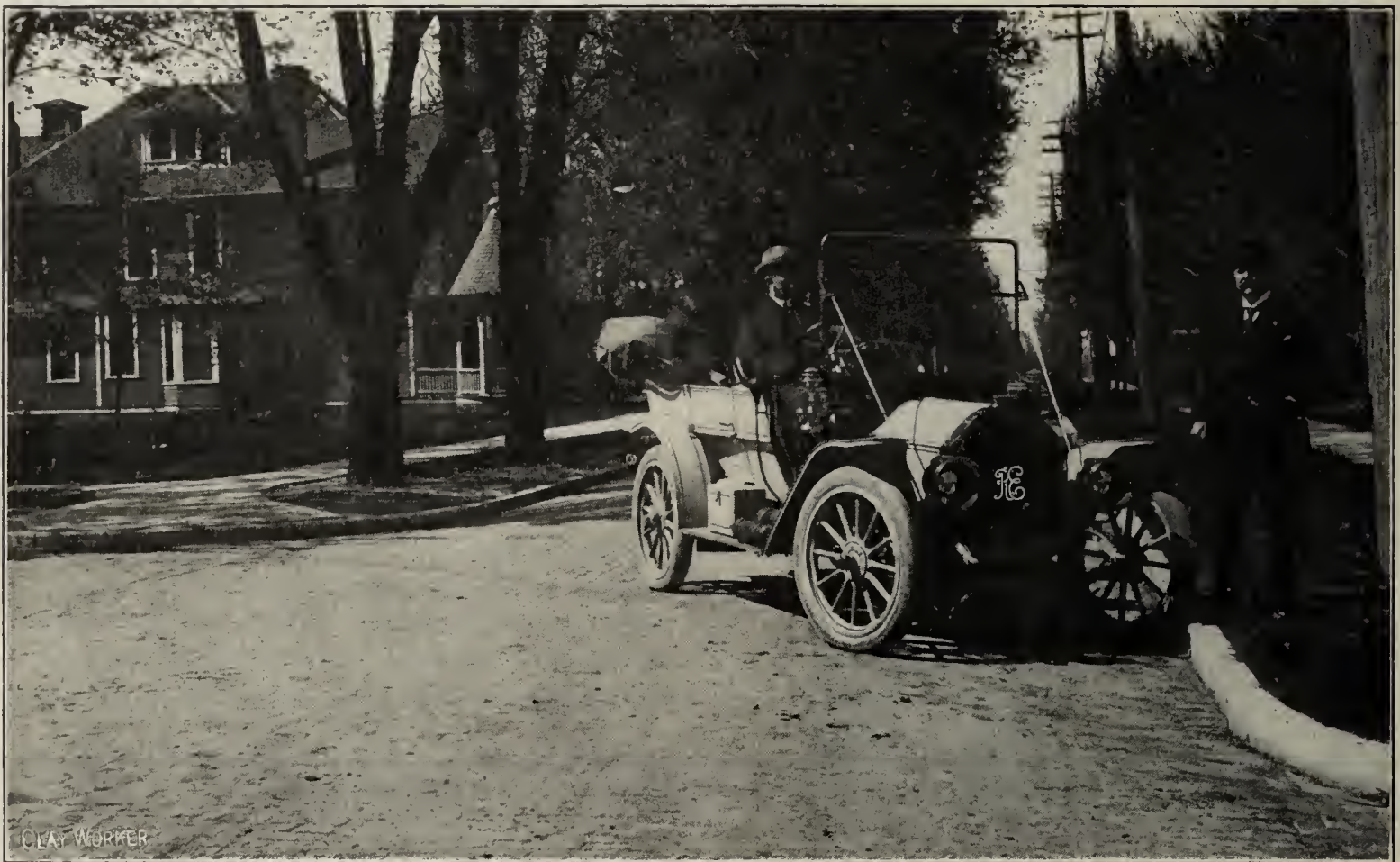
Seattle, Wash., May 4, 1909.

Joseph Belle-Isle has signed a ten-year lease of the Dinan brickyard, north of Fishkill Landing, N. Y. For some time it had been operated by Clayton C. Bourne, of Newburgh. There are six machines on the yard, and Mr. Belle-Isle will place a foreman from Roseton in charge. The yard is owned by the Verplanck Brick Company.

BRICK ROADS FOR THE AUTOMOBILE.

A CORRESPONDENT in Cleveland, Ohio, commenting on our recent editorial, "The Highway and the Automobile," calls attention to the fact that there are a great many brick roads being laid in the territory adjacent to Cleveland, and asks our opinion as to their practical value. As far as the automobile is concerned, there is no question but that a properly constructed brick road affords an excellent surface, in respect of the smoothness of running, the tractive adhesion of the tires, and the limited amount of tire wear and destruction. It is certainly superior to the concrete road as ordinarily laid. Those who have driven their machines at high speed over the Motor Parkway, Long Island, complain bitterly of both the roughness and the inequalities due to the hollows of the surface, the former producing a rapid wear of the tires, and the latter serving to set up, at anything but very moderate speed, excessive vibration. This was so marked at the last Vanderbilt Cup

cushioning effect between the concrete and the brick, and also permits of the necessary adjustment of level to bring the upper face of the bricks to the true surface. A state road of this character, built with a proper amount of crown for drainage, should be good for many years of service, and would require but little repairs, except in such sections as are subjected to heavy wagon and dray traffic carried on steel-tired wheels. Heavy concentrated wheel loads would tend to fracture the hard face of the bricks; and unless the bricks were at once replaced, the ceaseless hammering of traffic would quickly produce a low spot in the road. Even where traffic is heavy, however, we believe that, as in the case of a macadam road, immediate repairs, made at the first indication of a breakdown, would serve to give the road, as a whole, a long period of life. A good combination for a state highway would be to build it of macadam with a tarred surface in the suburbs and vicinity of towns and cities, and build it of brick through the country districts. Although the first cost would be heavy, the saving in repairs (that is, if the supervision were close and constant) and



A Fine Brick Paved Roadway, Robert Elliott's Elegant Auto, An Expert Driver (Mr. Elliott Himself), Make a Combination All to the Good.

Race that several drivers were quoted as saying that there was a marked increase of speed in the car when they left the concrete surface for the ordinary macadam.

The smooth face of the brick is less destructive of tires than the file-like roughness of the ordinary concrete surface. Moreover, it is possible to lay the brick with a truer surface than is secured by the ordinary contractor's gang engaged in laying a concrete surface. To true up the surface of a continuous bed of concrete with the exactitude which is necessary to give a smoothly riding surface for high speed or even moderate speed automobile travel, is a job calling for no little nicety of workmanship.

Provided the brick be of high quality and the foundations of sufficient depth and thoroughly laid, the brick road forms an ideal automobile highway. The foundation should consist of large broken rock, followed by smaller stone or a good quality of gravel, and a layer of concrete. Upon this should be a shallow bed of sand for surfacing purposes, upon which the brick should be laid and carefully surfaced and grouted into place. The sand serves to give a slight

the enormous saving in the cost of haulage would, in the course of a very few years, constitute such roads a paying, and in many localities a richly paying investment.—Scientific American.

TIME EXPIRATION DOES NOT DESTROY VALUE OF CONTRACTS IF YOU INSIST ON PARTY CONTINUING AFTER TIME EXPIRED.

According to a decision of the Supreme Court of Arkansas, which was just handed down in the case of Stiewel vs. Lally and others, it appears that if you have a contract with a party to do certain things with a specified time, and if you encourage him to continue his efforts after the time has expired, your encouragement will act as a renewal of the contract in so far as it binds you. The words of the decision are: "A party to a contract limiting the time for performance, who induces the other party, after the expiration of the time, to continue in the performance, can not withhold the fruits of the contract."

Written for THE CLAY-WORKER.

AIR UNDER PRESSURE AS COMPARED WITH NATURAL DRAFT.*

THIS IS AN AGE when men in every avenue of business activity are seeking in the most impartial manner after new improved methods and ways of doing things which will not only shorten the process of manufacture, not only reduce the cost, but better the product as well.

The fact that brickmakers have always adopted and made use of the various improvements which were invented and applied in the art of manufacturing brick which would bring out the foregoing, simplified, cheapening methods, has placed them in the foremost ranks as business men, and under the circumstances, being conscious of this fact, I therefore keenly feel the responsibility of coming into your midst to dare to present to such a body of men ideas on brick burning, and it was only at the most urgent solicitation on the part of your Executive Committee and Secretary, that I finally consented to prepare a few ideas on the subject matter and present them to you for consideration.

If you will bear with me, I would like first to present to you a few fundamental principles which bear on the value of brick as a building material. Brickmakers have learned to make brick well; they are able to make use of every imaginable kind of clay and make first-class good brick of it, but it sometimes seems to me that the very men who understand the skillful art of manufacturing brick do not possess a knowledge of the thorough worth and value of their product, after it is manufactured.

What I desire to convey is the absurdity of the claims of nine-tenths of the building public, that the foundation of a building must, of necessity, be made of concrete or rock, or material of this nature. The public seems to have an idea that this material represents a factor of carrying heavy loads without giving away, or weakening the foundation of the building, and no more gigantic mistake was ever made on the part of any builder when this idea is adhered to.

Brick contain a positive, non-destructive, purifying, cleansing factor. This purifying factor is entirely absent in any other material of whatever character or kind you may employ, and I have witnessed innumerable instances when prospective builders learned of the art and the principles involved, that they were much gratified and expressed their appreciation in the highest measure.

Take for example two buildings; the basement, or foundation, of one is made of concrete or stone, the other is built of the old reliable and only building material—brick. It will not be long after the two buildings are completed you will find the basement in the building made of concrete or stone, the air will be damp, musty and impure, and the tendency of this impure air is to penetrate every nook and corner of the building, for its action is upward, consequently, in the extreme, detrimental to good health. On careful inspection you will find, on the other hand, the air conditions in the basement built of brick are entirely reversed and different results forever follow. This air in the brick basement will be sweet, clean and pure.

This same cleansing and purifying quality naturally asserts itself throughout the entire building, and one need not wonder at this phenomenon for the reason that God, by direct intent, so constituted and formed the ingredients of clay, that, when manufactured into brick and properly burned, they will contain these inherent and valuable qualities. This not only establishes a principle after which brickmakers are seeking, but it gives the brickmaker proper credit for his ware, and hence increased sales.

Therefore, concrete, cement or stone for building walls of any description, in any kind of building in which pure air is essential, is purely an absurdity.

Now as to the principle of properly burning these brick, I assume naturally interests every brickmaker who manifests sufficient interest to come here to participate in the deliberations of this association. I have been requested to write

and present a paper on the art of burning brick, using air under pressure, which involves the Boss System.

Before we proceed further, permit me to make the statement that the burning of good brick does not happen by chance, but, to the contrary, it is merely following out an inherent, natural law, and when this God-given Law is adhered to, it will always result in order, harmony and a perfect product.

Brickmakers in the early period of this invention could not conceive why it should make any difference whether air was used under pressure or whether free air was used, which would be natural draft. Allow me to present the reason, or argument, in favor of using air under pressure.

To illustrate: There is not a brickmaker in my hearing who will not have to concede that a green brick kiln to which is applied the old style fires, utterly lacks the power and ability to produce the proper kind of fire with which to execute and set in active motion the water-smoking process, which the brick are in need of at this stage, and it is impossible, under the most favorable circumstances, to produce a water-smoking fire that is penetrating and keen, until the kiln is nearly water-smoked and begins to assume form and raise the heat. Even then the fire conditions are of a lax and dilatory nature and character. In other words, a green brick kiln is not in need of fire to drive off, or liberate, the dampness or water-smoke in the kiln, but to the contrary it is in need of an abundant supply of dry, superheated air. When using the Boss System with air under pressure, immediately when fire is started in your kiln it is at once sharp, clean, keen and penetrating, and the smallest minute fire can be maintained, which will be equally sharp and penetrating, and, to your surprise, you will find that the finer the coal and the more it assumes the form and shape of slack, the better it is fitted to produce a good, water-smoking fire.

Your state and the territory contiguous bears an enviable reputation for producing high-class pressed brick, which in all instances are very tender and easily damaged in the water-smoking period. The fire produced with air under pressure is most admirably adapted for the water-smoking of this sensitive product.

As before stated, a brick kiln in the early stages while it is being water-smoked, is not so much in need of fire as it is in need of dry, superheated air.

Consequently, with the Boss System we so arrange to secure an adequate fire as to size and intensity to produce a given amount of heat and then allow free air from the outside to mix with and temper this heat, which provides an effective water-smoking condition. You will find that a brick kiln can be effectively water-smoked by this application in from twelve to twenty-four hours less time than you can the old way.

Immediately when the water-smoking process is completed, your brick kiln is then not in need of superheated air, but a fire application is necessary; the free air from the outside is cut off, all the fire doors being kept entirely closed, the kiln made air-tight, so far as free air from the outside is concerned, and air under pressure only is from now on to its completion employed. In this manner, the elements have absolutely no control over, or effect on, your brick kiln whatsoever. The wind may blow a heavy gale continuously from start to finish against one side of your kiln and no possible disturbance takes place on the inside.

This brings us to the real principle of burning brick. Few brickmakers have the proper conception of why it is possible at all to burn brick, and I shall attempt to make this as plain as possible in the following language:

Brick, or rather clay in brick form, contains a capillary attraction, and were it not for this capillary attraction it would not be possible to burn brick. This capillary attraction is very keen and quick. The first brick attacked will become filled with heat and will, in turn, convey the heat to the next one adjoining, and so on until the heat has circulated through the entire mass of brick to be burned. So much for the capillary attraction of brick.

Now as to the heat conditions in a brick kiln, and why the heat should not be disturbed, or why the heat should be forced to travel in an unbroken wave until the entire

*Paper read before the Illinois Clay Manufacturers' Association, January, 1909.

kiln is burned. When a brick kiln under fire passes the red heat period, a wave of white heat is established in your kiln. This wave of heat is the all-important factor. This is the avenue through which the brick obtains its color, its power of endurance, its solidity, its very life-giving quality, and when this wave of heat is once dissipated, as in a large per cent. is, by the very nature of itself, done by the old process, it is never again possible to re-establish this same wave of heat on the original basis, so that it will contain such wonderful execution and produce such a wonderful brick burning effect as if the first original heat wave were maintained without its being disturbed.

The man in charge of a brick kiln makes a failure, the proprietor is displeased, and a very urgent request on the part of the man in charge is made for better fuel. Poor fuel is blamed for the poor burn, when, as a matter of fact, the fuel had absolutely nothing to do with the problem whatever. It was this heat wave principle, and this heat wave, important as it is, is little understood by brick burners. This heat wave, when properly conducted throughout the kiln, is conveyed from one layer of brick to the next, under a very heavy pressure. Consequently, it is necessary that the brick kiln be not too wide, so that the brick burner possesses the power and ability to control and carry this heat wave in an unbroken chain from its inception, or beginning, until the completion of the burn.

This heat wave is, for the most part, mysterious in its action, mysterious in its origin, mysterious as to the manner in which it executes its work. It is usually not to exceed 3 feet thick, and considerable ingenuity is required to compel it to travel on an even basis throughout the kiln to completion. It is only within the body of the heat wave that the actual brick burning effect takes place, and the greatest intensity of the heat lies directly in the center of this heat wave zone. The brick burning heat is not so intense below this heat wave in an up-draft kiln, and above the heat wave in a down-draft kiln. Beyond the common annealing process, which, for the most part, takes place near and after the close of the burning, there is no chemical or fire change of any consequence takes place within the brick after this heat wave has passed through it.

This brings us directly in contact with another principle, which, for convenience sake, we will call a heat-producing principle. Few brick burners understand this principle, why it is possible to raise heat in a brick kiln, and here we come in direct contact again with this heat wave. By far the greatest per cent. of heat that is produced within the kiln is not had from the fuel which is consumed, but, to the contrary, comes from a God-given quality which the clay contains, which can only be brought out and developed through the instrumentality of this heat wave.

Singular as it may seem, the inherent qualities in clay do not begin to produce heat or burn themselves out until this heat wave phenomenon strikes the brick. Then a peculiar, chemical, heat-producing change takes place.

The heat wave is traveling through the kiln, fed, nursed, governed and balanced from an artificial source, and as this heat wave attacks the unburned clay an additional quality of brick burning heat intensity is produced. If this heat wave is forced to travel through the brick kiln in an unbroken chain, very little fire is required to maintain it, but if for any reason this heat wave is dissipated and permitted to become disturbed, it will not only be at the peril and loss of an otherwise first-class good kiln of brick, but it will involve the impossibility of burning this same brick kiln so good and with so little fuel as though the heat wave had been maintained in its natural form, and if the kiln is burned at all the process will be entirely mechanical and at an enormous additional fuel cost because of the fact that the only burning element then had access to is through artificial avenues, and the brick in a kiln thus completed will not contain the luster, life, resiliency and power of endurance as when the heat wave had been maintained throughout the entire process of burning.

After explaining this heat wave condition, it must be plain to you that a brick kiln that is being fed from natural draft sources, by means of which the air enters into the kiln from the outside and exposes the kiln to the elements

and wind conditions, that the amount of air entering into the kiln is never constant and always changing, and that on one side or the other of the kiln the air is entering in such a manner as to tend to disturb this heat wave; whereas, with the Boss System, using air under pressure, this disturbance is entirely eliminated by means of which the air is furnished to the kiln in a known quantity, always constant and never interrupted. The side where the wind is not blowing is getting the same amount of air, or oxygen, as the side of the kiln against which the wind is blowing.

This all-important heat wave carries with it another powerful factor, which, on account of a lack of proper knowledge of its action, brickmakers seldom know, or realize, why the brick in the bottom of an up-draft kiln become overburned and ruined before the top is properly burned. To illustrate:

We will assume that the heat wave is properly maintained and carried through the kiln in an uninterrupted manner until it reaches the top. It is never necessary to injure or ruin the bottom part of a kiln in order to accomplish a successful burn clear to the top. The protection of the bottom of the kiln does not come merely by chance, but is due to an inherent quality which all clays possess, that when the bottom brick are properly burned they will acquire, or assume, no destructive change as a means of carrying the brick burning heat to the top of the kiln.

I firmly contend that it is not necessary to overburn and ruin the bottom in order to burn the brick in the top of the kiln, and I further contend that the only time destruction in a brick kiln takes place is in a brick kiln where the heat wave has been dissipated and lost; and when brick are ruined in the bottom of a kiln it is accomplished, not by the natural brick burning elements, but by the unnatural.

Many of the gentlemen of this association being interested in the burning of high-class fire brick, it may not be out of place to have a word as to the application of this heat wave principle and how it applies in the burning of fire brick.

You are all aware of the additional heat intensity necessary for the burning of fire brick over that of the common ware, and by far the greatest enemy that a fire brick kiln has is the lack of proper control of this heat wave, for the reason that the inherent, heat-producing element in the fire clay is present only to a very small degree, and when it is burning out it must be nursed so carefully and the heat wave under no circumstances allowed to become dissipated.

It will therefore be plain to you that when you have access to a positive means of producing heat, which, at no period, is dependent on outside local conditions, and which, at the brick burner's command, will produce for your brick kiln any quantity and intensity of heat that the kiln requires, under positive governing power to maintain the heat wave, that a kiln thus equipped will not only burn your ware better, but for half the fuel cost; and the fire brick thus burned will, as in the common ware, possess a greater degree of tenacity and power of endurance.

Twenty or more years ago whitewash or the white sediment that appeared on so many brick walls and buildings was, by nearly all brickmakers and architects, thought to come from some inherent chemical or climatic condition, and I remember distinctly that years ago large sums of money were offered to anyone who would invent some way or application whereby this whitewash could be excluded or prevented on brick walls. From personal contact with first-class brick men and architects, it is plainly evident that the public at large does not yet fully understand the real fundamental reason why the whitewash appears on brick and how it can be permanently prevented.

There are two distinct sources from which this whitewash, or effervescence, is had, and, strange to say, the effect in each instance is almost identical. The first factor of trouble is occasioned by too hasty water-smoking in the early stages. Brick, however, that are ruined from the source as indicated, will show the whitewash and discoloration immediately before they are laid in the wall, in fact before they are taken from the kiln; but there is a second feature of this discoloration almost identical in appearance and action as the first, which is derived from an entirely different source, and I have known the most beautiful terra cotta and brick walls absolutely ruined by the last effect, which is hereby described.

To illustrate: We will assume that the brick or clay ware was properly water-smoked and the heat production in the early firing of the kiln was perfect, yet it is possible to take this material out of the kiln, place it into a wall, and at certain seasons of the year it will show this dis-

coloration or whitewash effect, and when, from this latter cause the discoloration will appear and disappear periodically, I am firmly convinced that this latter effect is had from the material not being burned as hard as it should be; the material may be burned hard enough to withstand the elements, never give way from thawing and freezing, but after careful inspection and investigation I am firmly convinced that the most elaborate brick walls that were ever made in the world were ruined by being under-burned, and had this same material been burned harder this discoloration would never appear; and, as a matter of proof, careful inspection of walls that are troubled with the whitewash will show conclusively that 95 per cent. of the trouble comes from underburned brick, whereas the walls that are permanently covered or discolored are made so by the original water-smoke dampness being scalded and burned permanently into the clay ware, so that in the end it is a very simple process for brickmakers to overcome this troublesome difficulty.

Just a word as to the application; that is, a little description as to fire box conditions. You will, of course, understand that the Boss System of burning applies to down-

from the fire box to the kiln, and when these conditions occur the heat is held in and around the fire boxes and bag walls until they are absolutely ruined and destroyed.

With the Boss System of burning there is a constant given flow of oxygen entering into the fire boxes and brick kilns, thus making it absolutely impossible for the heat to congregate and hang in and around the fire boxes, with the result that injury from this source is not possible.

CERAMIC CLASS ENJOYS TOUR OF INSPECTION.

THE JUNIOR CLASS in Ceramic Engineering of Ohio State University visited the Cincinnati district May 5th and 6th. On arriving at Dayton at noon of the 5th, they were met at the depot by C. W. Raymond, Jr. Mr. Raymond escorted the class to the plant of the C. W. Raymond Clay Machinery Company. Here nearly the whole afternoon was spent studying the many types and kinds of clayworking machinery. Dismantling and assembling several of the more recent and complicated machines was one fea-



Junior Class in Ceramics Ohio State University, Photographed at the C. W. Raymond Company's Factory.

draft kilns of all descriptions as well as up-draft kilns. In applying this system of air under pressure to down-draft kilns, a kiln thus equipped will last an immeasurably longer period of time without any repairs necessary than by the old way, for the following reasons:

With the old way of burning, a brick kiln is constantly troubled with clinkers. The slag will form and melt on side of the fire boxes and in the bag walls, whereas, with the Boss System we do not have any clinkers, at least not sufficient to cause the usual wear and tear that is occasioned the old way. Fire boxes are never destroyed or ruined by the actual process of producing heat necessary to burn the ware, but, to the contrary, the great damage is done by reason of the abrasions which take place through the clinkers melting to the fire boxes and in removing them the fire boxes are gradually worn away until repairs are made necessary, and with the old process, after the brick kilns have been in use for a year or two, fire boxes are in almost constant need of repairs.

Another feature is that with the old way of burning the fire at times clogs up almost entirely, not admitting sufficient oxygen to permit of the carrying of the heat

ture of the provided entertainment. The office and technical staffs combined their efforts in explaining details in mechanism. As mechanism was then being studied in the classroom from a theoretical standpoint, this feature of the "Raymond" entertainment was distinctly appreciated. To all members of the class the large variety and extensive outlay in machinery manufactured was a surprise.

After a hurried trip through the plants of the National Cash Register Company, the afternoon stay in Dayton was concluded by a visit at the Oakwood Pottery. At this plant, flower pots and garden urns are manufactured; first, by throwing; second, by giggering, and third, by pressing.

As the genial superintendent of the Rookwood Pottery had agreed to meet the class in Cincinnati that evening, the class had to leave Dayton in the early evening.

On arrival at Cincinnati, the class went direct to the Palace Hotel, where they made good use of their first opportunity to remove the dust and dirt that insisted on leaving Columbus and Dayton with them. After another quick lunch the class met Mr. Burt in the hotel parlors.

Being tired and having only partially appeased their hunger, the members of the class would have constituted

a very unsatisfactory audience under most any other circumstance and with almost any other speaker. But Mr. Burt, after receiving and welcoming each student in a warm, hearty manner, so well entertained them in a conversational review of the history of the development of the Rookwood Pottery and of the several lines of art wares there produced, that they felt rested. It then required only an "owl lunch" to make them willing to seek their rooms.

Mr. Burt described the various stages of development of their art wares, starting back to the time when Mrs. Storer began her efforts to get out of the old and well-beaten paths in pottery decoration. Of particular interest was the fact that in all of this development, common materials and ordinary methods were employed. If Mr. Burt had selected a theme for his talk it could not have been better than "To make art ware it only needs the artist and the scientist to shape and blend the crude materials used in the manufacture of the common wares." So far as materials are concerned, the products of all potteries are technically equal, artistic and technical direction in the creation of the wares causing the essential distinction between the truly art wares and the strictly utility wares.

Mr. Burt gave the second part of his discussion of art pottery on the following morning. At this time the class met him at the Rookwood Pottery. Mr. Burt very patiently explained and exhibited all methods and machines used in the manufacture of this famous ware. After having seen all departments of this factory in operation and having had explained all the details that suggested themselves either to Mr. Burt or members of the visiting party, they left Mr. Burt with an awed but keen appreciation of what science, when joined hands with art, can do with the common ceramic materials.

A hurried visit was made at the Art Museum in Eden Park, where a considerable collection of pottery is to be seen. Mr. Gest, director, personally conducted the party. Mr. Burt had anticipated the visit to the museum by describing the chronological exhibit of Rookwood wares. Samples representing all stages of development, as well as the kinds of wares manufactured each year, are arranged so that the conception and growth of "Rookwood" is very strikingly shown.

After obtaining a quick lunch in the city, an interurban car was taken, bound for Covington, Ky. Here the large wall and floor tile plant of the Cambridge Tile Manufacturing Company was visited. The Messrs. Koch and Mr. Jones (assistant superintendent) did all within their power to exhibit and explain the methods used in making and marketing these wares. All departments of this large plant were open to inspection by the class. Here the class had opportunity to study the dry press method of manufacture. The care required in preparation of the "body" for dry pressing was demonstrated.

In the glaze department the class had opportunity to see glaze preparation, fritting of large batches of frit, glaze application, and variation of color effects by variation in method of application and color combinations. As many details of the working of this department were shown to the class as time permitted.

Later in the afternoon the now thoroughly tired class expressed desire to complete their program by visiting the brickworks of Mr. T. W. Spinks at Latonia, Ky. Although it was raining quite briskly, they stepped off as a unit to the fresh pace set by Mr. Chas. Koch and "Ted" Jones. After a half-hour "hike" through the freight yards, the interurban to Latonia was taken.

Mr. Spinks met the class at his plant. On breaking up into groups, the class scattered to all parts of the plant. The points of greatest interest were: (a) the continuous kiln; (b) gas producer; (c) Scott system of handling and drying the bricks; (d) vertical clay dryer, in which a portion of the clay is dried prior to passing through the rolls, and (e) method of mining the clay. Mr. Spinks gave the class such a profitable time that the members felt thoroughly repaid for braving the rain and forgetting their weariness.

The class remained with Mr. Spinks so late that it was a race to get back to Cincinnati in time to catch the 8:00 p. m. train for Columbus. Supper that night was like that of the other meals those two days—a very quick lunch.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



NEW JERSEY brick manufacturers have not been entirely free from labor disturbances. The employes of the Hanover Brick Company at Whippany went on strike for higher pay, but the McEwan Brothers, who own the company, refused to treat with the union and told the men they could return as individuals or not at all. The McEwans are prominent manufacturers, being interested in substantially all the business enterprises in Whippany, and they had the sentiment of the entire community with them. The matter was adjusted and the plants went into operation again after a comparatively short delay. The men got \$1.50 and \$1.35 per day, some in the clay beds and some as pickers. They demanded an increase of 10 to 15 cents a day, which was refused, and they were told they could return to work at those figures or their places would be filled. Most of them returned to work.

M. B. & L. B. Gardner, the progressive brick manufacturers of Hackensack, were the first to ship new brick to New York this season. They have developed their business very rapidly during the past few years, and are in position this year to take full advantage of the opportunities afforded by the improved conditions in business throughout the country. Their plant is modern in every particular and they turn out the best quality of product.

The Merhoff people at Little Ferry have begun operations with an enlarged force, and will have brick ready for shipment within a short time—before this is in print, probably.

An organization of real estate men has been formed in northern New Jersey to develop that part of the state. These men intend to make it plain to city dwellers that no better place to live exists than the northern part of this state. Consequently, they are arranging for a series of demonstrations which will convince those who are afforded an opportunity to take part. The idea is to utilize the entire northern part of the state for building purposes and make it a vast village, with beautiful homes surrounded by pleasant grounds, and otherwise attractive. The brickmaker who is fortunate enough to secure his share of the business in his line developed by this policy will appreciate what it means to have pastures and meadows transformed into villages and cities. The sale of brick will be greatly enhanced, and the property valuations will increase beyond all present expectations.

The craze for cement and artificial stone seems to have spent itself to some extent. Where two or three years ago there was a good deal of activity in these special departments, one hears little about them now. Some small plants are in operation, but their total turnout is too small, relatively, to attract much attention or exert much influence upon the building situation. This is gratifying to brick men, and the more so in that it has come about in what may be termed a perfectly natural way. The brick men have not made any particular demonstration against artificial stone and cement construction, but they have pointed out its failure wherever a convincing opportunity offered. This has had its effect, quiet, perhaps, but none the less decisive. In connection with this matter, Frank Eurich, Jr., a well-known architectural engineer of Jersey City, has spoken in no uncertain manner. He says:

"Artificial stone, cement, concrete and other materials of that character are too much in the nature of experiments to be accorded full appreciation by constructive engineers. The situation has not improved materially during the past few years, with the many failures to their credit. While one does not care to condemn them as altogether useless, still one must admit that they have not measured up to the responsibilities imposed upon them by the conditions under which they may have been used. It is suggested that important building operations better be intrusted to the same old reliable materials as formerly, at least until a longer series of tests under ordinary conditions has demonstrated as to the efficiency of these new combinations for structural work. There is no question about brick or any

other clay material. That has been used for ages and it doesn't fail under the severest tests. Even earthquakes fail to destroy brick buildings which are properly constructed, and time and weather have practically no effect upon them. It is wise, then, to stick to a known material which has never failed under test, and allow those who are curious to stand the onus of experimenting with something that may, and probably will, collapse, rather than to run any risk where a conservative structure is required.

It can be added to this that Mr. Eurich, who is doing wonderfully good work in the architectural field, especially in school houses, in nearly all instances recommends brick for his important buildings. He has worked out the best school plans that one cares to see, and in nearly all cases these plans have been drawn to conform to brick construction.

A. L. B.

THE NEW MEMBER OF THE RAYMOND FAMILY.

The C. W. Raymond Company, of Dayton, Ohio, has recently placed a new machine before the brickmaking public, which was fully demonstrated by practical use before being exploited on the market. The machine was christened the "888," placing it in the line of "Magic Figures" made famous by the Raymond Company.

The design is on the most improved mechanical lines

does not lack boasted reports in spite of the fact that the manufactured brick there are on an average very much poorer than manufactured in Germany, and the association does not seem to be able to bring about better results."—Die Kalksand Steinfabrikation, No. 4, 1909.

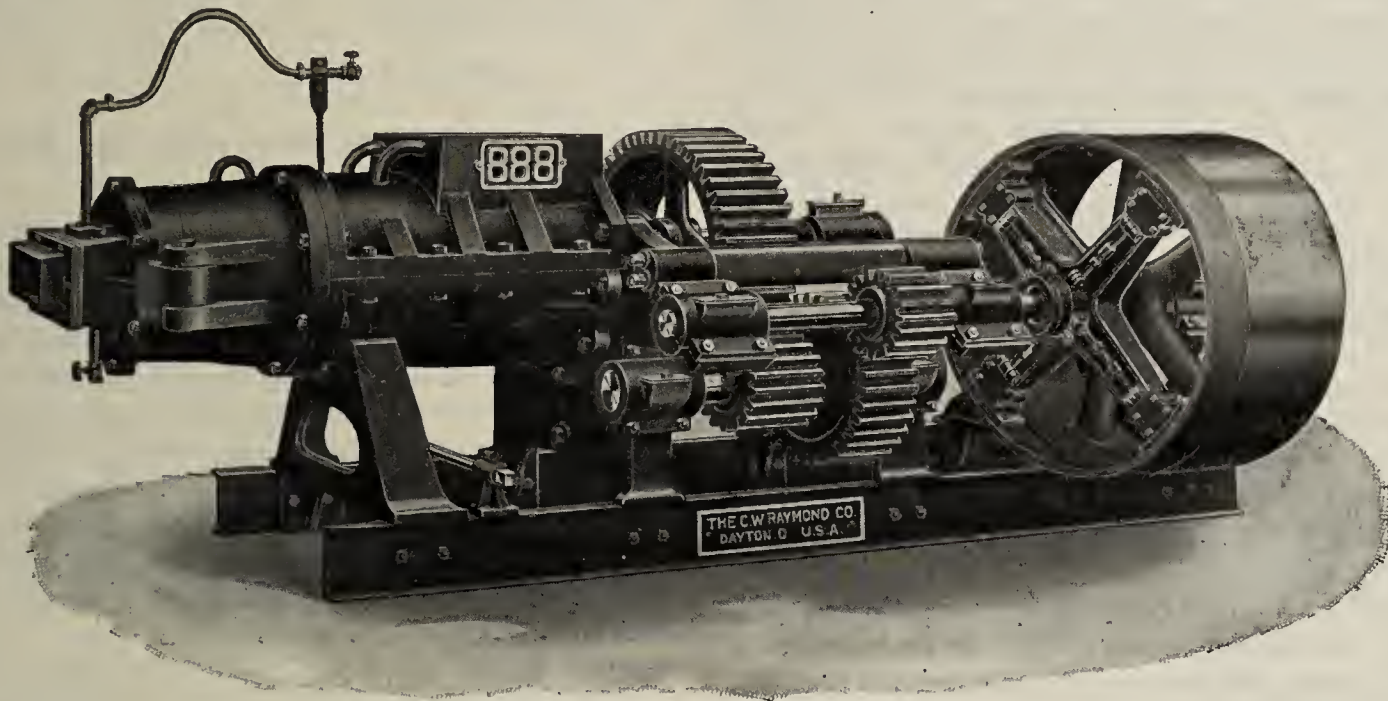
Written for THE CLAY-WORKER.

CLAYS IN FLORIDA.

THE VALUABLE deposits of clay that are found so widely distributed in northern and central Florida have, to the present time, received little use except in the manufacture of common building brick. They are, however, well suited to a variety of purposes, and some front and fire brick, red earthenware, tile and pottery have been produced.

The brickmaking industry of the state is most active near the large centers of population, where the demand for the product is good. About twenty-seven factories are in operation in thirteen counties. The factories are most numerous near the northern line of the state, because the clays are there most abundant.

In addition to the supply necessary to meet the home demand, considerable clay is mined in Florida and shipped to



C. W. Raymond Company's New "888" Brick Machine.

as well as those of grace, expressing many new ideas in brick machine construction. It is particularly arranged to overcome excessive lamination as well as embody great strength and durability.

Among the novel features is the interior construction in the nozzle and auger, by which an even flow of the clay column is secured and an equal distribution of the friction in the die.

Another point is the new design of thrust bearing, wherein the thrust pressure is divided so that it is not concentrated on one point, which assures a cool, easy-running bearing as frictionless as can be made.

Our illustration gives a good conception of the appearance of the machine. However, the Raymond Company have issued one of their exhibits explaining everything in detail, and with a fine large illustration. A copy of this exhibit may be obtained by dropping a postal to them at Dayton, Ohio.

German Expression of American Sand-Lime Brick.—In a report of the annual convention of the American Association of Sand-Lime Brick Manufacturers, held in Chicago last December, the small attendance of this meeting is very much criticized, and states that the interest in the association is not very great. Regarding the results of the manufactured brick, the German report states: "The convention

some of the Northern States, where it is sold under the name of ball clay and used for the manufacture of pottery. A plant for the manufacture of pottery from this clay, which is mined in Putnam and Lake counties, has recently been established at Jacksonville.

Practically all the clays which are now used for brick and tile manufacture in Florida burn to a bright red or yellow color at comparatively low temperatures. However, the products of some of the kilns show every gradation in color from light buff to nearly black, the variations being usually due to imperfect oxidation of the iron compounds present, the lighter colors resulting from burning at too low a temperature, and the darker from lack of sufficient air to furnish oxygen. When clays containing both lime and iron are properly burned a buff color may result.

Some brief notes on the geology of the Florida clays, by George C. Matson, of the United States Geological Survey, have just been published by the Survey in an advance chapter from Bulletin 380 (380-K), which forms Part I of "Contributions to Economic Geology, 1908." This chapter, which contains also lists of the Survey publications relating to clays, fuller's earth, lime and magnesite, gypsum and plasters, glass sand, abrasives, mineral paint and phosphates, will be sent free of charge to anyone making application to the director, United States Geological Survey, Washington, D. C.



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Hollow Block for Dwellings.

Editor THE CLAY-WORKER:

Enclosed please find check for \$2 for subscription for THE CLAY-WORKER for 1909.

I noticed in THE CLAY-WORKER some time ago an inquiry for information on building dwelling houses with hollow walls, brick on the outside and hollow blocks on the inside. I have been building houses in this way for a number of years, and they are all right, too. I know of no better wall or its equal for dwelling houses.

Last summer I built one for myself. The winds or blizzards have no terrors for the inmates. We are now putting up the "Times-Press" building in Bay City, the same way and of the same material. Will just whisper in your ear the cement man did not get in on this job, either.

Clio, Mich.

Yours truly,

THOS. OLIFF.

Chicago Situation.

Editor THE CLAY-WORKER:

A fine paving contract has just been let here in Chicago, and the letting of it is decidedly encouraging to those who have been trying to secure the general use of brick as a practical and desirable paving material.

This contract is for approximately twenty-four blocks of South State street, and has gone to the Union Paving Company, the low bidder, for \$2.12 a square yard. This will make the total cost of the improvement about \$195,000.

This is the first trunk line thoroughfare so near the central part of Chicago proper to have the use of brick as a paving material prescribed for it. Considerable work has been done along Commercial avenue, out in South Chicago, and two blocks of LaSalle street have been paved gratis by the Purington Company, but this is the first regular "job" that has gone to brick in a regular way. A large portion of West Sixty-third street has been paved with brick and several blocks on other streets and avenues out in that locality. The Purington Paving Brick Company had the contract for that work.

Building seems to be going along nicely, with a decided tendency toward larger construction than last year. Following the tremendous amount of flat building last year, there naturally will be considerably less this year, especially as flats are standing vacant all over the city. A large number of new downtown projects are under way and more are being talked of.

SCRIP.

Heard in New England.

Editor THE CLAY-WORKER:

The season for brickmaking is opening in New England with a good deal more indication of activity than last year. Last year was dull all through the six states, but the situation has improved perceptibly during the past few months, and is now more promising than it has been for a long time. The general business condition has been slower recovering normal activity here than almost anywhere else in the country, but according to good authority it is coming back in quite as liberal volume as it was before the business difficulty occurred.

Building operations in and about Boston will be good this

year. It is said that contracts already let will surpass those of last year by several fold, and there are more in sight which have not yet been placed. Several large structures are projected, but while the projects are known to be under way in a general way, so far nothing definite has been decided upon regarding them. Since the fire much construction has necessarily been done in Chelsea, but there is still much more to do and builders are planning to obtain a full share of the activity due to the calamity this season. The entire district will be virtually rebuilt before this season is finished.

In the price situation there are still some kinks, but the spring demand has been so good that it has been easy to dispose of the brick on hand, and now buyers are eagerly waiting for the new stock which will be coming before very long. Most holders are still rather indisposed to permit their stocks to go out without obtaining full prices, but in numerous instances large sales have been effected at a slight shading from asked quotations.

In western Massachusetts the plants are preparing for an active season. There is likely to be a big business in some lines of stock, though it might be said that the best demand will be for brick for building work. This will be as active as it ever has been. Last year practically all business development was suspended, but this year it is likely that capitalists and others will make up for what they didn't do a year ago.

HIRAM.

Nothing New Under the Sun.

DEAR MR. RANDALL:

The April CLAY-WORKER reached me by first mail this morning. I was very much amused to see the prominence given to what a contributor pleased to designate as "A new idea in brick work," known as the "Detroit Idea"—the same has been known to the building fraternity of this city for the past quarter of a century as scratch joint in brick work.

Some twenty-five years ago, when I had the contract for laying up the brick work of the St. Louis Exposition building on Olive, between 13th and 14th streets in this city, consisting of about 8,500,000 brick, I had occasion to go East; during the trip, in one of the cities I visited (I am not now able to say what city it was), I noticed a building in the front of which the brick were laid up in a style known as the "scratch joint," and this work made such a favorable impression upon me that when it came time to start the work on the Exposition building, I concluded, in starting the Olive street front, to lay up a piece of work on the 14th and Olive street corner for the building committee to look at, telling them where I had seen press brick work laid up in this style, and advising them to have the Olive street front and the two returns of about 60 feet in length on 13th and 14th streets laid up in this style. The joint was scratched out with a rough tool (I used a spike nail) and left in its rough state; the shadow effect on the joint made the work look beautiful. It impressed the building committee so favorably that they authorized me to go ahead and do all of the press brick work after the style of the sample piece shown. The work while in progress and after completion was admired by everybody.

It was no St. Louis idea, nor yet an Ittner idea, and I regret very much that I can not recall in what particular city I first saw this style of work, in order to give it credit for same.

I was somewhat amused at the secondary heading to the article, wherein you make use of the word "stability," as a factor of the new style. The joint, you will understand, constitutes the bearing surface and, just to the extent that the mortar joint is "raked out" (as the architect calls it, and it may be correct to use, but we use "scratched out" or scratched joint), to that extent is the strength and stability of the wall weakened. Nowhere is it mentioned to

what depth the joint was raked out, but I take it for granted that it was about three-eighths of an inch.

In speaking of the size of the joint, you make use of the word deep, while the architect uses the word "thick," which is right—or at least such is the way in which the size of mortar joints in brick work has been spoken of during my fifty-five years' experience in this city as bricklayer, builder and brickmaker.

Equally amused was I at the story of the architects in detailing the trouble they had with the brick mason about it being unsafe to lay brick in a mortar joint three-eighths of an inch thick and then to rake out considerable of this mortar. In many of the nice schools that are being built for this city, mortar joints three-fourths of an inch are specified and the joints are cut in different styles—V-shaped and beveled—to a greater depth than they would be in case they were raked or scratched.

You may conclude that I have written at greater length than was called for, in which case I will confess you might be right, but it is entirely in the light of the truth of history that I have written, and also to correct a mistaken idea that your contributor entertains as to the raking or scratching out of a portion of the mortar joint in brick work, adding to its strength.

Yours very truly,

St. Louis, April 23, 1909.

ANTHONY ITTNER.

NO DULL DAYS AT THE FATE FACTORY.

These are indeed busy days for the J. D. Fate Company, of Plymouth, Ohio. This well-known clayworking machinery firm is flooded with orders and is doing an enormous business. Their factory is being run full force and they are contemplating many fine outfits, which are being sent to Iowa, Ohio, Indiana, South Dakota, Missouri, South Carolina, Minnesota, and several of the far-distant states.

The recent panic did not affect the J. D. Fate Company in any respect. In fact, the past year's business exceeded by a large margin that of any previous year since the organization of this company in 1891. Although 1908 was a very profitable year, 1909 bids fair to be the banner one, as the first quarter, January, February and March, was by far the best ever.

The present month's shipments include complete outfits for the Melvin Brick and Tile Company, Melvin, Ohio; Marengo Brick and Tile Company, Marengo, Iowa; Union City, Ga.; the Granite Brick Company, Columbia, S. C., and John Driver Co., Lima, Ohio; a large Premier machine to the Indiana Drain Tile Company, Brooklyn, Ind.; a large Imperial machine to the Lehigh Clay Manufacturing Company, Lehigh, Iowa; an automatic side-cut brick table to Potlatch, Idaho; vertical attachment for tile, etc., to O. E. Dietrick, Hibbard, Ind., and a big block cutter to the Twin City Brick Company. This last order was shipped in a special car, the ordinary freight cars being too small. The company has thirty orders for disintegrators, tables, crushers, etc., and, consequently, is not worrying about dull times.

Aside from the clay machinery plant, the J. D. Fate Company is interested in the Plymouth Motor Truck Company, which manufactures large electric laundry wagons and commercial trucks of almost every description. They use the first to manufacture motor trucks adapted to the use of the clayworking concerns.

Sagger Mixtures.—The mixture for good sagers should be according to the heat at which they are used. The size of the grain of the grog used is also a very important factor. The grog should be fine, but not powdered. From 1-16 of an inch to ¼-inch in size is mostly used. A good mixture is 40 parts of good sagger clay, 10 parts of coarse sand, and 45 parts of grog. For small sagers the grog can be finer than for large sagers.—Sprehsaal, No. 5, 1909.

SAND-LIME BRICK IN THE UNITED STATES.

Decreased Production in 1908.

The value of the sand-lime brick produced in the United States in 1908 amounted to \$961,226 and represented the output of eighty-seven plants, according to Jefferson Middleton, of the United States Geological Survey. In 1907 the output was valued at \$1,225,769 and was furnished by ninety-four plants. The net decrease in the value of the output in 1908 was therefore \$264,543.

As in previous years, by far the greater part of the total value was represented by the common building brick, whose output decreased in value from \$1,030,913 in 1907 to \$803,333 in 1908. There was also a decrease in the value of the front brick reported, from \$188,221 in 1907 to \$147,704 in 1908. Fancy brick and blocks showed slight increases in value.

Rank of States.

More than thirty states reported an output of sand-lime brick in 1908, but Alabama dropped out of the list and Montana appeared. Michigan retained its position as leading state in this industry, reporting products valued at \$138,809 in 1908, as compared with \$172,840 in 1907. Florida stood second in both years, with an output valued at \$117,040 in the later year, as compared with \$109,275 in the earlier, a gain of \$7,765 in value of product. Pennsylvania also reported an increase in value of product from \$48,410 in 1907 to \$64,123 in 1908. California, Indiana, Iowa, Michigan and New York showed decreases, the largest decrease being reported by Indiana.

The largest number of plants was reported by Michigan, although the number decreased from thirteen in 1907 to ten in 1908.

Prices.

The average price per thousand received for common brick of this character in 1908 was \$6.33, as compared with \$6.61 in 1907 and \$6.71 in 1906; for front brick the average price was \$12.76 in 1908, as against \$10.96 in 1907 and \$10.42 in 1906. It is apparent, therefore, that while common brick has decreased in price front brick has increased.

Report in Preparation.

A report on the condition of the sand-lime brick industry in 1908, prepared by Mr. Middleton, will be published by the Survey in the course of a month or more. This report will be available for free distribution and may be obtained by applying to the director of the United States Geological Survey, Washington, D. C.

PRISON KILNS PRODUCE 400,000 BUILDING BRICK.

The First of the Product of the New Plant Is Now Available for Use in the Addition of Pen's Walls.

The Leavenworth (Kans.) Times says:

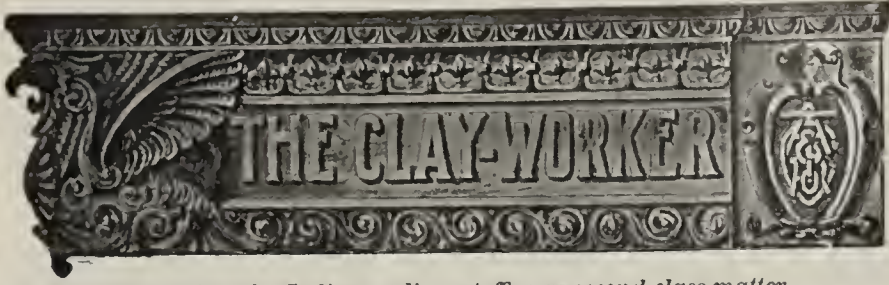
"Two brick kilns were opened at the Federal Prison yesterday and over 400,000 fine building brick were uncovered and ready for use. These are the first brick made in the new yard with the pressed brick machinery. One kiln contains 130,000, while the larger contains 175,000.

"The brick will be used for building the walls about the brickyard and the administration building.

"This is the first product from the new yard," said Warden McClaughry last night, "and it is the finest brick made. There is not a bad or disfigured brick in the whole kiln."

"These brick will be used to build the administration building," explained C. K. Macey, chief clerk of the prison.

"The plant of the Federal Prison was equipped throughout by the American Clay Machinery Company, of Bucyrus, Ohio. All the machinery has been working in a satisfactory way, according to the management, and as will be seen by the above the quality of the products is unsurpassed."



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LI.

MAY, 1909.

No. 5.

CURRENT COMMENT.

These should be lively days in the brickyards.

* * *

There's nothing else to it but to admit that the Standard Oil octopus is a pretty slick article.

* * *

There is lots of room to push the clay roofing tile business, and many opportunities are more than ripe.

* * *

Lumber is a little cheaper, but brick is still better—and that's what will count most in the future, even when lumber prices go up again.

* * *

We may catch some of the old fish that got away last year, but let us have some new fish yarns. The old ones are getting rather stale.

* * *

If it wasn't for the home builders, we wonder just what the country would do in a panic. Fortunately, the home builders are with us and are keeping as busy as bees.

* * *

If it wasn't for the Government needing the revenue, its hard to tell just what the "drys" would do to the "wets"—and the "wets" think they are doing a plenty as it is.

* * *

We wouldn't mind so much for the speculators to play kite with wheat prices, if it wasn't for the fact that it makes bread cost more and doesn't really seem to benefit anybody.

* * *

The next thing we should be hearing of in the inventive line is a contraption to make the surplus heat of the summer sun's rays do the brick burning, so that we can keep

cool and save on the fuel bill at the same time—sort of a solar plexus to the coal man.

* * *

The best remedy for that long-faced gloomy feeling is to do something calculated to cheer up some other fellow. In so doing you will unconsciously add cheer to yourself.

* * *

We have a pretty good commission now to look after the purity of our food, so the next thing in order is to appoint another commission to investigate its cost and find out how we can get it cheaper.

* * *

As more of the work of brickmaking is done by machinery the more important becomes the power end of the plant and the more need for practicing the finer economies of good equipment and careful maintenance.

* * *

Good, wholesome drinking water is essential to good health. So, look not only to your own supply, but also to that for your men. See that it is good, and that the water barrels and coolers are kept in good condition.

* * *

If we could only harness up the hillside gully washing that does so much damage to farms and make it dig in the clay bank of the brickyard, we could all be happy. We can do part of it, too, by more attention to reservoir building.

TO PROMOTE THE USE OF BRICK.

The brick manufacturers and contractors of Evansville, Ind., realizing the importance and advantages of concerted action, have formed an association to promote a more general use of brick as a building material, and to demonstrate its superior merits as to beauty, durability, safety and economy. George W. Goodge is president, and John Andres is secretary-treasurer of the organization. They have started the ball rolling by carrying a good advertisement picturing a substantial brick house in the local papers, and will use every endeavor to educate the public to the advantages of burned clay as a building material. Some of the manufacturers in the larger towns throughout the country would do well to emulate the example of these Hoosier manufacturers.

BRICK MANUFACTURERS WORKING FOR LOWER EXPRESS CHARGES.

Manufacturers of brick of all kinds in the western Pennsylvania district have become tired of the exorbitant charges that are made by the express companies for the delivery of sample brick, which are sent out in large numbers to architects and engineers, contractors and builders and manufacturing companies of all kinds, and have decided to take action with the ultimate hope of having these charges reduced. At the present time all such brick are billed out as merchandise, and take the highest express rate, which is considered an injustice. These brick really have no actual value other than to display the character, color, etc., of the brick manufactured, and the manufacturers claim that they are the objects of an unjust discrimination, in view of the fact that manufacturers of many other commodities and building materials are allowed a lower freight rate and also a lower express rate on their samples.

Therefore, John F. Lent, a prominent traffic manager and shipping agent of a number of the largest concerns in Pittsburgh and vicinity, has been quietly at work for several months collecting data and evidence, showing the expenditures of many local concerns for expressage on sample brick and other sample goods. The local brick companies are paying thousands of dollars annually in such charges, and Mr.

Lent will now make an effort to effect a more generous arrangement or compromise with the express companies. Failing to do this, he will then place the entire matter, together with a great mass of evidence, before the Interstate Commerce Commission, and in view of the past decisions of that commission in this district, there appears to be little doubt that the decision will be rendered in favor of the brick manufacturers.

GAINING DISTINCTION.

As a recognized authority on fire losses and how to prevent them, F. W. Fitzpatrick is now gaining pretty wide distinction, distinction which he has merited by strenuous and persistent effort toward the building of fireproof construction, and the passing of laws in the leading cities making it imperative in certain districts to build so as to safeguard against fire. Much of the subject-matter has been gone over in these columns heretofore, and we are pleased to note that his ideas and figures on fire losses, as well as suggestions for remedy are receiving wide attention at the hands of magazines and newspapers throughout the country. It should all help do good, both for more artistic construction and wider use of fireproof material in building not only large structures, but also modest homes.

IMPROVING THE POWER PLANT.

Almost every progressive institution enlarges its capacity and adds to its equipment until there comes a time when it is imperative to make alterations and improvements in the power plant, even though more power equipment was installed than was needed at first. Then, aside from the problems of economy in power development, there comes the question of how to get more power out of a given equipment with the smallest addition in the way of new power appliances and the least loss by throwing out good machines. Sometimes it is merely a question of getting more power out of a given engine and at other times it is a matter of adding to the boiler equipment, and still other times the occasion may seem to call for additions to both the boiler and engine equipment. Where there is plenty of boiler capacity and the engine is a good one, but is too small for the additional work, if it is an engine that will stand higher speed, more power can be gotten out of it by increasing the speed. This is simply a matter of reducing the size of the driving pulley on the engine or enlarging the driving pulley on the line shaft, or doing some of both, so as to give the engine more speed and more piston travel and keep the machinery of the plant going at the same speed. Of course, the higher speed calls for additional steam, and if the boiler equipment will not stand for this it means additions to the boiler. But even so, adding to the boiler equipment is not as expensive as adding to both boiler and engine, provided you have an engine that will stand the higher speed and run continuously without unnecessary expense in repairing.

Where you already have plenty of boiler capacity, the problem of getting more power out of an engine by speeding it up does not cost anything more than the price of a new pulley or two, and a little additional length in the main driving belt.

There are other times, however, when the problem of getting more power out of a plant is not so simple as this. If the engine is already running at as high speed as it is advisable to run it, there is nothing to be done in the way of increasing the speed. In that case, however, if the steam plant will stand more pressure, there is a good chance to get additional power in that way. Cases are known, too, where that has been done successfully and at comparatively small cost, when the benefits of the increased power are taken into consideration. In one case that comes to mind

now, there was an antiquated plant of large size laboring along with the steam pressure running from 60 to 90, blowing off at 90, but seldom reaching the blowing off point during the working hours. The plant had not been kept in very good shape and when the steam got up to 90 pounds it would begin to find its way through joints in the boiler, through leaks in the steam pipes, and so many other different places that there was a perfect cloud of steam in the boiler room when steam got up to what was then termed high pressure. One day a new man got possession of the plant, a man full of enterprise and new ideas. One of the first things the new man did was to go after the power end of the plant to see if he could not get more service and better service out of it. He called in a good authority on power equipment, and as a result of the conference, the smokestack was extended up in the air 25 feet or more. Boilermakers and steamfitters were put to work on the boiler's piping with instructions to overhaul and refit them so they would stand 110 pounds, instead of the approximate 80 pounds that had been carried. When they got through with the plant and an automatic conveyer had been put in for feeding fuel to the fire, it was found that they could not only keep steam with the higher pressure for the big engine they had, but another engine of 25 h. p. was also hitched onto the boiler plant, and it kept them both going with more ease, so far as the fireman was concerned, and less waste in steam than had formally obtained with the lower pressure. In other words, they got practically twice the power out of the boiler plant and got it easier by simply refitting, stopping leaks and putting it in good shape and increasing the pressure.

There are, of course, places where the pressure being carried is already as high as it can stand and where the engine is going at practically the limit speed, and where these conditions are apparent there is nothing for it when it comes to a question of more power but to add to the equipment, probably both in the way of boilers and engine. It may be done by replacing the old ones with larger ones, or by the addition of others to help out the old ones which are continued in service, which is best. Whether it is best to throw out the old entirely and put in new equipment, or to simply make additions, depends, of course, on the age and condition of the equipment already in service, whether or not it has served its purpose and is ready to be discarded, and at times whether or not it is practical to dispose of the old power plant at a fair price to furnish something toward starting a new one.

Sometimes an additional engine of comparatively small capacity may help out, especially if the boiler plant is sufficient to supply additional steam. Some splendidly-equipped plants have two or more engines, and frequently find it advantageous. It furnishes an opportunity to divide up the factory equipment so that part of it can be stopped and operated independent of the other, so that when it is not desired to operate the entire plant it is more economical to operate one section with a light engine.

Indeed, it would seem from observation of different plants met up with that there are many places where the need of more power is felt in which additional power can be had by carefully overhauling and rearranging the equipment on hand with a few additions, instead of undertaking to put in entirely new power equipment. Again there are other instances where the equipment has deteriorated from wear and tear until it were cheaper in the end to build an entirely new power plant, house and all, and then dispose of the old equipment for whatever it will bring. These are things, however, that can only be determined by a careful study of equipment from various angles. Then, again, there comes in another problem of late to complicate matters a little, and that is the problem of electric transmission. Electric transmission calls for engines designed for operating

electric dynamos. Sometimes this can be done very well from the old engines in the factory by belting to the dynamo. At other times it seems advisable to put in a new direct-connected engine and dynamo. This may take off a part of the power required and leave the old engine to drive another part.

There is, in fact, one prominent power plant in mind now by the writer in which there are five different engines in a group—all of them but one directly connected to dynamos and all of them used to operate one institution. They were not put in piece-meal nor added now and then because from time to time the need of additional power was felt, for the entire plant was built at once, but the division of power seemingly was found advisable in the beginning, and the operators expressed entire satisfaction with their power equipment. The division into a number of units, even when electrically-driven, gave them opportunities to handle various divisions of the plant without expending unnecessary power in driving equipment that was not needed. So, really, the power problem is getting to be simplified in one way, though complicated as a whole, and requires very thorough study to get just the right start-off, whether it is overhauling and refitting an old plant or putting in a new one.

DUNN BRICK COMPANY ORGANIZED.

On May 14th the Dunn Wire-Cut Lug Brick Company was organized at Conneaut, Ohio, and officers were elected as follows: President, A. W. Pelton; vice-president and consulting engineer, Thomas F. Lininger; treasurer, George M. Whitney, and secretary and general manager, Frank B. Dunn. A number of machines have been equipped with attachments for cutting Dunn wire-cut lug brick and other installations are under way. The Dunn brick is designed especially for paving brick.

AMERICAN BLOWER COMPANY'S NEW WESTERN REPRESENTATIVE.

We are advised by the American Blower Company; of Detroit, Mich., that Mr. L. E. Burton is now in charge of their sales in the states of Washington, Oregon and Idaho, with headquarters at 388 Arcade Annex, Seattle, Wash.

Mr. Burton is a graduate of the Engineering department of the University of Michigan, and has had considerable experience as engineering salesman for that company at Detroit and out of their Chicago office. His later experience consists of engineering positions with Messrs. J. T. Mooney & Co., Nashville, Tenn., and more recently with the W. J. McPherson Company, Portland, Ore. Mr. Burton's experience particularly fits him for representing the lately consolidated interests of the American Blower Company and the Sirocco Engineering Company.

THE MARION FLUE BLOWER.

When the fact is considered that the majority of brick-yards lose large sums of money by not employing up-to-date methods in the power plant, one will readily understand why the Marion flue blower is proving a great success. It saves 10 per cent. of the fuel bill, insures clean tubes, prevents the accumulation of soot, prolongs the life of the boiler, saves the cost of steam hose, uses absolutely dry steam, does not reduce steam pressure while operating, and insures clean heating surface. The manufacturers of the Marion flue blower are so confident that it will pay every clayworker to install one of these blowers, that they are willing to ship it to any responsible concern on thirty days' free trial, with the understanding that it is to be given a fair test, and if proven a failure to be returned and freight refunded. Every clayworker should install the Marion flue blower. Write the Marion Machine, Foundry and Supply Company, Marion, Ind., for their latest catalogues.

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"GETTING THE MOST FOR A DOLLAR" has been given as a definition of good engineering such as is done by

The Richardson-Lovejoy Engineering Company.

[See page 736.]

FOR SALE, WANTED, ETC.

FOR SALE—Tile and brick plant in operation at Delavan, Ill. Twenty acres land; no opposition; owner had paralytic stroke. Price, \$15,000. Terms, \$5,000 cash, balance good land. Lock Box 362, 41 cm Delavan, Ill.

FOR SALE.

A modern and up-to-date brick plant at Ashtabula, Ohio, West and Crosby sts. Material of the best and plenty of it. Can start with the usual spring repairs. About 500 cords of wood on the yard and on the way. Machinery in good running condition. Last day we made 30,000 brick; the last week, 131,000. Owing to physical breakdown of owner, will sell the entire outfit for what the bare land is worth. For full description and price, address C. W. SIMONDS, Geneva, R. F. D., Ohio. Car Stop No. 61, C., P. & A. Electric (south).

For Sale, Wanted, Etc., Ads Continued on Pages 742-744.

The Record of Time

TO THE CLAY TRADE:

I, Father Time, have noticed that in the hours, days, weeks and years of service the Eagle Repress leads all presses. It has fewer lost moments charged to it on my books than any press. My records show that the first Eagle Repress built has given continuous service ever since. This record and other records indicate that there is a quality back of the Eagle Repress which keeps it going, while many imitators have fallen by the wayside and are forgotten.

I can cheerfully and fully recommend the Eagle Repress.

Father Time



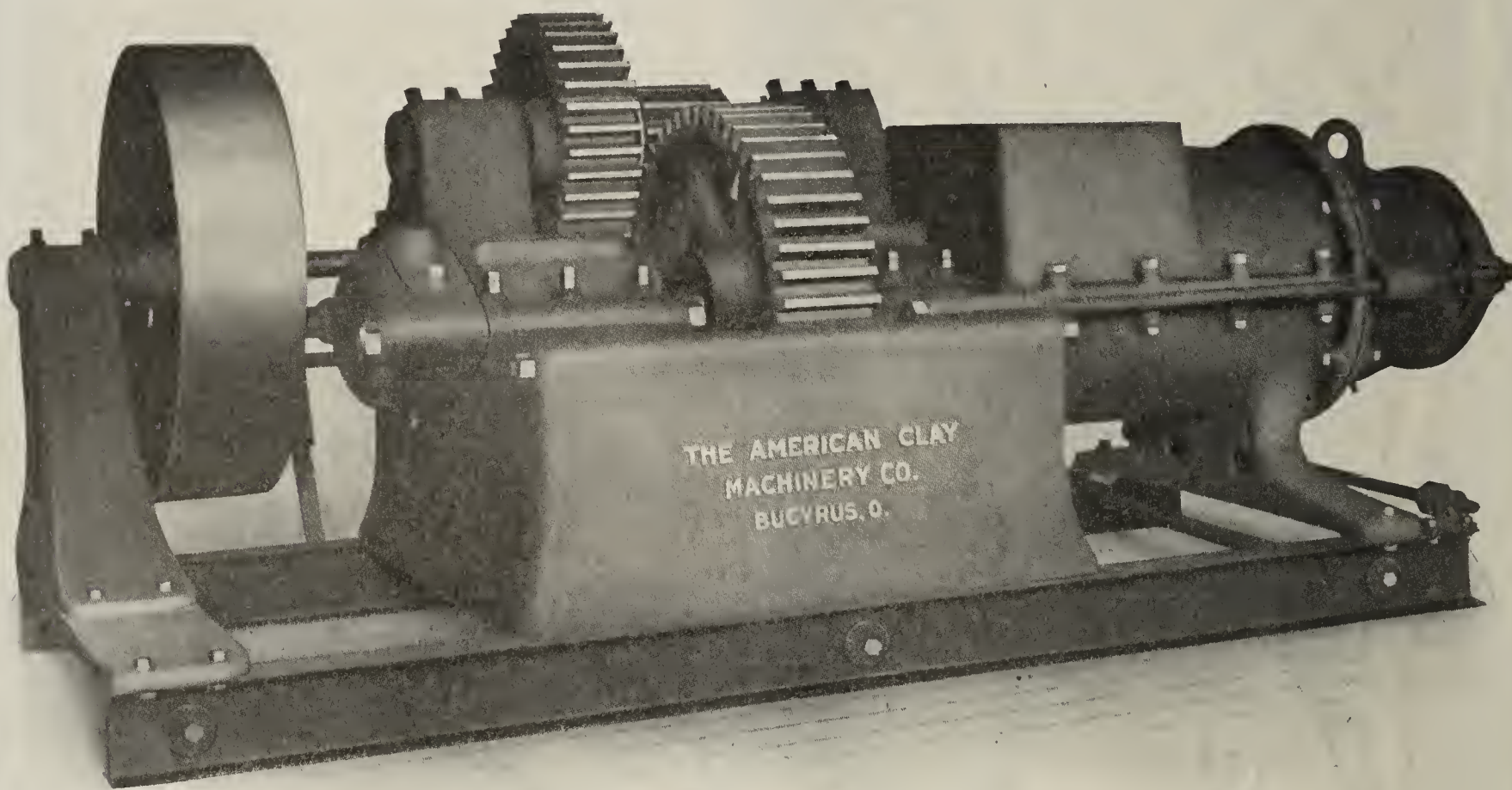
No. 65 Auger Brick Machine



Here is a machine that is "Making Good."

Here are a few of the users of this machine. The following installations of the No. 65 Auger Machines have been made in the past few months:

Denny-Renton Clay and Coal Co., Seattle, Wash.
 Marion Brick Company, Montezuma, Ind.
 Athens Brick Company, Athens, Ohio.
 Lumberman's Portland Cement Co., Carlyle, Kan.
 Puritan Brick Company, Hamden, Ohio.



Coffeyville Vitrified Brick Co., Collinsville, Okla.
 Port Credit Brick Co., Port Credit, Canada.
 Coffeyville Shale Brick Co., Coffeyville, Kan.
 Union Brick Co., Iola, Kan.
 Trimble Brick Manufacturing Co., Trimble, Ohio.

In addition to the above we can give you the names of many others who are using the No. 65 Auger Machine.

This machine is much the largest and best Auger Brick Machine on the market. Every line in its design, every atom in its construction shows strength and capacity.

In this faultlessly designed machine is reflected the general excellence of construction characteristic of the "Built Right, Run Right" line of Clayworking Machinery.

A full description of this or any other of our long line will be sent on request.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

SUPERIOR DRYERS—AND WHY



The success of a Waste Heat Dryer is largely in the Blower. We know that our Blower Dryers are best because our specialists on Dryers design the fan to meet the needs of each case.

Because every fan for every dryer is built in our factory. We know its quality and can guarantee it.

Because we do not have to depend upon the workmanship of some other factory but build ALL OUR OWN FANS.

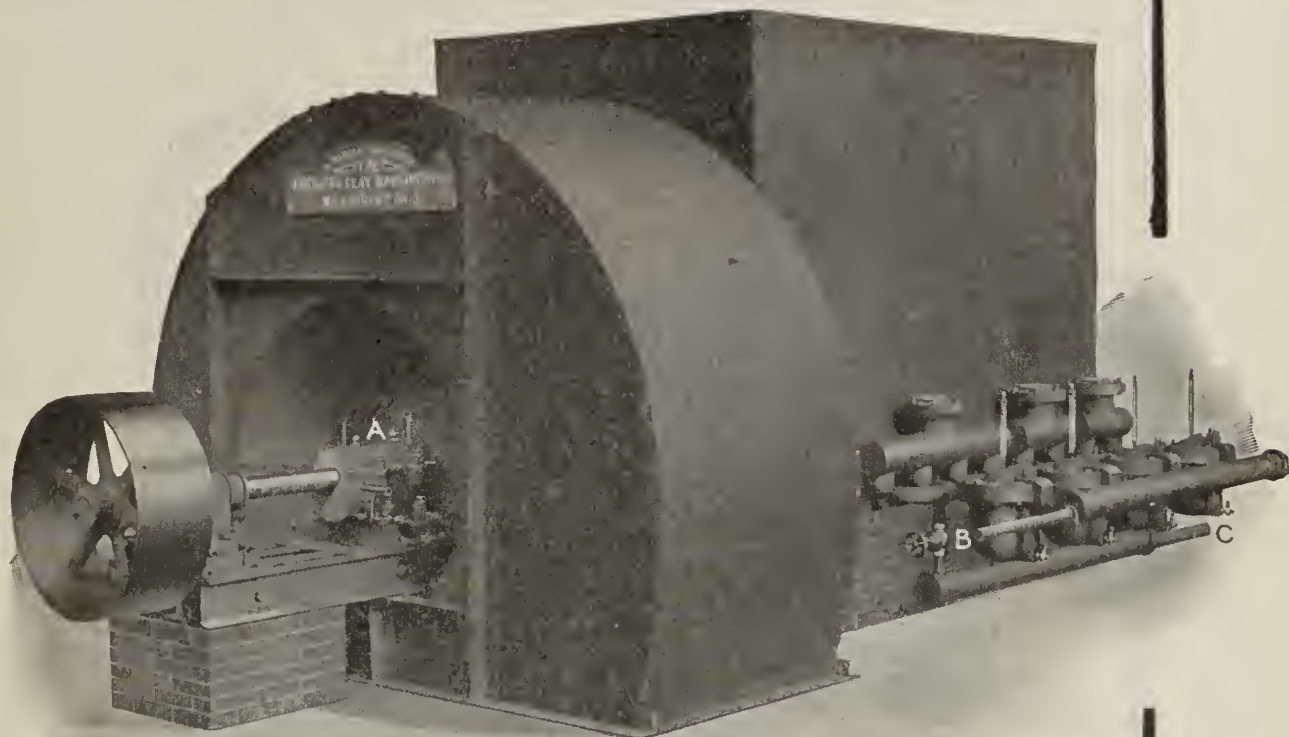
Because these fans are of extra heavy and substantial construction designed especially for handling the hot gases from the cooling brick kiln and are much heavier and more substantial than an ordinary fan intended for heating and ventilating factory or office buildings which are sometimes sold for installing in waste heat dryers and invariably give poor results.

Because the American quality is in our equipment and will maintain it a success.

Because we have the best Waste Heat Dryer men in the country. With the best engineers, the best material and the long experience, we know that we can give you the best service and a better value for the money invested than can others whose equipment is assembled from various factories.

Then again we are Dryer Specialists in every sense of the word. We are not content with making one kind of dryer, but make every kind. We are, therefore, in a position to consider your interests without any bias or prejudice toward any one kind of dryer. This insures your getting a dryer which will most successfully handle your clay, whether the dryer be a Waste Heat, Steam, Hot Air or Furnace Dryer. We build a full equipment for every dryer in our own factory including Fans, Heaters, Car, Transfers, Turn Tables, etc. We also build and equip dryers to be operated by the carless system.

If you are in the market for a dryer let us look over your plant, consider the clay and conditions and design you a system that will be a success. Then if you place the order with us the equipment will be made in our own factory and will be of our standard quality. As it is with dryers so it is with every class of Clayworking Machinery. We build a full line for making Clay Products by every known process.



The American Clay Machinery Co.,

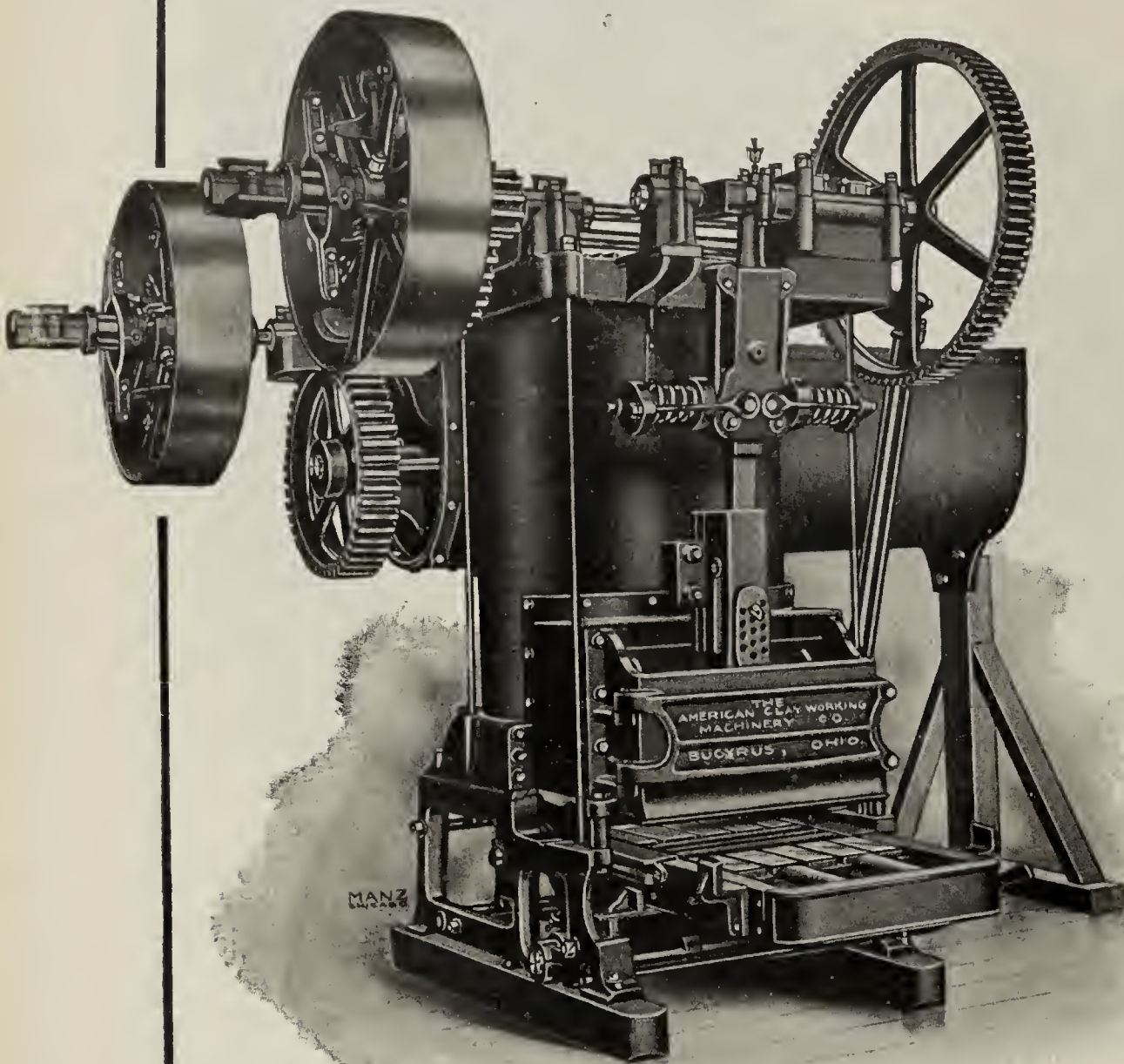
Bucyrus, Ohio, U. S. A.

Soft Mud Brick Machinery



There is many a clay which can best be worked on Soft Mud machinery. To handle such clay on Stiff Mud or Dry Press machinery would prove a failure in the long run.

We build a complete line of Soft Mud Brick Machinery and appliances to meet the needs of such clays. We are not interested in selling you machinery which may prove a failure. We have the very machinery you require to make a success of your business, and that is the only machine we will sell you.



Our Upright Stock Brick Machine is built for long and continuous use. It has many satisfied users who will cheerfully recommend it.

Our line of Plunger machines is complete, with a size range to meet your requirements.

Our Eagle Horse Power and Eagle Steam Power machines are popular favorites in their class.

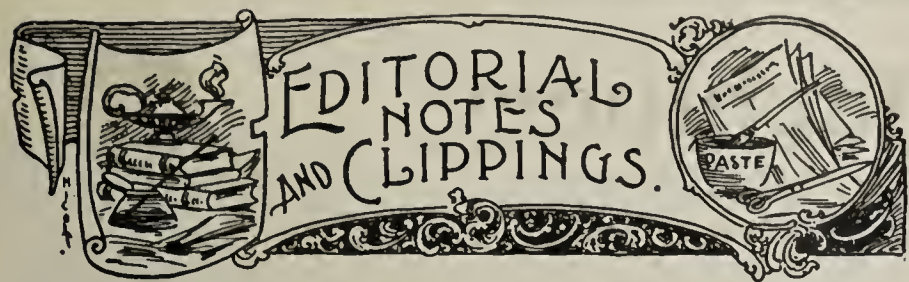
Every machine we build has a quality behind it attained only by faultless designing, excellent material and superior workmanship.

In buying the "Built Right Run Right" line you buy quality and that means successful operation.

We build every machine and appliance needed to manufacture Clay Products by any known process. Every machine built in our own factories, so that we are able to guarantee the quality because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



C. Owen, of Jackson, Tenn., will establish a brickmaking plant at Sweetwater, Texas.

The Hackensack Brick Company has purchased the plant of C. E. Walsh at Hackensack, N. Y.

Clarence Chamblee, H. Mann and T. C. Christmas are erecting a brick plant at Zebulon, N. C.

The brick and tile factory of Shelner & Moomow at Sugarcreek, Ohio, was badly damaged by fire recently.

A. M. & W. O. Brooks have purchased a tract of land at Radford, Va., on which they will at once erect a brick plant.

C. M. Howells is interested in a company that has been organized at Womble, Ark., for the manufacture of brick and other clay products.

G. D. B. Hasbrouck, of Kingston, N. Y., has purchased the plant of the West Haverstraw Brick Company, located at West Haverstraw, N. Y.

Henry Hess & Son have increased the capacity of their brick plant at St. Cloud, Minn., to 50,000 brick per day by the installation of additional machinery and appliances.

The brick plant of R. I. Patterson, at Uniontown, Pa., was almost totally destroyed by fire last month. Although Mr. Patterson carried no insurance, he will in all probability rebuild.

The Vulcan Brick Company, of Athens, N. Y., has been incorporated with \$60,000 capital stock. The incorporators are: O. B. Gladfelter, Wm. O'Donnell, and John J. Mangan, all of New York City.

The Fond du Lac Press Brick Company at Fond du Lac, Wis., sustained a \$1,000 loss by fire which destroyed the kiln sheds. The water thrown on the green brick caused more damage than the flames.

G. W. Songer, proprietor of the Brazos Brick and Tile Works, at Brazos, Texas, sustained severe injuries by being caught in the shaft. One arm was broken, one ear torn off and he was badly bruised about the chest.

C. S. Bowser has purchased a tract of land at Richardton, S. Dak., on which he will erect a brickmaking plant. Mr. Bowser is an experienced brick manufacturer and has had his clay tested, so there is no question as to the outcome of the venture.

The Longmont Brick and Tile Company, of Longmont, Col., has been organized with the following directors: W. M. Stewardson, C. W. Stewardson, A. H. Gunning, T. M. Callahan and J. W. Paxton. The company is capitalized for \$25,000, all stock having been subscribed.

Messrs. J. H. Cunningham, W. H. Osborne and C. D. Cunningham, of Greensboro, N. C., have been granted a charter to do business under the name of the Cunningham Brick Company. They will manufacture and sell brick. The paid-in capital is \$5,000; authorized capital stock, \$25,000.

Mr. Thos. W. Fitch, Jr., until recently sales manager for the Capell Fan and Engineering Company, is now connected with the American Blower Company, representing the Sirocco mine fan department in the bituminous coal district. Mr. Fitch makes his headquarters at the Pittsburgh sales office, 1218 Empire building.

Sherman & Bradley will build a \$75,000 press brick plant at Houston, Texas. The machinery will be furnished by the Anderson Foundry and Machinery Works, of Anderson, Ind., and the entire equipment will be modern in every detail. The plant will have a capacity of 60,000 brick per day at the start, and this will probably be increased later on.

A Connecticut brick manufacturer writes us that the brick men of that state, after an exceedingly poor period of eighteen months, are getting ready to make brick for what apparently looks like a very good year. In fact, most of the yards are now running. New York and Boston use large quantities of Connecticut brick. In many instances new proprietors are taking over old yards and renovations

have been made and are still being made, which indicates more confidence on the part of the brick men than for some time.

The Watsontown (Pa.) Brick Company has been awarded a contract for 1,500,000 brick for paving the streets of Shamokin, Pa.

Hillsboro, Texas, is to have a brickmaking plant. A. L. Blanchard, secretary of the Hillsboro Board of Trade, can give particulars.

The West-Gregg Brick Co., of Eldorado, Colo., has certified to a change of name, and will hereafter be known as the Eldorado Brick Company.

The Missouri Shale Brick Company, of Kansas City, Mo., has been incorporated with \$175,000 capital stock. The incorporators are: Joseph S. Waller and O. L. and F. C. Kamepff.

The plant of the Campville Brick Company at Gainesville, Ga., was almost totally destroyed by fire recently. The loss is estimated at \$10,000. The plant will be rebuilt in the near future.

Clarence Davidson has purchased the brickyard of Wm. Trudeau at Westdale, Mass. He will make a number of improvements in same and operate the plant to full capacity the coming season.

Fort Atkinson (Wis.) business men are trying to get an enterprising clay manufacturer to reopen the brickyards in that city. There are good deposits. The manufacture of cream brick was once a thriving industry.

The Union Brick Company, Iola, Kans., recently booked an order for half a million paving brick for Oklahoma City. This, in addition to a number of other large orders, insures a steady run for the plant for some time to come.

The National Coal and Brick Company has been organized at Upper Sandusky, Ohio, to take over the property of the Mohr-Minton Coal Co., of McArthur, Ohio, and both the brick plant and coal mines will be put in operation at once.

Brown & Yoke are making preparations to establish a brick plant of 60,000 daily capacity at Arkoma, a suburb of Ft. Smith, Ark. The plant will be a modern one in every respect, and work on same will be pushed as rapidly as possible.

An electric railway from clay bank to brick machines has taken the place of the former method of transporting clay by horse and cart at the big plant of the Rose Brick Company, Roseton, N. Y. Two electric shovels for digging the clay are also installed.

The Alabama Brick Manufacturing Company has been incorporated to manufacture fire brick at Riverside, Ala. The company is capitalized at \$50,000 and has secured the titles to forty acres of fire clay land with a depth of 30 to 40 feet of clay right on the Southern Railroad.

Fire caught in the shed roof over a burning kiln of brick at the Brookhaven (Mass.) Pressed Brick Company's plant recently and quickly spread to adjoining sheds. Good work by the bucket brigade saved the main machinery building. Loss, about \$1,500, fully insured.

The Spokam Sewer Pipe Company has been incorporated at Augusta, Me., to manufacture and deal in sewer pipe, brick and tile. The company is capitalized at \$500,000, and the following officers have been elected: President, R. S. Buzzell; treasurer, E. J. Pike, and secretary, C. L. Andrews, all of Augusta.

Thomas M. Nerny, foreman at the Kankakee (Ill.) Tile and Brick Company's plant, met a horrible death recently by becoming caught in the machinery. His right hand was caught first and in trying to extricate himself his foot caught in the cog wheels, and before the machinery could be stopped he was so terribly mangled that he died in a few hours. He leaves a wife and two grown children.

Warren B. Ferris, as president of the Ferris Brick Company, Columbus, Ohio, recently filed suit in Common Pleas Court for \$70,370.18 against the Junction City (Ohio) Clay Product Company and also against Edwin B. Young, president of the company, requesting that he be compelled to restore certain mortgages which he now holds, which were given by Ferris as security on the contract. Ferris also asks that an order be given, compelling the company to live up to its contract to furnish 8,000,000 brick a year. Ferris alleges he has been unable to fulfill his own contracts for the kind of brick he expected to secure through the

(Continued on page 734.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

Junction City Company, and declares that the company discriminated against him.

The Washburn Brothers Company, of Saugerties, N. Y., have purchased the brickyard property of Henry Corse at Glasco, N. Y.

The Mt. Jewett Fire Brick Company, of Mt. Jewett, Pa., has changed its name to the Kushequa Ceramic Company, and all business will hereafter be transacted under that name.

M. E. Mitchell has bought the brick and tile plant of S. J. Galvin at Iowa Falls, Iowa, and will operate same to capacity this season. Mr. Mitchell is an experienced brick man.

N. Kratum, an employe at the Warren Brick and Tile Company's plant at Warren, Ohio, had his right arm so badly crushed in the machinery that it had to be amputated below the elbow in order to save his life.

The R. B. White Company, of Painted Post, N. Y., has been incorporated to mine clay and manufacture brick, tile, etc., by Roscoe B. White and B. Morse, Painted Post, and L. K. Roloson, of Corning, N. Y. The company is capitalized at \$60,000.

The A. C. Ochs Brick and Tile Company at Springfield, Minn., have booked an order for 300,000 hollow tile to be shipped to South Dakota, to be used in the construction of a high school. This company is busy right through the year and the prospects are bright for the coming season.

H. P. Sherrod, a prominent fire brick manufacturer of Williamsport, Pa., spent some time in Pittsburg last month looking over machinery and equipment for his plants in the eastern part of the state. He will make a number of improvements, and while there placed several orders for machinery and power plant equipment.

The new plant of the Murphysboro Paving Brick Company at Murphysboro, Ill., has been completed and is now turning out pavers at the rate of 50,000 per day. The plant has been constructed under the supervision of Ellsworth Ogden, the superintendent, and is a model of its kind. It is equipped throughout with modern machinery and appliances.

The National Fireproofing Company, which has its general offices in Pittsburg, has been awarded the contract for furnishing all of the hollow tile fireproofing that will be required in the construction of the immense new Oliver building that is now under way on Smithfield street, this city. The building will be an immense structure, as it will be twenty-five stories in height, and will contain about 1,200 offices. It will occupy an entire block on Smithfield street, from Oliver avenue to Sixth avenue, and will be completed by the early part of next year.

Fire which started in one of the kiln sheds of the Sioux City Brick and Tile Works, Sioux City, Iowa, caused a loss which is estimated by the president of the company, Mr. Thomas Green, to aggregate \$50,000, on which there is a small insurance. The fire started at noon when most of the men were away at dinner, and as the plant had no fire protection except a few fire extinguishers, the flames gained such great headway before help arrived that the whole plant was destroyed with the exception of the office. The company will rebuild at once.

The Harbison-Walker Refractories Co., Farmers' National Bank building, Pittsburg, booked some excellent business during the past month for blast furnace and stove linings, the majority of which came from the United States Steel Corporation, and shipments will be made not only to several of the plants in this district, but also to the immense new works which the corporation is building at Gary, Ind. The Harbison-Walker Co. has increased the production at the several works in the immediate vicinity of Pittsburg, and will also start the manufacture of brick at several of the plants which have been idle for a year or more.

The Monongahela Stone, Clay and Brick Company, of Monongahela, Pa., has been incorporated under the laws of this state, and will engage in the manufacture of brick and shapes of all kinds of clay, ganister, etc. The company has extensive holdings of fire and common clay up the Monongahela Valley, and will build and equip a modern and up-to-date plant during the coming summer. All of the stock in the corporation has been subscribed by the incorporators,

who are: H. T. Billick, G. K. Hays, H. C. Sutman, W. H. Sutman, W. C. McCallister, R. O. Keeney, W. E. McCracken, P. M. Wall and J. F. Hogsett, Jr.

One of the employes of the Black Hawk Clay Manufacturing Company, Moline, Ill., was seriously injured by being caught under a fall of clay when the bank was being dynamited.

Frank Bowyer is at the head of a company recently organized to manufacture brick at Chillicothe, Ohio. The plant will be erected near the Baltimore & Ohio Railroad tracks, and so have good shipping facilities.

In a terrific windstorm which struck Holton, Mich., April 30, the sheds of the Holton Brick Company were completely demolished. The damage is at least \$10,000. Six big sheds and other structures about the yards were torn down.

The Da Costa Brick Company has been incorporated at Da Costa, Atlantic County, N. J.; capital, \$20,000; incorporators: William Doerr, Jr., David Doerr and Andrew G. Stewart. The company is to manufacture bricks, tiles, etc.

J. C. Milner and Judge Bradley have organized a stock company at Vernon, Ala., and contracted with Houck Bros., of Atlanta, Ga., for an up-to-date brick plant of 30,000 daily capacity. The plant will be equipped with J. D. Fate machinery, and will be first-class in every particular.

The Royal Brick Company, Connellsville, Pa., has completed the construction of the fine new modern plant on the Hatfield farm, a short distance from Connellsville, in Spruce Hollow, and is now making brick. The plant was placed in operation on April 28, and is now working almost to its capacity.

The Beatrice Brick Works is the name of a new company which has been incorporated to manufacture brick at Beatrice, Neb. Its capital stock is \$40,000. The incorporators are: Robert Klose, H. M. Heppelen, D. M. McColery and W. N. Farlow. The new company will begin operations next month at the plant of the old Beatrice Brick Works, south of the city.

Ray Bass has brought suit against the Mexico Brick and Fire Clay Company, Mexico, Mo., for the sum of \$12,500 alleged damages sustained in an accident last winter, when Bass lost his hand. Plaintiff recites in his petition that he was in the employ of defendant and while engaged in cleaning a repress the machinery was started, entangling his hand and mangling it to such an extent that an amputation was necessary. He alleges negligence on the part of the company's superintendent, who directed the movement of the machinery.

The contract for the fine-grade red pressed face brick that will be used in the construction of the new municipal building at Mt. Pleasant, Pa., has been awarded to the Keystone Clay Products Company, Huff building, Greensburg, Pa. The same concern has also been awarded the contracts for furnishing the brick that will be used this spring in the construction of several other structures that will be built in Westmoreland County, including four fine residences at Greensburg. The plants of the company are all working steadily, as there is a good demand in that vicinity for the high-class product which the concern is known to turn out.

Hervey Haigh is meeting with great success in the building and operation of his continuous kiln. Among recent orders booked by Mr. Haigh is a kiln to the Ohio Brick Company, of Toledo, Ohio, to burn 40,000 brick per day, one of 100,000 daily capacity to the Jamestown Shale Paving Brick Company, Jamestown, N. Y., and one kiln to the Murray Brick Company, of Cleveland, Ohio, to burn 60,000 block per day. The big Haigh kiln at Montezuma, Ind., for the Marion Brick Works, constructed under the supervision of Lambert Haigh, is now completed, and Mr. Haigh says was built in the shortest time that any kiln of like capacity has ever been constructed.

The Monongahela Clay Manufacturing Company, Monongahela, Pa., has received a contract for 1,000,000 coke oven brick, to be delivered early this summer to the Pittsburg and Westmoreland Coal Company at the Acme mine, near Bentleyville, Pa. They have also been awarded the contract for furnishing the light face brick for fourteen apartment buildings that are being built at Duquesne, Pa., by the Overholt Distilling Company, and for the large new public school buildings that are being built this year at Monongahela and Donora. The plant is running to its capacity, and with the business that is now on hand, its steady operation for the remainder of this year is assured.

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to 'The Clay-Worker' who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With 'The Clay-Worker', this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to 'The Clay-Worker' to aid us in the matter by remitting promptly in advance, as the Government requires.

Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



BRICK AND BUILDING supply dealers here express their satisfaction with the way business is coming their way this spring. While many other lines of industry have been reviving but slowly, the building trades have been unusually busy, many new structures having been started since the season opened.

A report for the first four months shows the total value of buildings started for that time to exceed those started in 1908 for a similar period by more than \$750,000. The exact figures are \$2,719,447 for the first four months of last year, and \$3,491,471 for the first four months of this year. This year to date there have been 2,349 building permits issued, as against 2,127 for a similar period last year. It is believed that the totals for May will far exceed those of last year. During the first ten days of May, the total value of permits taken out reached \$418,00, as against \$162,848 for a corresponding period in 1908.

Great activity is present in all the brick plants. The common brickyards are being rushed, while there has never been such a call for pavers as this year. The big Hydraulic Pressed Brick Plant, south of the city, is also busy turning out brick as fast as its capacity will allow. There promises to be a banner year in brick production of all grades in this vicinity this year.

The Deckman-Duty Brick Co. gave evidences of increased prosperity during the past month, when it moved into an elaborate suite of offices in the Electric building, thereby doubling its office capacity. Mr. Deckman reports an active call for brick. The company is delivering about 3,000,000 pavers for use in Detroit this year, and also has orders for brick needed on six of the county roads and a number of Cleveland streets. The Collinwood plant of the Deckman-Duty Co. has been entirely rebuilt this spring, brick buildings replacing the old frame used up to this time. The new buildings will house the machinery, the clay shed, and the engine and boiler rooms. A large shop has been built and fitted up with machinery, so repairing can be done on the place. The company is erecting new kilns at its Carrolton plant, and contemplates the building of two additional kilns at its Malvern plant some time during the coming summer. One of the late out-of-town orders secured by the Deckman-Duty Co. was for 30,000 yards of pavement at Elyria, Ohio.

An event of considerable importance to Cleveland builders was announced during the past month when the amalgamation of three of the city's big supply companies was made known. The Kelley Island Lime and Transport Company has purchased for a price said to exceed \$1,000,000 the Cleveland Builders' Supply Company, of which John A. Kling is president and principal owner. Mr. Kling was injured in an elevator accident a couple of years ago, and gives this as his reason for withdrawing from the company. The transport company has also purchased, it is said, the stock of the Masons' Supply Company, which was launched by a number of builders several years ago in their own interests. The Kelley Island Company is headed by Caleb E. Gowan, and is the largest lime producer in the world. For a number of years it has conducted a general supply business, but it is stated that as a result of the present combination it will retire from the retail field and permit the Cleveland Builders' Supply Company to continue the retail end of the business. The Masons' Supply Company's future is somewhat clouded at present. The amalgamation has been made, it is said, to cut down operating expenses, and will not result in any boost in building materials. All three of the supply companies represent a large number of outside brick manufacturing companies in the local field. Just what effect the merger will have on these different agencies is problematical at this time. The Kelley Island Company is capitalized at \$5,000,000, and operates the largest supply

business in the world. It had a fleet of nine boats which run between Cleveland and Kelley's Island, where the great lime deposits are operated by the company.

Steps are being taken to rebuild the Collinwood School, which was destroyed by fire over a year ago with a loss of the lives of 173 children. The new structure will be of brick and concrete, and will be the world's safest school. It has been designed by Searles, Hirsch & Gavin, of Cleveland, and will cost \$90,000. The building will be two stories high and will contain fourteen class rooms. Every room will have a direct outside entrance and exit. The heating plant will be in a separate building. The building is being erected a few feet to the south of the old location, which has been purchased by the state and will be turned into a little park, in the center of which will be erected a monument.

Adelbert College is to have a handsome \$150,000 chapel, the gift to the college of the late Mrs. Samuel Mather. The exterior is to be of limestone and the interior finish will be a fine grade of pressed brick with stone trimmings.

Andrew Carnegie has donated another \$83,000 to the Cleveland Public Library Board, which announced that it will use the money for branch libraries, two to cost \$30,000 each, and the other about \$25,000, exclusive of the sites.

A model twenty-five-suite apartment house, all the rooms of which will have outside views, is being erected in Cleveland by Geo. P. Geib. A dark shale brick will be used for the building. The apartment is going up at Melrose avenue and East Eighty-second street, and will cost about \$50,000.

The Cleveland Lodge of Elks has purchased a site on Huron road and will this summer erect a \$100,000 building, for which plans are being drawn by Knox & Elliott. The building will be proceeded with some time this spring.

A \$75,000 addition is to be made to the Gillsy Hotel on East Ninth street this summer, furnishing ninety-one additional rooms.

BUCKEYE.

The Richardson-Lovejoy Engineering Co.

Consulting Engineers and Factory Architects.

We make geological surveys of properties, test the materials, investigate manufacturing propositions and advise regarding products, design plants and superintend construction, modernize old plants for economical operation and devise cost systems.

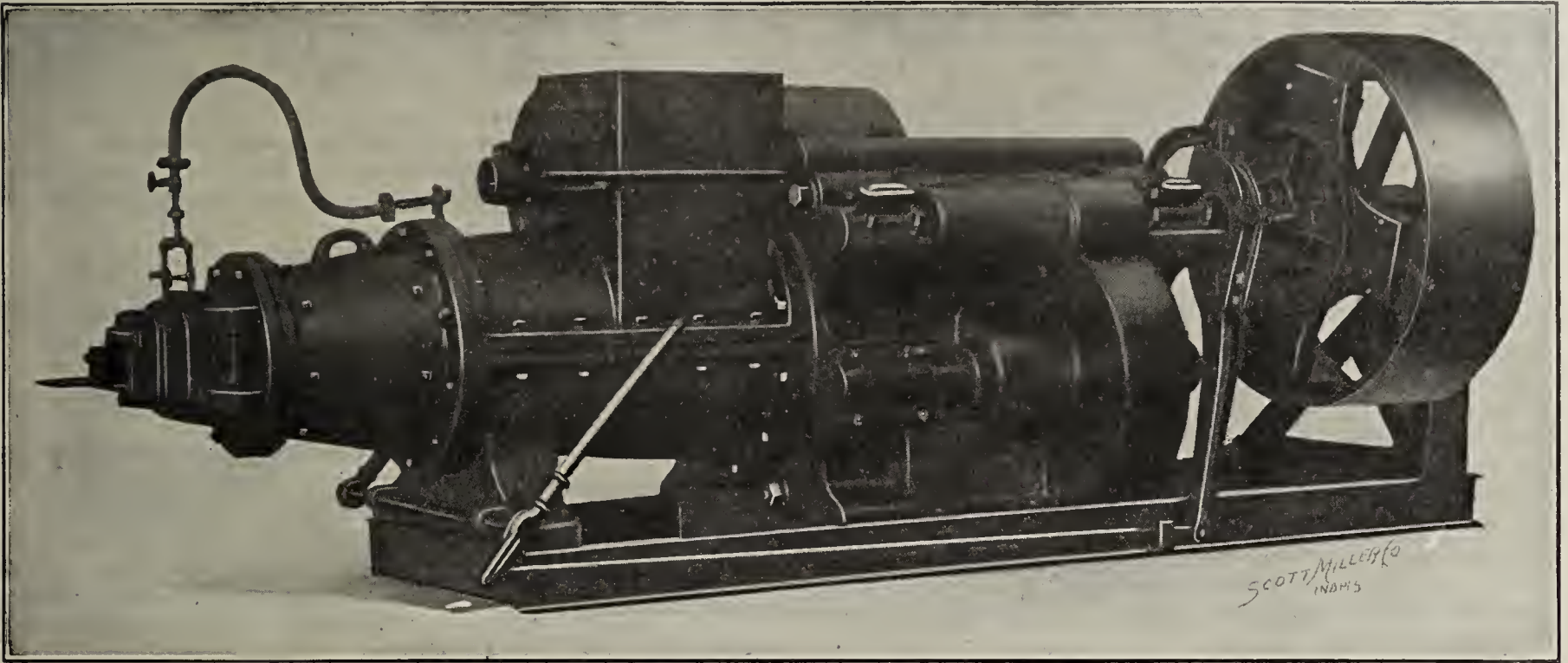
**Expert service for special cases or
by the year at moderate prices.**

TECHNICAL BUREAU FOR CLAYWORKERS

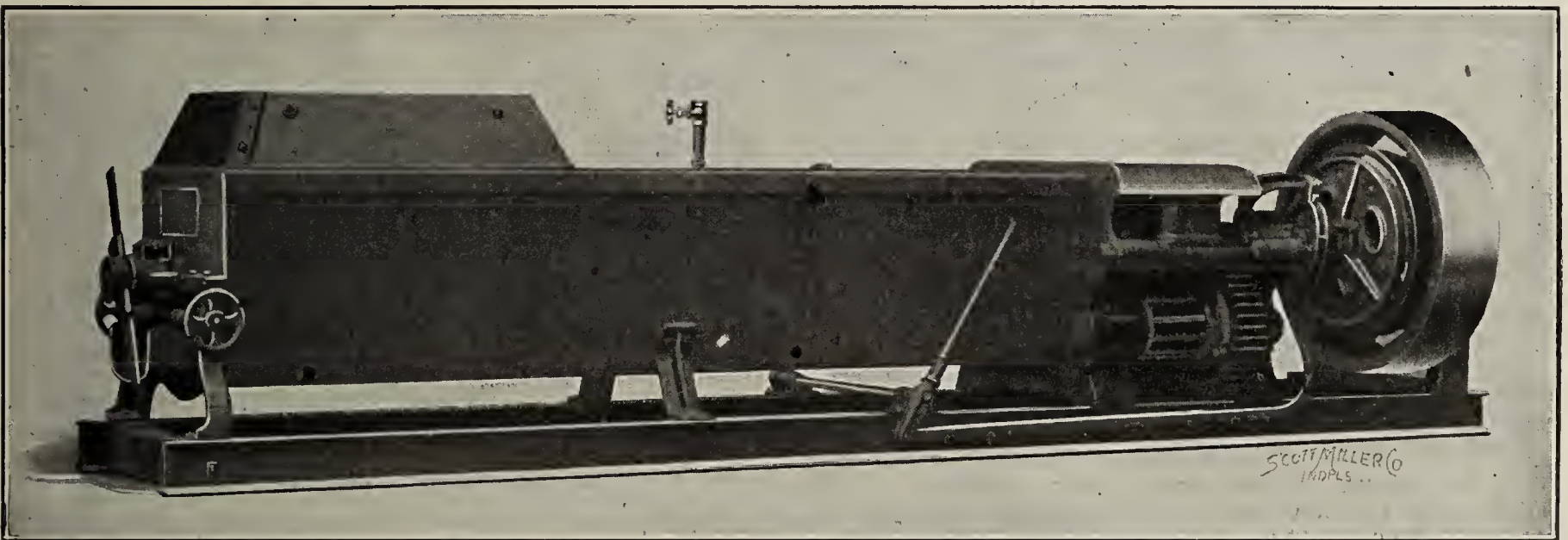
**Send for Pamphlet
"Ceramic Engineering."**

Schultz Bldg., Columbus, Ohio.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

(Mention The Clay-Worker.)

Galion, Ohio.

See ads on pages 774 and 775.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE KENTUCKY METROPOLIS.



HERE IS REAL activity here in brick lines, and the demand has been improving constantly during the past thirty days. It is safe to assert that there are just as favorable building prospects in this city and locality this spring as in any section of the country, if not more so than in many others. Brick are always favorites here, and many of the large structures are being erected of the same. Among the large structures that are now under way are the new Walnut Street Theater, Keisker's new building, and many other buildings that are consuming a considerable portion of brick.

Other clay commodities are also increasing in demand, and there is a more certain feeling of good business than was the case at this time last year. There is a fair amount of new streets being laid with brick, but there is not as much as there should be. However, the trend of the industry is in the right direction, and there is reason for a better demand soon.

No one really figures on any very great business this year, but the fact that the outlook is so favorable and the demand is now showing more activity is one of the things that count for much in times like these. The yards and plants are all busy now, and there is sure to be at least an increase in the demand over that of last year, which is about as much as one can count on now.

The Falls City Brick Manufacturing Company, which succeeded the Hillenbrand Brick Company, has gone into bankruptcy. The real cause of the failure is said to be the fact that the principal owner had become surety for some parties, and in this way the financial standing of the concern was involved. The company had been doing a very satisfactory business since its organization, and while the capacity of the plant was not great, they were enabled to do a nice business. The plant was recently purchased by other parties and it will probably be operated, though this is not of an affirmative nature.

The P. Bannon Sewer Pipe Company has just completed the installation of two new boilers of increased capacity, which will enable them to make the necessary changes that are urgent at this time. They find the demand for clay pipe and other special lines to be fine, and have as much as they can do to keep things moving along continually. The work of installing the boilers was done in record time, and they feel very proud of the fact.

The Louisville Brick Company are operating their building brick plant at full capacity, and find the demand to be increasing all the time. They feel that there will be a very fair demand for building brick during the present year, and have secured a number of very attractive orders. Among these the contract for furnishing the brick to the Lincoln Memorial building at Hopkinsville, Ky., is one of the most pleasing.

The Louisville Fire Brick Works, at Highland Park, Ky., have about completed the rebuilding of their plant. It has been done in record time, and they are now in a position to take care of their orders in a better way than they were previous to the fire. There has not been, however, as large a demand for fire brick and other fire clay commodities as they had hoped for, and while there is a fair business, it is not as steady as they could wish for. With the resumption of the large manufacturing plants in some sections of the country, they are sure that they will have ample to keep them busy, and they are now in a position to do their work to an advantage.

The Southern Brick and Tile Company say that there has been a pleasing increase in the demand for brick and tile with them in the past few weeks. The outlook is more hopeful now than it was, and they feel very well pleased over the indications generally for a fair demand. The building prospects here are of a very favorable nature, and they figure on at least a good demand if nothing more.

The Hydraulic Brick Company are now operating all their

brick plants at capacity. They say that in the past month the demand for brick has shown a very decided increase, and that the outlook is of that nature that promises well for the clay brick industry here. They are very much gratified to note the change in conditions, which is so much more pleasing than it was at this time last year.

The Louisville Pottery Company say that they are operating their plant at full capacity, though there is not as active a demand for pottery goods as there could be. The indications seem encouraging enough, though the orders are rather of an uncertain nature in so much that they are irregular. They feel that there will be a very fair demand for fruit jars, and are hoping for a good demand during the coming fruit season.

The Kentucky Vitified Brick Company are not as busy as they should be at this time of the year, though they are shipping out a very considerable amount of vitified brick to different sections. The demand is lacking in volume, and there really should be more business than there has been of late. Still they are satisfied with the situation and are hoping for a better demand later.

The Burrell & Walker Clay Manufacturing Co. find a fair demand for clay products. They are operating their plant at Owensboro, Ky., but the demand is not as brisk as it might be with them. There is a very good demand, generally, but there is not as much activity as the season should warrant. They feel that there will hardly be a big year during the present, and are content to take what comes until conditions show some increase.

The West Point Brick and Lumber Company at West Point, Ky., find that there is an excellent demand for brick with them. They report that they are doing an exceptionally fine business, and are operating their plant to capacity. The indications seem to favor a better demand later, and they feel very much elated over the prospects for a spring and summer demand.

C. O. L.

TRADE NOTES.

Brick paving contractors of Milwaukee will be relieved of a lot of unnecessary "cussing" by property holders by means of an ordinance to be passed by the Council. When pavements are torn up for digging trenches, the contractor must restore them to their original condition, not temporarily, but permanently. Property owners have been in the habit of blaming the paving contractor for the "humps," especially if the trenches were dug just after the paving was completed, for repairs or additions to the drain or piping.

The California Brick and Pottery Company, of Glen Ellen, Cal., for which the Holmes Lime Company is the selling agent, started operations April 1, after being closed most of the time for nearly a year past. Terra cotta partition tile will be manufactured almost exclusively. This material was manufactured by so many plants last year that the business was badly scattered, but several manufacturers have retired from the field and the California Brick and Pottery Company expects to have a very prosperous year. The plant will be operated from April 1 to November, stopping when the rainy season begins, but enough stock will probably be made to last until next spring.

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of CERAMICS.

ALFRED, NEW YORK
Charles F. Binns, Director.

Catalog mailed on application.



AUGER BRICK MACHINES

Chambers Brothers Co., Philadelphia, Pa.

No. 10 Size.

**Guarantee 40,000 Daily.
End Cut or Side Cut.**

Our No. 10 Brick Machine

Was designed to make good on a guaranteed capacity of 40,000 bricks per day.

The McKenzie Brick Co., of Augusta, Ga., ordered one "on trial," and after about one week's use wrote us, under date of April 12, 1909: "Our Chambers Machine is working fine, making **our task of 50,000 bricks by 4 p.m.**"

No questions about the fine print on the contract or fulfillment of guarantee. Just makes brick—good brick and more brick, and finishes the job early.

In points of strength and wearing qualities the machine is just as liberally provided as in its capacity to perform its task.

No. 20 Size Auger Machine.

**Economical for yards
producing 15,000
to 25,000 Daily.**

The Chambers No. 20 Brick Machine

Is Number Ten's younger brother. A husky youngster, bred from the same stock, and possessed of the same good traits. By actual performance it has already shown that it can proportionately exceed its guarantee of 20,000 daily with the same ease as its big brother.

Design, material and workmanship are all good. Labor saving appliances, accessibility and standardization of parts have all been poured into this new line of auger machines without stint. They start on time and are never behind the schedule.

No. 7 and Seven Special.

These Are the Big Fellows.

**Number 7 at Normal Speed is Good for 60,000
and Upwards Daily.**

The Special, with extra heavy shafts, driver $4\frac{7}{16}$, countershaft $5\frac{5}{16}$ inches diameter, cut steel gears, No. 10 clutch on a 14-inch face pulley, and other parts in like proportion. No one knows just what its limit is.

Feed it with a steam shovel, throw the throttle wide open—and some of our friends say it will make all the brick any man wants. One man insists his hardest job is to keep the machine supplied with clay.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NOTES.



THE PAST MONTH has easily been the best of the present year in all branches and departments of the clayworking business, and there is now a much more optimistic feeling than there has been for many months. The orders that have been received have been not only larger, but they have also come in in much greater numbers, and from more widely distributed centers than they have at any other time since last fall. There have also been a larger number of inquiries for not only prices, but for deliveries as well, which makes the brick and tile manufacturers in this end of the state think that there is going to be a prosperous year ahead.

Manufacturers of fire brick and other refractory material used in the construction of blast furnaces, stoves, etc., report that they have enjoyed an excellent volume of business during the past month, and that some excellent orders have been placed, several of these being of sufficient size to keep these plants in steady operation for several months. The demand for this class of material is much better now than it has been for nearly two years, as the iron and steel works, which are the largest consumers, are now running more steadily than they have been at any other time during a like period, and are placing orders with their old-time regularity. Crucible brick is also being ordered in large quantities, and some of the manufacturers of this grade, who have not been making any for a year or more, have again resumed its manufacture.

Coke oven brick manufacturers are also busy, as there is excellent demand at the present time. The coke business is steadily picking up, and as thousands of the ovens have been idle for a year or more, many of them are in bad condition, and will have to be repaired before they can be fired and placed on the active list. This has occasioned, to a great extent, the demand for coke oven brick, although there are some good orders being placed at the present time for brick that will be used in the construction of new oven plants, of which there will be several large ones built in this territory during the coming spring and summer.

Another branch of the business that has been booming, and which is expected to continue to increase as the good weather comes on, is the paving brick end. Manufacturers making a specialty of this line of brick have been forced to increase the production in their plants during the month of April, and at the rate that orders are being received at this time, they will be able to further increase this production. Some few of these manufacturers are already operating their entire plants to their capacities, and still have a large volume of advance business for delivery during the latter part of the summer on hand.

Building brick manufacturers, while they are busier than they have been during the year so far, are not shipping the quantities of brick that they would like to. The demand for both common and press red building brick is still a little below what it was thought it would be in May, but no apprehension is felt, as there is an immense amount of work under contract that has not yet been started, and which will mean some large orders as soon as the contractors are instructed to go ahead.

The local demand for fireproofing material is still small, but this is well balanced by the demand for shipments to other cities, so that the companies operating plants in this region are able to keep their works running on very fair time.

Sewer pipe manufacturers are increasing their capacities and at the same time running up their stocks, as there will undoubtedly be a large demand for sewer pipe of all sizes this summer. In fact, a large number of cities and towns in this part of the state have already awarded contracts for sewerage, although the successful contractors have not placed the orders for the pipe to date.

The improvements that were started about two months ago at the plant of the Black Fox Brick Company at Mont-

erey, Clarion County, Pa., have been about completed, and the capacity of the works is just about doubled. The company has installed a tunnel system throughout the entire plant, and has also put in considerable new machinery, additions to the power plant, etc., including new equipment consisting of thirty-five additional cars, new turn-tables, additional tracks, etc. Improvements have likewise been made at the clay mines until now the plant is one of the finest and best-equipped in western Pennsylvania. The general offices of the company, which manufactures high-grade silicon brick, are at 341 Second avenue, Pittsburgh.

At the annual meeting of the stockholders of the Courtney Fire Brick Company at the general offices at Monongahela, Pa., the following officers were elected to serve during the coming year: W. C. McAllister, president; Joseph Lyle, vice-president; James R. McGregor, treasurer, and Kent C. Scott, secretary. The annual reports showed that the company, in spite of the business depression of the past year, had done an excellent volume of business, and is at the present time in a most flourishing condition. There is sufficient advance business booked to keep the plant running for several months, and the normal volume of orders is being received right along. The plant at the present time is running to its capacity, and will continue to do so for some months.

A. V. Bleininger, a well-known ceramic chemist and engineer of Boston, Mass., delivered a most entertaining lecture in the latter part of April in the rooms of the Engineers' Society of Western Pennsylvania, his subject being, "The Work of the Clay Products Section of the United States Geological Survey." A large number of the manufacturers of brick, fireproofing, tile, sewer pipe, etc., of this entire district were present.

Edward W. Graham, a prominent citizen of Clearfield, Pa., and one of the largest owners of clay lands and mines in that region, died at his home there on May 3, aged sixty-seven years. He has been a leading business man of Clearfield for many years, and was one of the earliest developers of the immense clay beds that have been famous in that region. He was also interested in a number of brick manufacturing companies, and the father of Mrs. H. W. Croft, wife of the president of the Harbison-Walker Refractories Co., of Pittsburgh. His widow, one son and two daughters survive him. Interment was made at Clearfield.

The trustees of the Reese-Hammond Fire-Brick Co. have sold the plant of that company at Bolivar, Pa., at public sale to J. B. Hammond for \$13,000 and the mortgages against the properties. It is not known for whom Mr. Hammond purchased the plants, but it is generally thought that it is the intention of the new owners to give them a thorough overhauling and to place them in operation at once. The plants at Bolivar are well built and are equipped with modern machinery throughout, but they have never been a financial success, which has always been considered strange. There is an abundance of high-grade clay in the vicinity and the manufacturing charges are considered reasonable, while the location of the plants provide natural advantages which should tend to make the operation of the works a success.

The Gleasonton Fire Brick Company, which has been operating the entire plant at Gleasonton, Clinton County, Pa., on half time for some time, is now running to the entire capacity of the plant, and has a large amount of contract business booked. The shipments from the plant during April were the largest that have ever been made in a single month in the history of the company, and it is thought that May will even exceed this record. The company has the sheds stocked to the capacity, and is running all kilns to the capacity. Even at this rate, it is necessary to make some shipments from the yards.

The contracts for the brick to be used in paving several of the main streets of Conemaugh, Pa., have been awarded to the Clymer Brick and Fire Clay Company, Indiana, Pa., and the Williams-Grove Co., Clearfield, Pa., at \$17.25 and \$17.50 respectively. Each concern will furnish about 450,000 brick, delivered to the Thiele Construction Company, Johnstown, Pa.

A. SMOKER.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



ONE OF THE principal topics for discussion in the brick world during the past week or more has been the strikes in the New York manufacturing district. Mattewan, Fishkill Landing, Kingston and perhaps other places along the Hudson River have suffered with more or less disturbance caused by the strikers, in one or two instances even going so far as bloodshed. The whole difficulty is a demand for higher wages, which the manufacturers declare they can not yet pay. In some localities the difficulties have been adjusted. In others non-union men have been hired and work has gone on under guard, maybe, but at least this showed a disposition on the part of makers not to temporize with the strikers. It has been particularly unfortunate this spring because business has opened well and all the hands and all the time possible has been needed to get the plants ready for operation in time to secure the early and more profitable business of the year.

When the plants in Kingston resumed work on Monday, May 10, trouble was expected. The men started under the protection of the sheriff and the officers were authorized by the Governor to call out the state militia if needed. The sheriff's force was sufficient, however, and the anticipated trouble did not occur.

About New York the brick trade has opened exceptionally active this spring, partly because there has been a strong demand for brick all winter, keeping supplies pretty generally cleaned up. The spring opened with stocks extremely light and with nothing to indicate that trade was not going to be good all summer. Some of the more optimistic makers are of the opinion that the brick trade will be better this year than ever before, and that the activity of the years preceding the dull season will be surpassed.

By far the larger quantity of brick required in and about

New York this season will be utilized in the huge building operations which are either under way or projected. Conditions have caused a development in these industries which are almost without precedent, and the effect is already seen in the larger demand for all building material, including brick.

Schooners and barges have been coming down the river for the past few weeks, principally with old brick, the clean-up of the yards. Navigation was open such a considerable proportion of the winter that the movement was scarcely restricted. It is understood that some yards were virtually cleaned out before spring opened, and will not have any surplus to ship before they can begin making. Yards unaffected by the dispute with workmen have begun operations and are now in position to begin shipping shortly.

Permission has been granted to extend the subways up Sixth avenue in New York City to Forty-second street, connecting there with the Pennsylvania Railroad and tubes under the Hudson River. This work will, it is understood, begin shortly and will be carried on by the McAdoo people, the same ones who built the first tunnels under the river to lower Manhattan. Immense quantities of brick will be required for this work. The details haven't yet been completed, so it is impossible to give anything more than a bare outline of the possibilities, but it is said that the construction of these tunnels means the beginning of further extensions which will enter at present unoccupied territory in Manhattan, and possibly go under the river to Brooklyn.

The matter of paving is receiving considerable attention this spring and the complete failure of asphalt under what may be termed ordinary conditions of traffic; that is, ordinary conditions for New York, is being discussed more than ever before. A trip through almost any of the asphalted streets shows how seriously this question should be agitated. The streets are in a deplorable condition in many parts of the city, and nothing in sight promises any material improvement, or even a change, for the present. Accordingly, the proposed change to some other variety of paving seems to be well-nigh decided upon. Whether brick will get any consideration in this proposed change remains to be seen. Agitation of the matter might result in some benefit, though it is well known that it is a well-nigh hopeless task to undertake. There seems to be no possibility of ever convincing some of the New York officials that brick is the best and cheapest paving in the long run. BURTON.

WE WANT FACTORIES.

Ft. Smith, Arkansas, offers to capital, seeking investment in factories, to individuals or corporations having manufacturing plants and looking for new locations with greater opportunities, the best proposition possible to-day in the United States.

Ft. Smith is situated in the center of almost fabulously undeveloped wealth of semi-anthracite smokeless coal; the largest gas field in the United States; vast deposits of splendid building stone; in the close neighborhood of approximately twenty billion feet of commercial hard and soft wood timber.

Ft. Smith has forty thousand population—nine railways—and is the natural and logical center for the manufacturing and wholesale market for the Southwest.

Ft. Smith has no city debt, has splendid homes, fine schools and churches, beautiful parks and public buildings, and every street in the city is being paved. It presents magnificent opportunities for both labor and capital. Jobbing trade now \$40,000,000 annually.

We want factories of every kind and character, in metal, wood and textiles, and will make every reasonable concession to parties desiring to locate here. The clay deposits present an especially attractive proposition to manufacturers of high grade tile, brick and terra cotta, sewer pipe and a line of clay goods. There is a place for a big plant right now.

For further information address the

COMMERCIAL CLUB, Ft. Smith, Ark.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED.

A partner with some capital to go into the brick business in Texas. Address
5 1 dm LEES, Care Clay-Worker.

WANTED.

Experienced man to buy interest and take management of a cement tile plant. Address
4 2 dm Box 81,
Independence, Iowa.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CONTRACTING CO.,
4 tf d Zanesville, Ohio.

FOR SALE OR LEASE.

Brickyard plant ten miles from Kansas City, Mo. Capacity, 25,000. Six acres of good clay land. Best of shipping facilities. Cheap. Address
JAS. HUGHES,
5 1 cm 227 Harrison ave., Liberty, Mo.

WANTED—A superintendent for a roofing tile plant. A man capable of installing all machinery and familiar with every detail in manufacture of roofing tile. Give age, experience and references. A liberal proposition to the right man. Address
5 1 cm BOX 245, Care Clay-Worker.

FOR SALE.

Roofing tile machinery. One No. 39 American roofing tile press with dies. One Mascot American stiff mud brick machine with hand cutter. One steel rack and pallet car. One four-mold dry press of standard make. The above used six months.
W. O. KUTSCHE,
5 1 cm Denver, Col.

WANTED.

A man to take charge of machine in mill room of an up-to-date brick plant, American machines. A man who is competent and wants to work up to take entire management and will take an interest in the company is what we are looking for. Address
5 1 cm ED. MAYO,
Care Clay-Worker.

FOR SALE.

One Creager's six-mold soft mud machine with pug mill and disintegrator, 35 h. p. engine and boiler, sand dryer, four dump cars, wheelbarrows and trucks, kiln doors and grate bars, and 25,000 pallets with racks for same. At a great bargain if taken at once. E. R. McCABE & CO.,
5 1 cm Jackson, Tenn.

WANTED—Situation as superintendent of a clayworking plant. Applicant has practical experience in the manufacture of face and paving brick, stiff mud process; hollow goods, sewer pipe, drain tile and electrical conduits. Also have had technical training in other branches of the clay industry. First-class references. Address
4 3 c J. L. S. K.,
Care Clay-Worker.

PRESS BRICK FOREMAN AND HEAD BURNER.

We can furnish a high-class combined yard foreman and head burner for a press brick plant with down-draft kilns. Satisfactory results guaranteed in the making of red, buff, gray, mottled and flashed brick. Address ILLINOIS SUPPLY AND CONSTRUCTION CO., Century bldg.,
5 1 L St. Louis, Mo.

FOR SALE.

Rebuilt "Martin" steam power brick machine. HENRY MARTIN BRICK MACHINE MANUFACTURING CO.,
5 1 L Lancaster, Pa.

FOR SALE—One Grath Special four-mold dry press; one American two-mold dry press. Both in first-class condition.
SOUTHERN CLAY PRODUCTS CO.,
5 1 d Chattanooga, Tenn.

FOR SALE.

Seventy double-deck dryer cars, our No. 166, 24-inch track gauge. Good as new. Also several good second-hand represses.
OHIO CERAMIC ENGINEERING CO.,
5 1 L Cleveland, Ohio.

ATTENTION CLAYWORKERS.

We have installed cost systems in clayworking plants and have a thorough knowledge of the business. We will be pleased to lay our methods before any interested firms. Address
4 3 dm BOX 10,
Care Clay-Worker.

FOR SALE—Four-mold Boyd & Simpson dry press, three-mold Boyd and Andrus press, two-mold Berg, Boyd, Whitaker and U. S. dry press; dry pan, pulverizer, elevator, screen, thirty-five sand-line brick cars, and 65-foot curing cylinder. Address
5 2 cm BOX 443, Denver, Col.

FOR SALE.

Only brickyard in city of 7,000, modern machinery, only bed of clay suited for brick; nearest competitor thirty miles. Good reason for selling. A fine chance for practical brick manufacturer. Address
4 2 cm ADAM PAULUS,
Marshfield, Wis.

FOR SALE.

One No. 4, four No. 5 and one No. 6 Nye steam pumps, practically new, used during an emergency, about one month, pumping clean Fox River water. A great bargain. Prices low.
WM. A. FANNON,
5 1 dm Appleton, Wis.

WANTED—Position as general superintendent or manager of a large brick works or the building of same. Have had twenty years of practical experience and thorough knowledge of the business. Address
5 1 d BRICK SUPERINTENDENT,
P. O. Box 81,
Coffeyville, Kans.

FOR SALE.

Four-mold Boyd press, Grath Special hand-power press with octagon and radius dies. Chandler & Taylor engine, 11x14, 60 h. p., 7-foot pan, pulleys and shafting. All in first-class condition. Inquiries solicited.
DILLONVALE BRICK AND TILE CO.,
5 3 dm Dillonvale, Ohio.

FOR SALE.

One ¾ housing 8-foot wheel, Rodgers waste heat fan. Built especially heavy. Water cooled and ring oiling bearing with 72-inch pulley. Used eight months. Shows no wear at all.
DALLAS COUNTY BRICK AND TILE WORKS,
4 2 d Adel, Iowa.

FOR SALE.

The plant and clay banks of the New York Brick and Paving Company at Syracuse, N. Y., situated on the Erie Canal and the New York Central Railroad. Plant in first-rate condition to make paving brick and the famous New York Brick and Paving Company's acid-proof brick. Will sell the whole plant or a majority of the stock to a live, up-to-date brick man. For further information, address
C. H. KING,
201 S. A. & K. bldg.,
3 3 cm Syracuse, N. Y.

FOR SALE.

One two-mold Simpson dry press machine.
One three-mold Andrus dry press machine.
One E. M. Freese & Co.'s board delivery cutting table.
DUNLAP MFG. CO.,
5 tf L Bloomington, Ill.

FOR SALE CHEAP.

A three-brick Andrus steam press complete, in first-class condition, together with a Williams disintegrator, sieve, belts, shafting, pulleys and elevator, ready to run. Will be sold at a sacrifice. Address
THOS J. ROSE BRICK MFG. CO.,
5 3 d Erie ave. and G st.,
Philadelphia, Pa.

WANTED.

Situation as superintendent. Have a practical knowledge of the manufacture of clayware in all branches, enamel ware, salt ware, glazes, stoneware, flooring and roofing tile. Also all kinds of kilns and the setting and burning of same. Also familiar with the manufacture of paving brick. Address
5 tf d ENGLAND,
Care Clay-Worker.

FOR SALE.

An up-to-date tile plant, located on the P. C. C. & St. L. Railroad in central Indiana. An abundance of fine clay. Excellent equipment, two Atlas 60 h. p. boilers, Chandler & Taylor engine, complete line Madden machinery. Four kilns. Make 30,000 brick daily. Can not supply orders. Reason for selling, owners wish to retire from business. Address
3 tf L INDIANA,
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FOR SALE OR LEASE—A good soft mud plant, equipped with Quaker machine, drying racks, etc. Will be sold or leased on very reasonable terms. A fine opening for a practical man. The plant is located twenty-five miles from the capital of the state. An abundance of good clay and shale, cheap fuel and low freight rate. For full particulars, address
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FOR SALE.

Thew Shovel No. 7, 1½ yd., practically new.
Thew shovel No. 3, traction wheels, 1 yd., used about a year.
L. G. Special, std. gge., used six months. Send for fifteen-page list for up-to-date clayworkers. THE MALES CO.,
26 Cortlandt Street, New York City.
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BRICK PLANT FOR SALE.

One of the most complete stiff mud brick plants in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address
5 1 dm S. C.,
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FOR SALE CHEAP.

One Chisholm, Boyd & White extra heavy sand-lime brick press. Can be used for soft mud brick.
One Camer 52-inch by 25-foot, rotary clay dryer, filled with automatic stoker and elevator.
One No. 30 Sturtevant suction blower. Four Fairbanks hopper scales.
Six elevators from 20 to 26 feet centers.
One 13x16 Buckeye engine, belted to 50 k. w. General Electric 240-volt dynamo.
One Walker, Elliott & Walker crusher. Lot of chain and sprockets. Everything practically new.
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FOR SALE, \$50,000,

Practically New Shale Brick Plant, Up to the Minute in Convenience and Equipment. Capacity 25,000 Brick Daily.

Freese machinery with power sufficient for 50,000 brick daily. Waste heat system which works perfectly and is a big money saver. Down draft rectangular kilns of 600,000 capacity.

Specialty, dark red facing brick. Product finds ready sale.

Inexhaustible supply of shale of the finest quality, either for pavers or facers. Shale very convenient to the plant and is brought in by gravity.

WHY SHOULD SUCH A PLANT BE OFFERED FOR SALE?

The reason is simply this: the present manager, who is also a stockholder, is compelled to relinquish the management, and in consequence the plant will be sold at a price which will please the purchaser.

A QUICK SALE is what we are after, not expecting to get our money back. Write us for further information.

STANDARD SHALE BRICK CO., Youngsville, Warren Co., Pa.

FOR SALE.

Large Brick Plant and Clay Beds at Clayville, New Jersey. Plant equipped with Engine, Boilers, Brick Machine, Pulp Mill, Repress Machines, etc. Is located on the main line West Jersey & Seashore R. R., on a 12 acre plot. There are 110 acres of good buff clay, white sand and



gravel, situated about a mile from the railroad main line, connected with a switch from main line. Any further particulars can be had by addressing

**THE CLAYVILLE MINING & BRICK CO.,
1611 Filbert St., Philadelphia, Pa.**

INVEST IN PRESSED BRICK AND TILE PLANT

In HOPE, Arkansas, where we have four lines of railway in daily operation, fifth building and sixth lately surveyed.

HOPE is the highest point on the Main Line Iron Mountain railroad in Arkansas; is 93 feet higher than the location of Little Rock, has a population of 5,303 and is steadily growing. We have the best of water, mild and healthful climate.

A plant making Pressed Brick and Tiling is very much needed here, as now all our first-class building brick and all Tiling are shipped here at \$15.00 to \$30.00 per thousand for pressed brick and 5 cents for cheapest farm drain tile.

Large territory to be supplied from here. One mud brick plant here, but no other clayworking plant of any nature.

Excellent shale here for this business right on prominent railroad just outside the corporation. This 40 acres of shale land can be had at the low price of \$40.00 per acre; this land is so close to town that it is worth the price without consideration of the valuable shale and clays.

Good practical brickmakers have tested this shale and one or two will invest \$2,000 if you wish.

Come and go over the proposition, when I feel confident that you will be more than pleased with the outlook, and wills no doubt, wonder why such plant has not long since been located here.

I have samples of pressed brick to show the above tests of this shale, and you are invited to personally examine and test it yourself. Address

A. P. DYKE,

Factory Locations and Land Broker, Hope, Ark.

FOR SALE.

Two-acre lot, 500 feet railroad frontage; four new down-draft kilns, 22 feet inside diameter; two 100 h. p. boilers (new), warehouse, stable, and lot of machinery saved from fire. Liberal terms at one-fourth its value. Address

MEMPHIS STONEWARE CO.,
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FOR SALE.

One 30 h. p. boiler and 25 h. p. engine; makers, Leffel Water Wheel Co.; one extra heavy Quaker brick machine, belts, shaftings and conveyors for same; one Quaker sander; one Quaker or Wellington 5 leaf dump table; three Wellington mule trucks used 5 days; three Raymond single deck, ten pallet trucks, nine brick trucks; 20,000 five-eighths, three board top and three cleat white pine pallets; 15,000 33 1/2-inch by 10-inch, 5,000 32 1/2 by 10-inch pallets, made by Mershon, Parker, Eddy Co., Saginaw, Mich., and racks for same, consisting of white pine posts and cleats. These racks are double posts. Rooves and dashes for same and enough grate bars and kiln doors for 36 arches. The plant has been used five years and is in A No. 1 condition. Anyone buying this plant living within a radius of 800 miles will be paid his fare both ways. A. GRUBE & SON,
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REBUILT ENGINES AND BOILERS.

The cleanest and most thoroughly rebuilt. All our own and in stock. Not scattered everywhere and merely listed.

ENGINES—CORLISS: 20x48 Wheelock, 20x42 Allis, 18x 42 Hamilton, 16x42 Lane & Bodley, 14x36 Lane & Bodley, 14x24 Wright, 12x30 Allis, etc.

ENGINES—AUTOMATIC: 16x32 Buckeye, 15x14 Erie, 14 1/4x16 Buckeye, 14 1/2x14 Ball & Wood, 13 1/2x15 Taylor, 13x16 Erie, 12x14 Green, 12x12 N. Y. Safety, 10x10 Fisher, 9 1/2x12 Leffel, 8x10 Allfree, etc.

ENGINES—THROTTLING: 18x24 Erie, 16x20 Chandler & Taylor, 16x18 Erie, 14x24 Atlas, 13x 16 Chandler & Taylor, 14x14 Lewis Vertical, 10x16 Owens, Lane & Dyer, 10x12 Industrial, 9x12 Ajax, 8x12 Climax, 7x12 H. S. & G., 6x8 Clark, etc.

BOILERS—STATIONARY: 72x19 High Pressure, 72x 18 Standard, 72x16, 66x16, 60x20, 60x16, 54x16, 54x14, 54x12, 48x16, 48x14, 44x14, 40x12, 40x9, 36x16, 36x10, etc.

BOILERS—FIRE BOX: 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h. p., etc.

BOILERS—VERTICAL: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 h. p., etc.

HEATERS: All sizes, open and closed.

PUMPS: All sizes, single and duplex.

SAW MILLS, LATH MILLS, EDGERS, CUT-OFF SAWS, TANKS, Etc. Write for list.

Also full assortment of new machinery. Sole manufacturers of the celebrated "LEADER" INJECTORS and JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers st., Cincinnati, Ohio.

WANTED.

To lease or take a part interest in a brick plant. Southern Texas preferred. Address M. S., 51 d Care Clay-Worker.

FOR SALE.

One 4-mold Ross-Keller brick press in good working condition. Has been used only one year. CHISHOLM, BOYD & WHITE, 51 f d 57th and Wallace, Chicago, Ill.

FOR SALE OR LEASE.

Tile and brick plant in Southern Minnesota. Reason for selling, owner not a practical brick man and has other business to look after. Address JOHN GEIB, Bingham Lake or Gaylord, Minn. 43 cm

FOR SALE—One four-mold Berg press, with five sets of liners, all in first-class condition. Address THE KENTUCKY FIRE BRICK CO., Factory, Haldeman, Ky. 42 dm Office, Portsmouth, Ohio.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO., 21 f L Cleveland, Ohio.

WANTED—POSITION.

As superintendent or foreman of a dry press or stiff mud brick plant. Am a first-class machinist and am thoroughly familiar with all kinds of brick machinery. Can handle either up or down-draft kilns, burning wood, coal or oil. Am strictly temperate and can give the best of references. Address BOX 220, 42 d Care Clay-Worker.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO., 21 f L Richmond, Va.

WANTED.

Position as superintendent of brick plant. Was superintendent of St. Louis Press Brick Co.'s plant for six years; superintendent of Jamestown Shale Paving Brick Co.'s plant for nine years, and also superintendent of Denny-Renton Clay and Coal Co. for two years. I am a thoroughly practical, up-to-date brickmaker, with No. 1 references. Address "GEO. C.," 42 c Care Clay-Worker.

FOR SALE—Brick and tile plant, consisting of fifteen acres of land; 30,000 capacity stiff mud machine with tile attachment for making from 4 to 30-inch tile; 60 h. p. boiler; 45 h. p. engine; three-story drying house, brick drying sheds and 250,000 brick kiln and tile kiln. Machinery securely housed and been run but little. Clay suitable for manufacture of tile and brick. Address W. P. ECKLES, Odd Fellows' bldg., 43 cm Memphis, Tenn.

FOR SALE.

Dry pressed brick plant, situated about 120 miles from Houston, Texas, on G. C. & Santa Fe Ry. Has Ross-Keller machine of 20,000 capacity, Atlas engine and large boiler, all in good condition, four kilns, and about thirty acres of ground and a large supply of clay.

Company capitalized for \$60,000 under Texas laws, and has been worked twelve months by manager for the company. Owner is going abroad, and, having no personal knowledge of the brick business, is desirous to either sell the whole at a sacrifice or substantial interest to competent brick man who will reside on the property and personally manage it. Good market for brick. For further information, address BOX 1904, 51 dm Care Clay-Worker.

BRICK and MORTAR

COLORING

For thirty years "COLORIFIC COLORS" have steadily grown in favor of Brick Manufacturers and Builders.

FREE SAMPLES ON APPLICATION.

JAMES M. WELLS CO., Ogdensburg, N. Y.

A FINE BRICK PLANT IN CALIFORNIA.

I have 176 acres of very fertile land on the Sacramento river, the only clay that makes good brick in this vicinity, with sufficient wood to burn several million brick. Brick bring a wholesale price of \$11.50, retail \$15.00. I want a good practical brickmaker with \$10,000 to buy half interest, or will sell entire for \$18,000; one-third cash, balance as you can make it. Country is growing and progressive.

Address 126 cm

D. MADIGAN,
Chico, Butte Co., Cal.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
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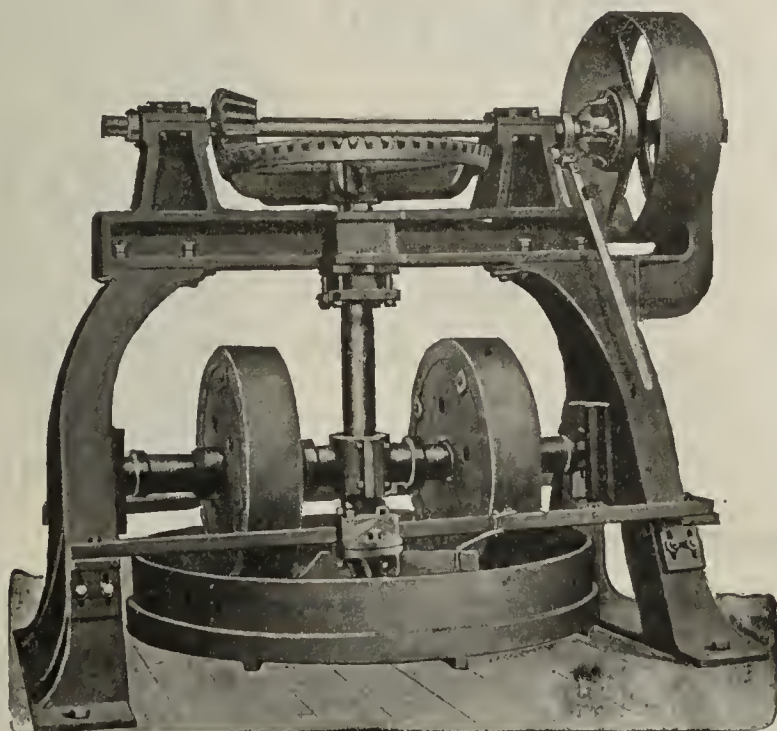
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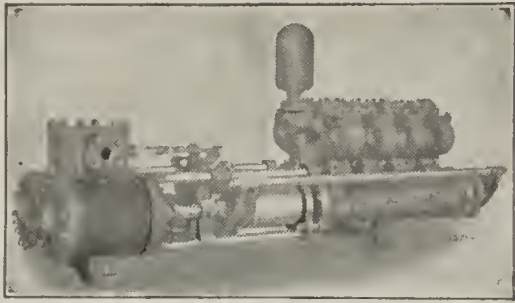
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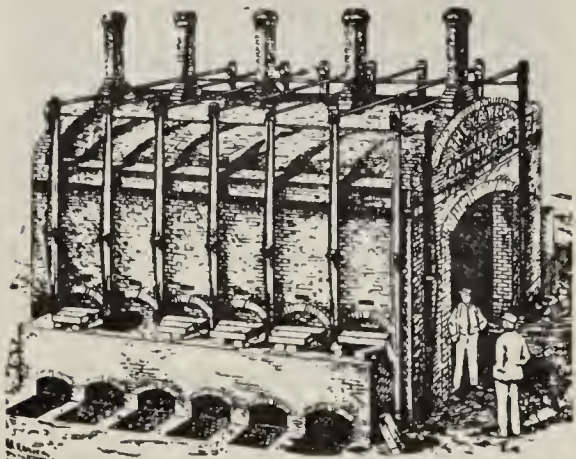
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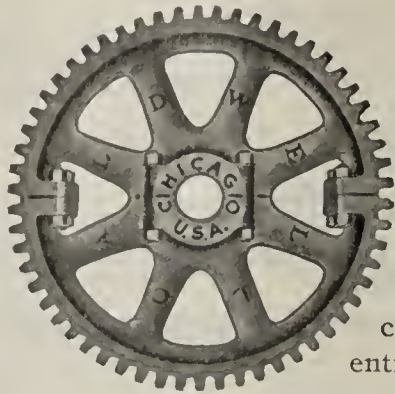
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The Yates Patent Down-draft Kiln.
Also Continuous.

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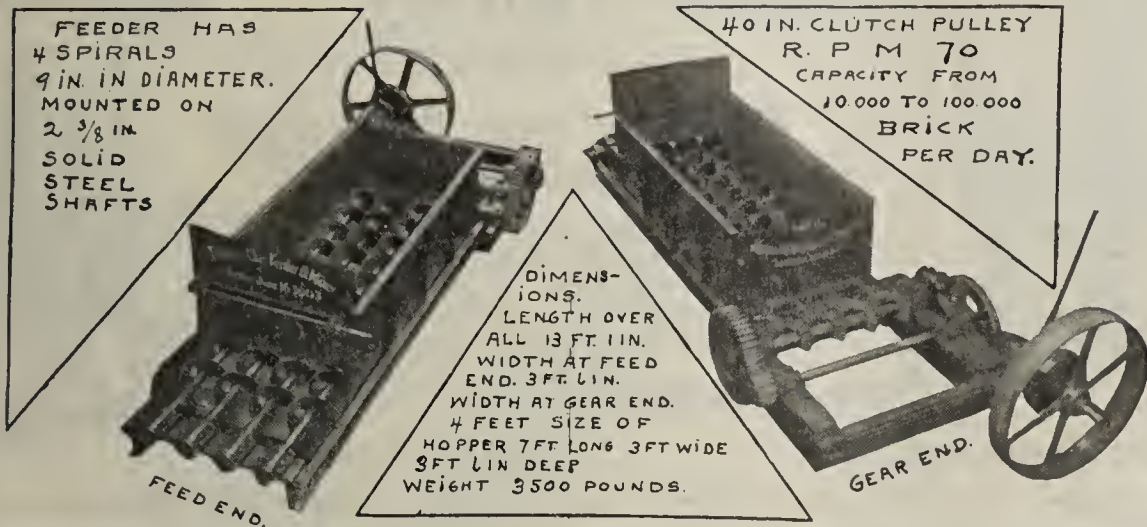
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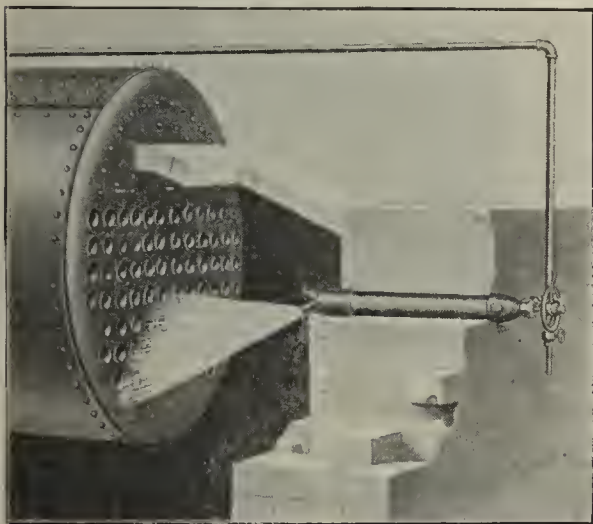
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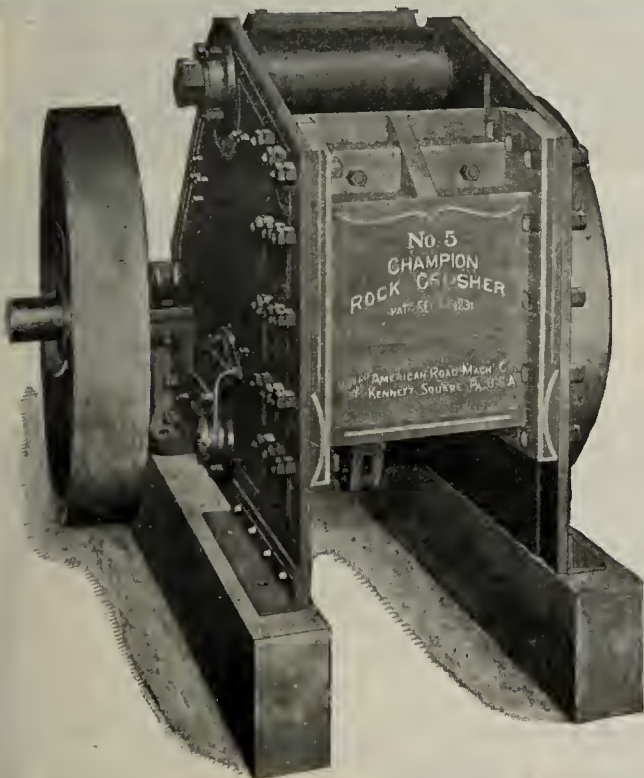
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Will save 10% of your fuel—Will insure you clean tubes—Will prolong the life of the boiler—Will prevent the accumulation of soot—Will save the cost of steam hose—Will enable you to clean your boiler while in commission.

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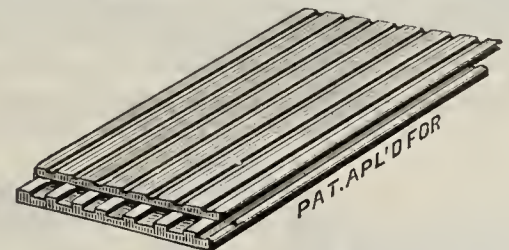
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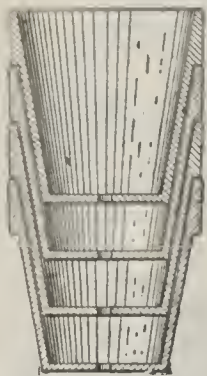
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Patented April 14, 1903, and September 8, 1903.

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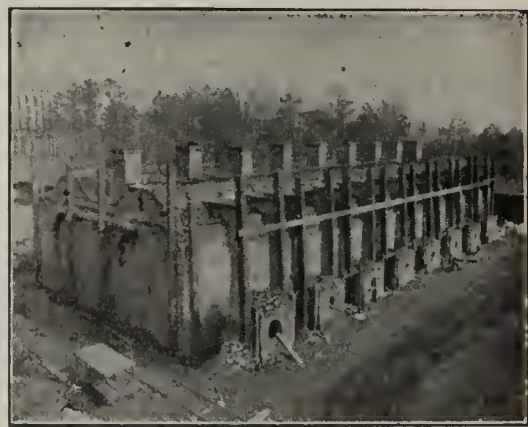
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Some New Features About This Kiln.

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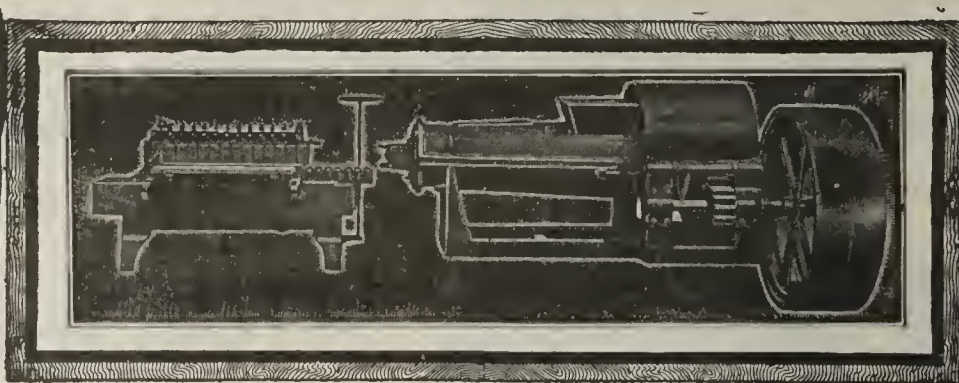


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Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

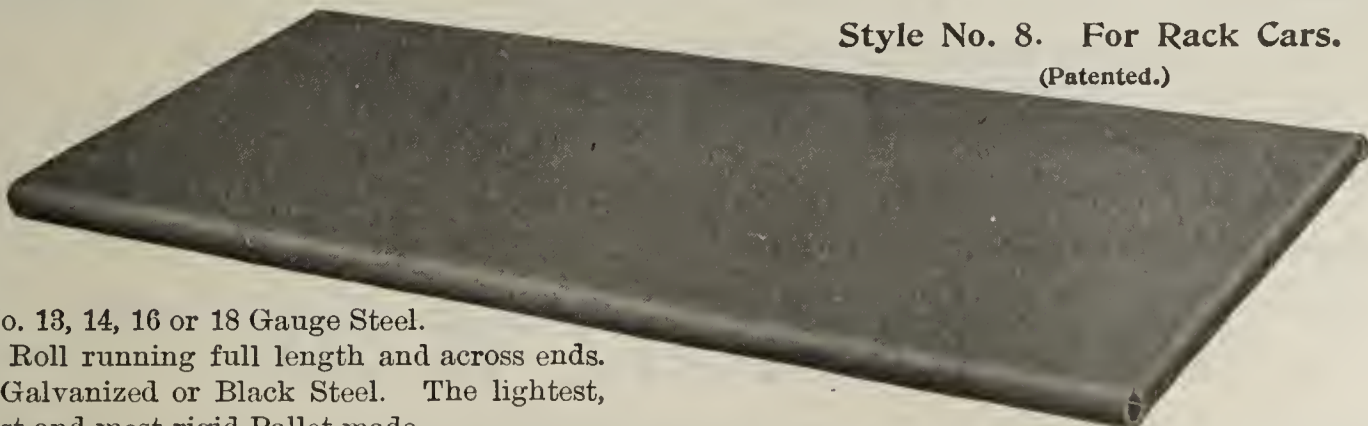
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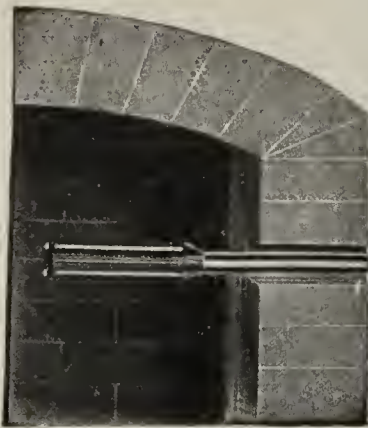
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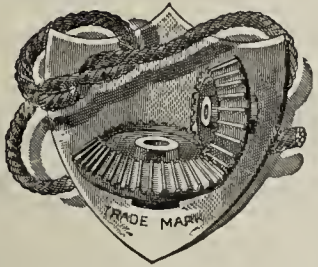
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The CLAY-WORKER, INDIANAPOLIS,
—INDIANA.

The
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
 100 William Street,
 NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES
 R. & H. PRECIPITATED.

Oxide Tin,
 Oxide Cobalt,
 Red Oxide Iron,
 Green Oxide Chrome,
 White Oxide Antimony,
 Black Oxide Manganese and
 all Chemicals used by the Clay Trades.

The Ceramic Supply and Construction Company

Write us for Clayworking Specialties, Brickyard and Pottery Supplies, Controlling Apparatus for
 Power Plants, Factories, Dryers and Kilns.

See display advertisement in THE CLAY-WORKER next month.

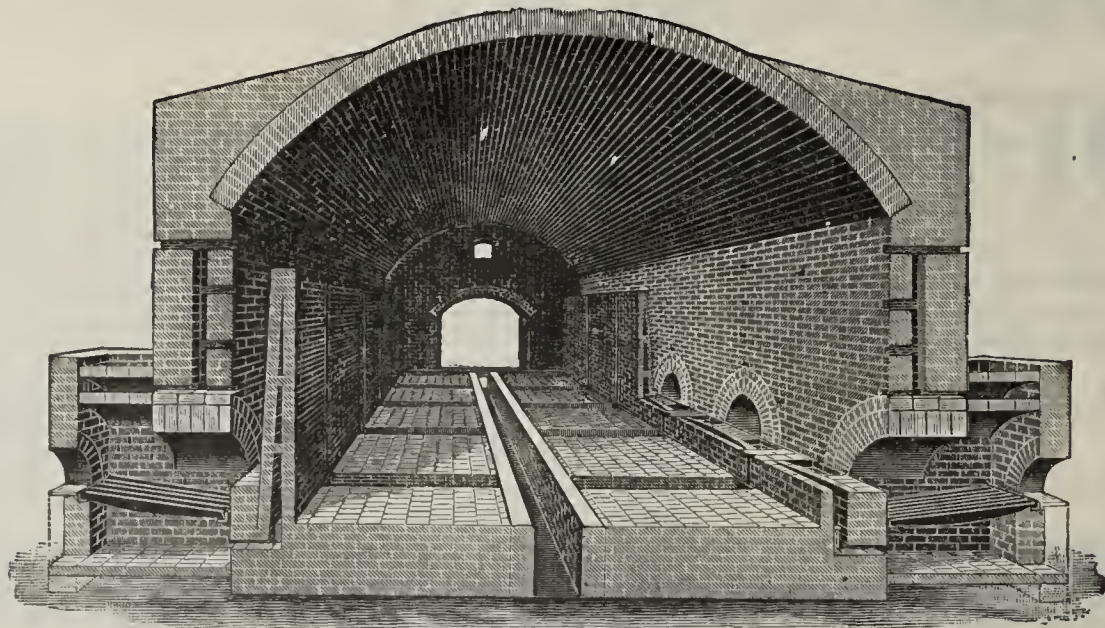
CATALOG?

280 North Front St., Columbus, Ohio.

PRICES?

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

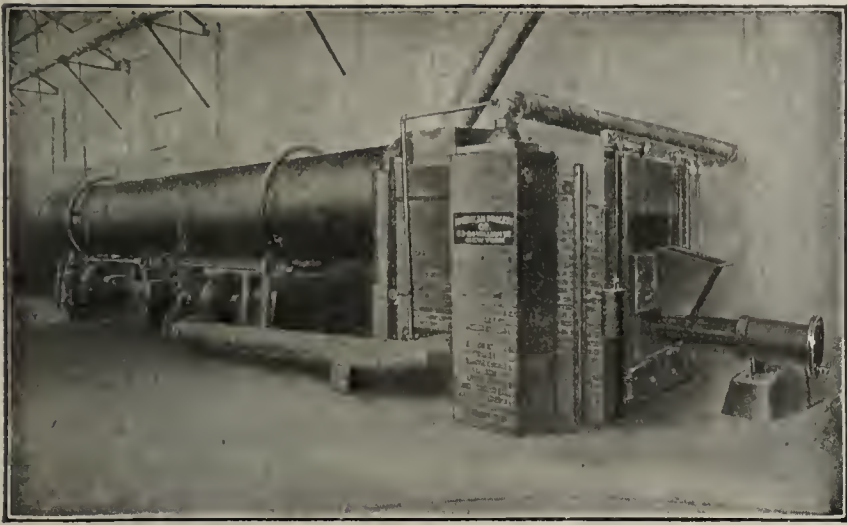
The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.



Automatic Improved DRYERS

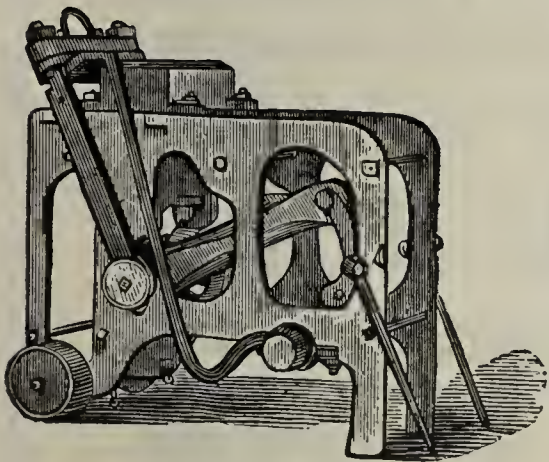
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

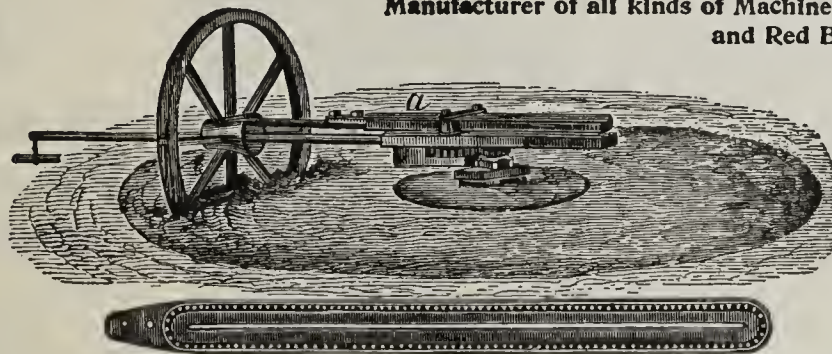


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Some Interesting Facts Relating to Drying Clay Products.

Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.



Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.

The Original ^{EXHAUST STEAM} Dryer is the National.

ROCKFORD BRICK COMPANY.

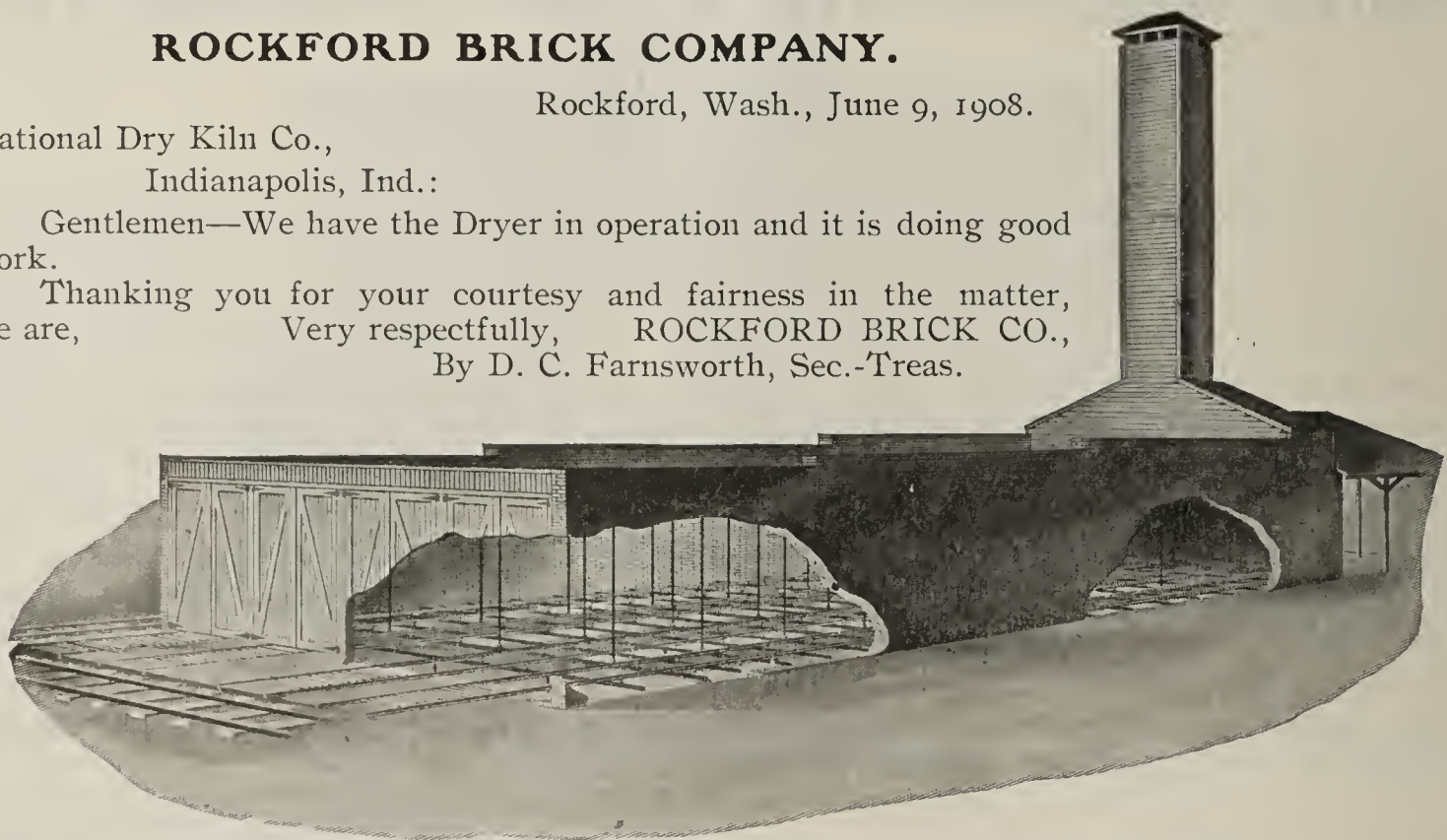
Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good
work.

Thanking you for your courtesy and fairness in the matter,
we are,

Very respectfully, ROCKFORD BRICK CO.,
By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.
Steel Roller Bearing Cars, etc.

No Fire Danger.
Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
 Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
 Paving and Common Building Brick,
 AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

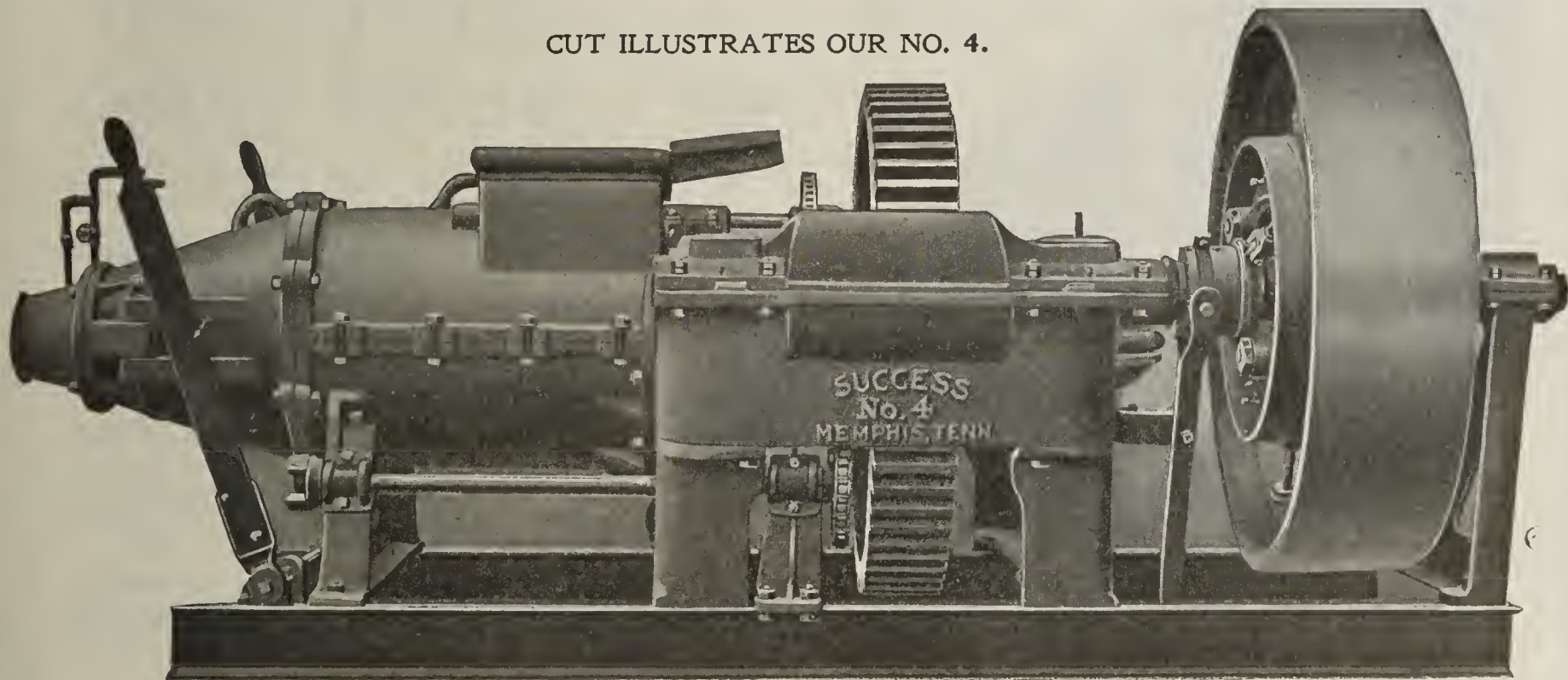
Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
 particulars
 address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

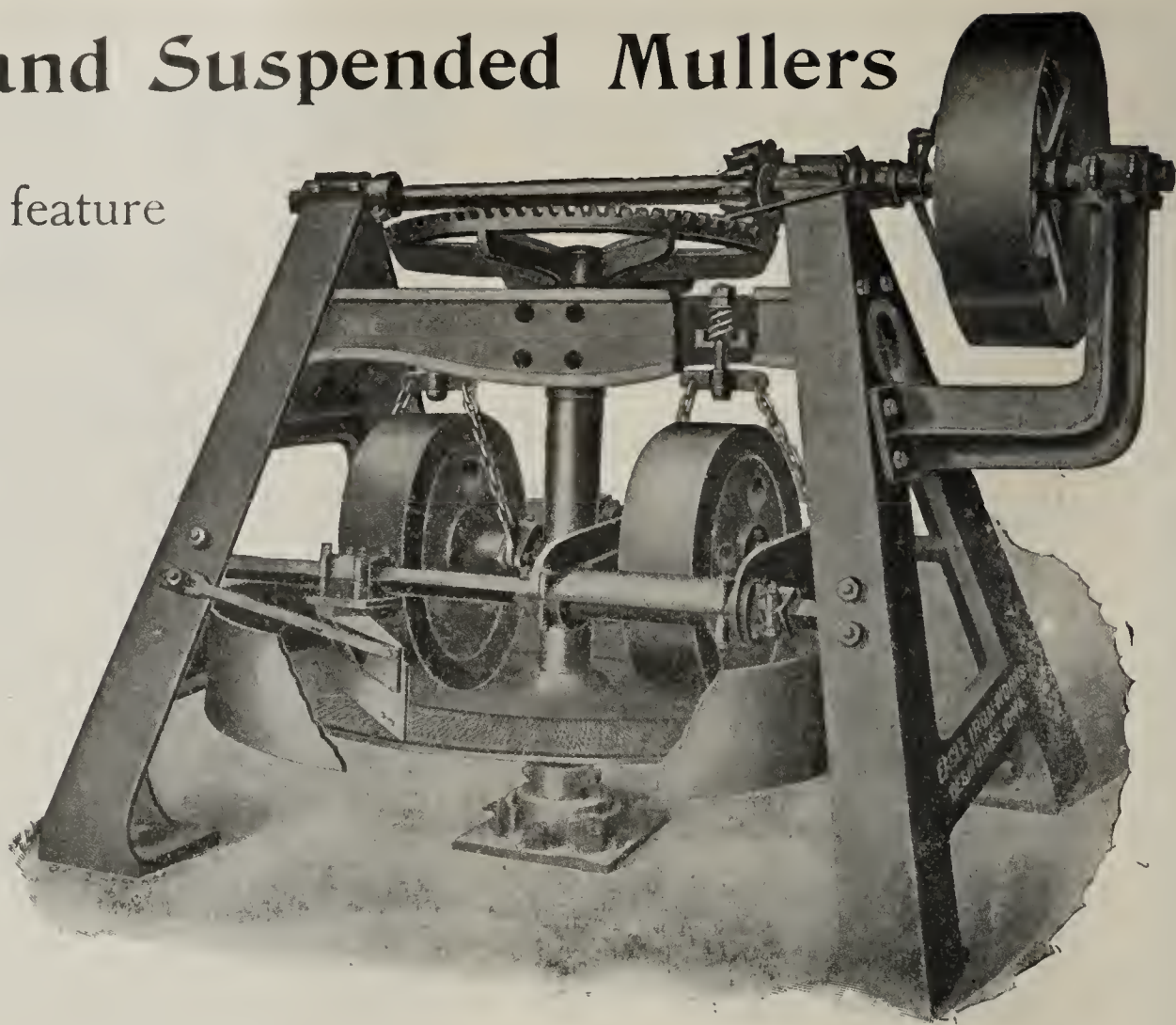
504 Goodwyn Institute, Memphis, Tenn.

Independent and Suspended Mullers

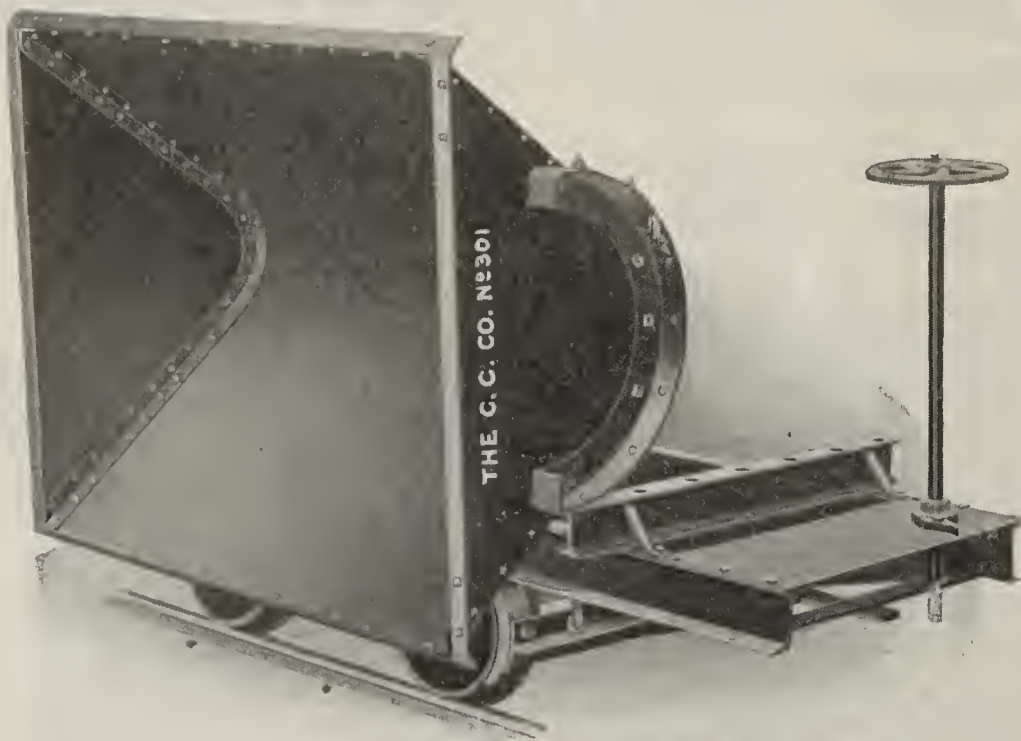
the distinguishing feature
of our

DRY PANS.

Other valuable
features which our
catalogue fully
describes.



EAGLE IRON WORKS, Des Moines, Ia.



NO. 301 ROCKER DUMP CAR.

CLEVELAND DUMP CARS ARE RIGHT.

We can convince you of that fact without difficulty through a trial order.

Many satisfied users will also corroborate this statement.

These cars are properly balanced, strongly constructed, run easy and clear the road thoroughly.

Note these features carefully in purchasing your equipment.

The Cleveland Car Co.

WEST PARK, OHIO.

Manufacturers of Industrial Railway Equipment for all Classes of Service.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Tile Underdrainage. By J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

The Youngren Continuous Gas Fired Kiln



As Installed at Omaha, Neb.

We are now ready to furnish licenses for the building of the Youngren Continuous Gas Fired Kiln.

The great labor saver and the wonderful fuel saver. It will give you a profit while your competitor is selling at cost. He can't stand up against your 60% to the good, besides the uniformity of burn obtained by no other method.

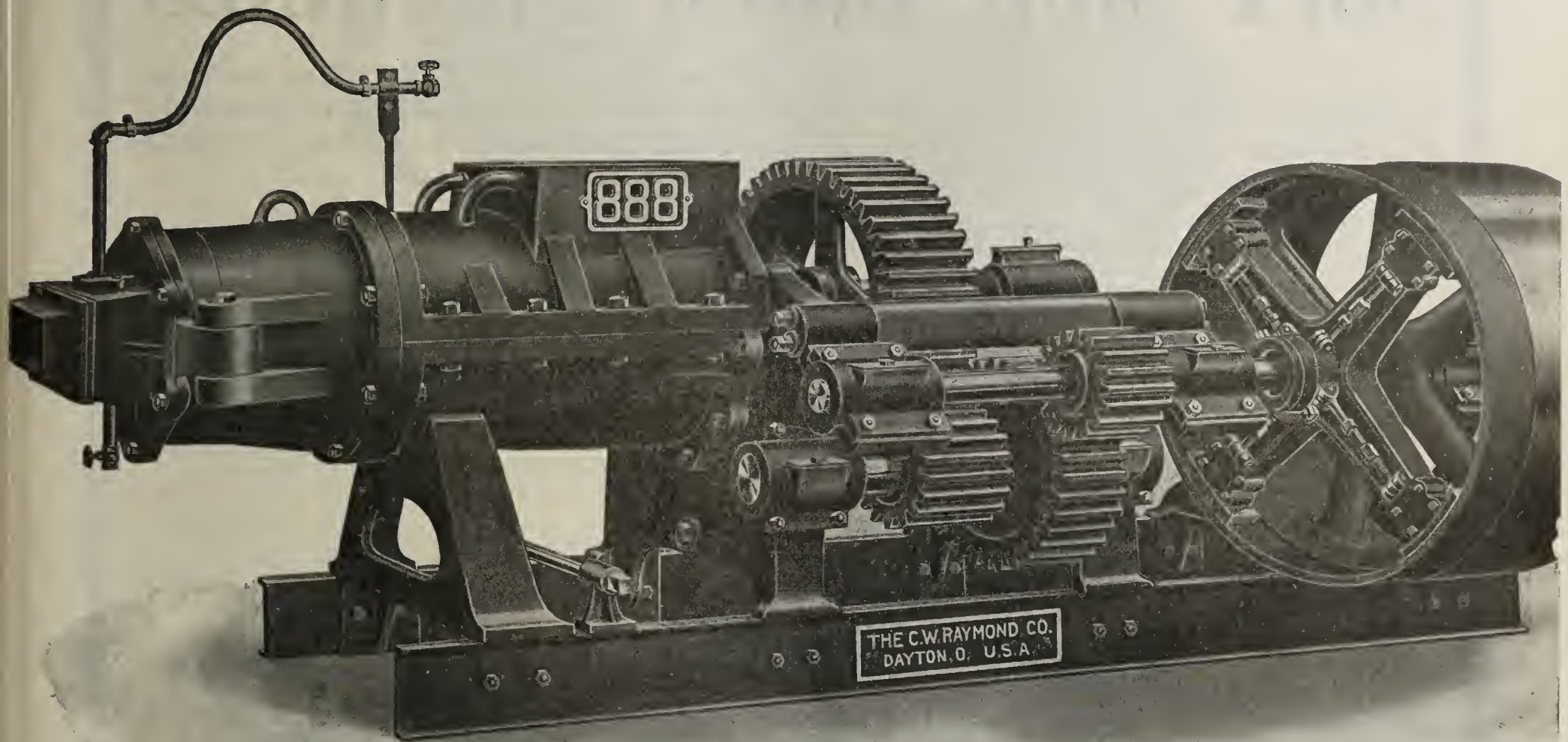
These claims are neither radical nor visionary, but susceptible of the highest proof, and we are ready to give this proof to you.

The C. W. Raymond Company,

Exclusive Licensees of the Youngren Patents,

DAYTON, OHIO, U. S. A.

DEMONSTRATED FIRST



The numerous novel features expressed in the construction of the "888" Brick Machine make it an ideal one. Not only the latest, but nearer perfection than has ever yet been attained in auger machine construction. Special features, such as the reduction of lamination, ease of operation, everlasting strength, minimum of horse power, and many other conveniences appear in it.

Claims made in its design have been thoroughly tried out under actual working conditions, in five widely divergent plants, manufacturing various products and operating entirely different materials.

Merely the request will bring you a copy of our Exhibit No. 2101, which will explain these thoroughly demonstrated claims.

THE C. W. RAYMOND COMPANY

The Strongest Single Power in the World of Clay Working Machinery

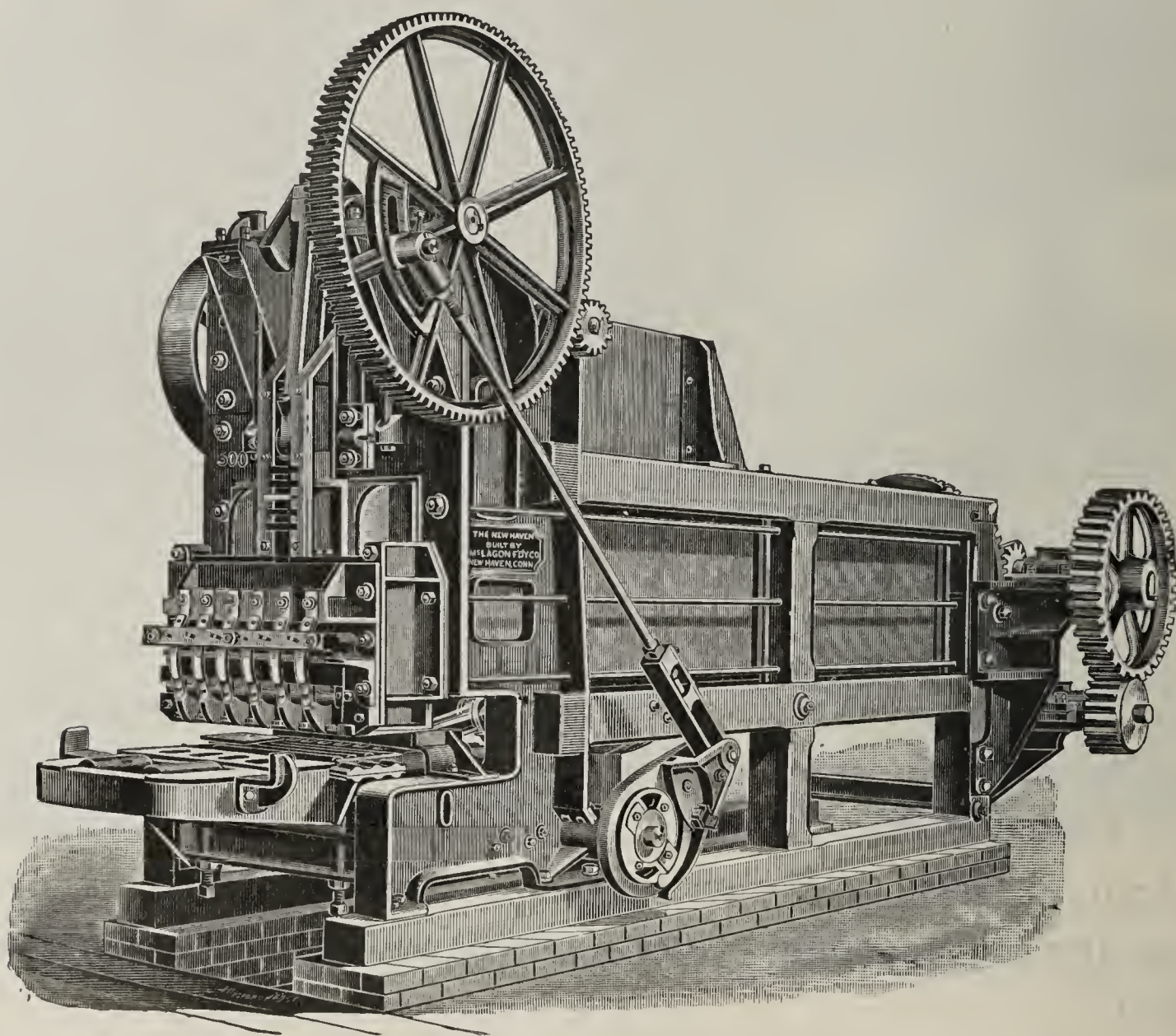
DAYTON, OHIO, U. S. A.

Mention The Clay-Worker.

SOFT MUD BRICK MACHINES

Are the only kind we build and we build them well. We build them with the greatest strength placed where it is the most required. We build them with stout shafts, long bearings, large oil holes, strong gears, steel liners, and all other details in proportion. We build them so they

DO NOT BREAK DOWN EVERY DAY.



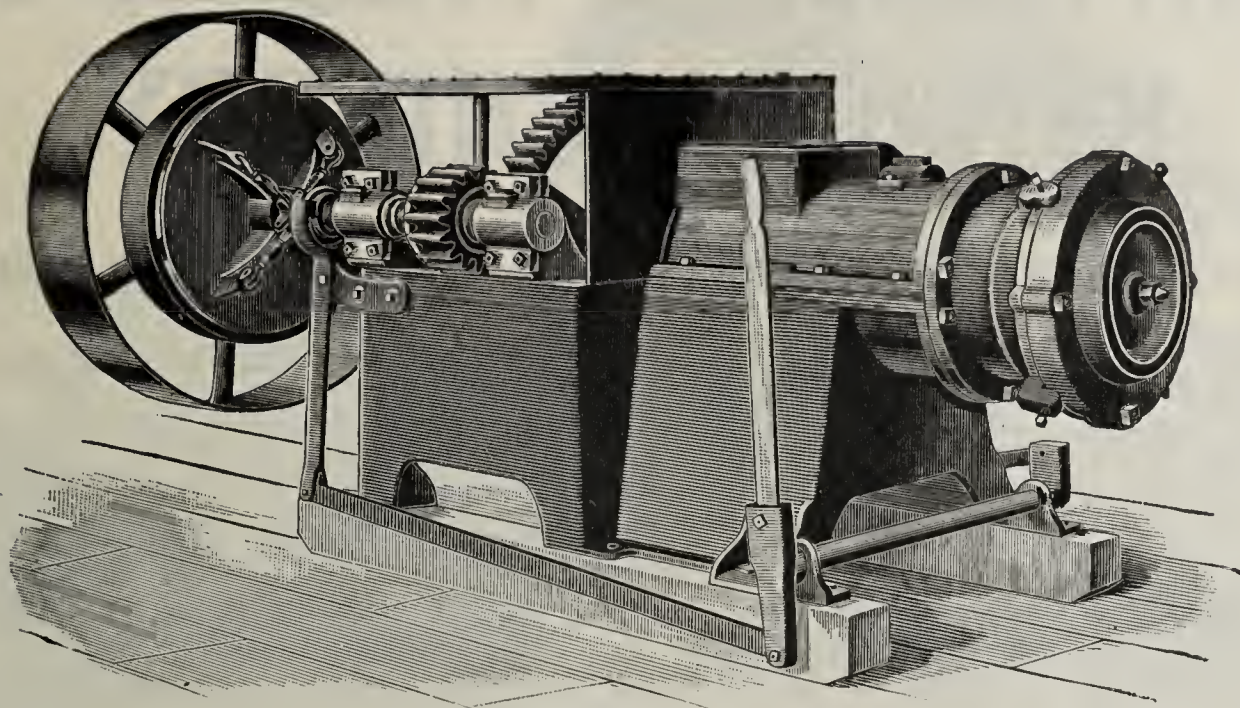
"New Haven" Horizontal Brick Machine.

NEW HAVEN BRICK MACHINES

are popular at home because of their superior qualities. More than three-fourths of the brick made in New England are the product of **New Haven** machines. For hard service they are sure to satisfy where others fail. That is the reason why each New Haven machine is a standing advertisement, and why all users recommend them.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.



NO. 25 LEADER BRICK AND TILE MACHINE.

OUR LINE OF Brick and Tile Machinery and Supplies

Represents the Combined Experience of

D. J. C. Arnold, New London, Ohio.

Established 1880.

Manufacturer of Brick Moulds, Barrows, Trucks, Dump Tables, Kiln
Doors, Ventilators, Grates, Bands, Etc.

Jonathan Creager's Sons Co., Cincinnati, Ohio.

Established 1881.

Manufacturers of Soft Mud Brick Machines, Pug Mills, Disintegrators,
Sanding Machines, Clay Elevators, Cars, Etc.

Leader Manufacturing Co., Decatur, Illinois.

Established 1889.

Manufacturers of Stiff Mud Brick Machines, Tile Machines, Represses,
Automatic Cutters, Crushers Etc.

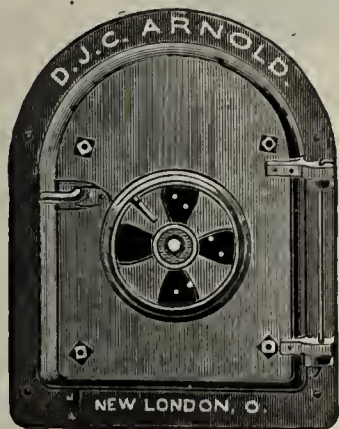
Continual usage brings out the weak spots in any manufactured article. The experience of several years past, has resulted in many changes of design and construction of our present line. We are not offering any experiments. Our machinery is giving satisfaction all over this country and in foreign lands. If you want the "Tried and True" line, address

THE ARNOLD-CREAGER CO.,

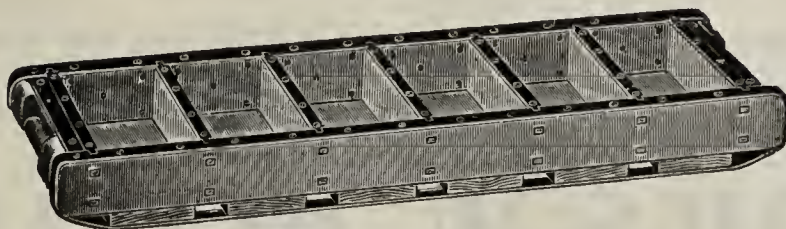
(Successors to the Above)

Shops and General Office:

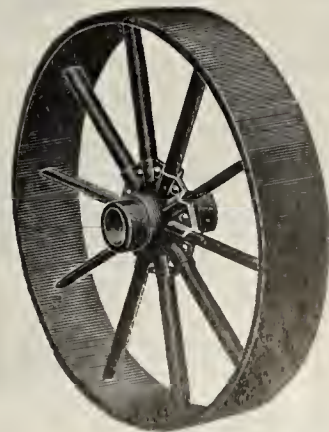
NEW LONDON, OHIO.



KILN DOOR



MACHINE MOULD
STEEL LINED FULL DEPTH AT ENDS
OF BRICK.



TRUCK WHEEL

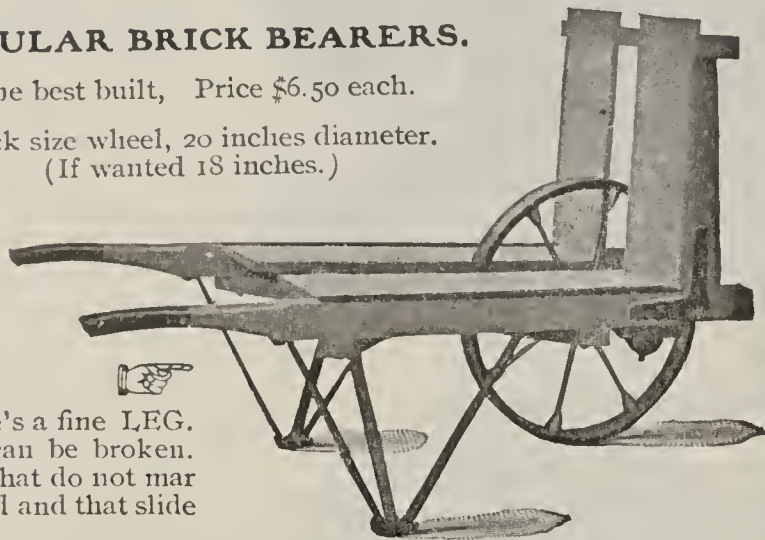
We manufacture a complete line of BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BEARERS.

The best built, Price \$6.50 each.

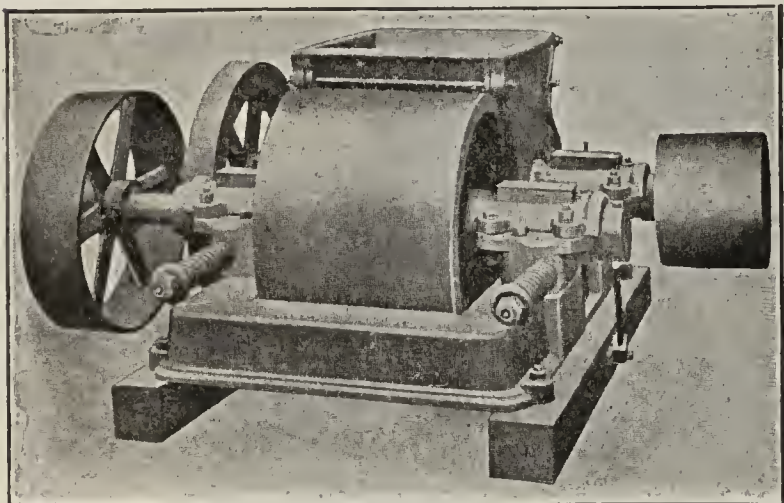
Stock size wheel, 20 inches diameter.
(If wanted 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

Our Heavy Clay Disintegrator.

Note the springs and what is said about them below.



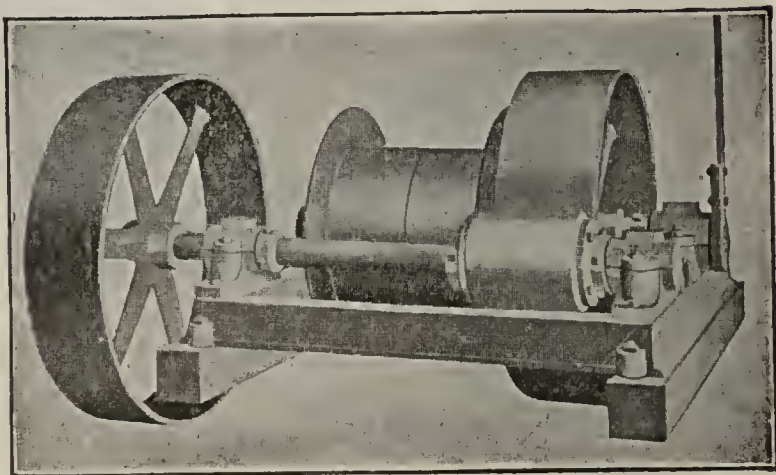
This particular disintegrator we believe to be much the best one that is built, as we intend it for large capacity, and to stand up to severe work for years. Both rolls are chilled. The journals are 10 inches in length. The small roll has a heavy balance wheel. Note its massive construction. There is a weighted scraper so hung that it automatically cleans the large roll.

RELIEF SPRINGS: After considerable experimenting we have learned just how to put relief springs on the large roll, and do it successfully. Occasionally a bolt or something else gets into a disintegrator that cannot be crushed, and it always means a smash-up. We have experimented long before adopting these, but can now guarantee them a success.

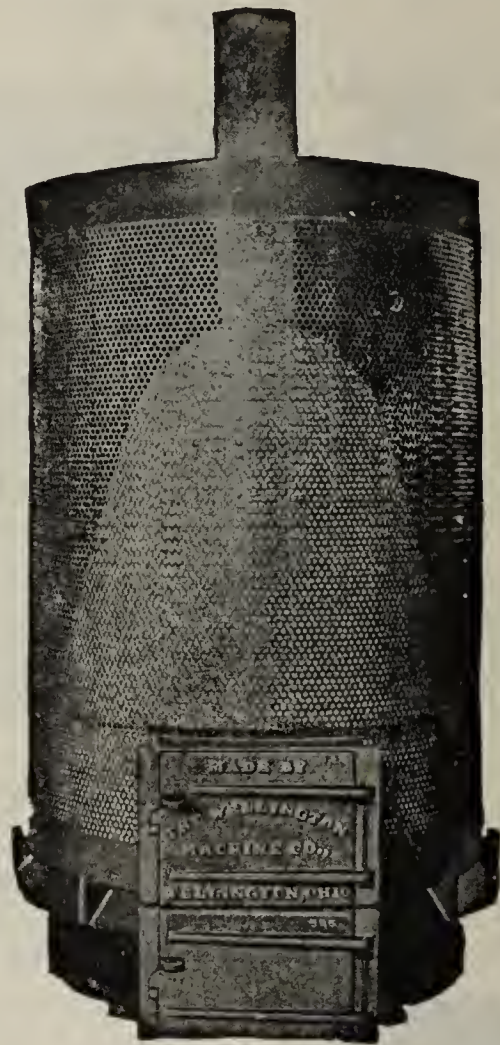
CAPACITY, 25,000 to 50,000 per day according to speed at which it is run. Pulleys fast roll 14 dia. x 10-in. speed, 700 to 800. Slow roll, 24 dia. x 6-in.; speed, 50 to 75.

1909 CATALOGUE MAILED FREE
ON APPLICATION.

Winding Drum.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.



Sand Dryer.

Weight, 1,100 lbs. Every brick works needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

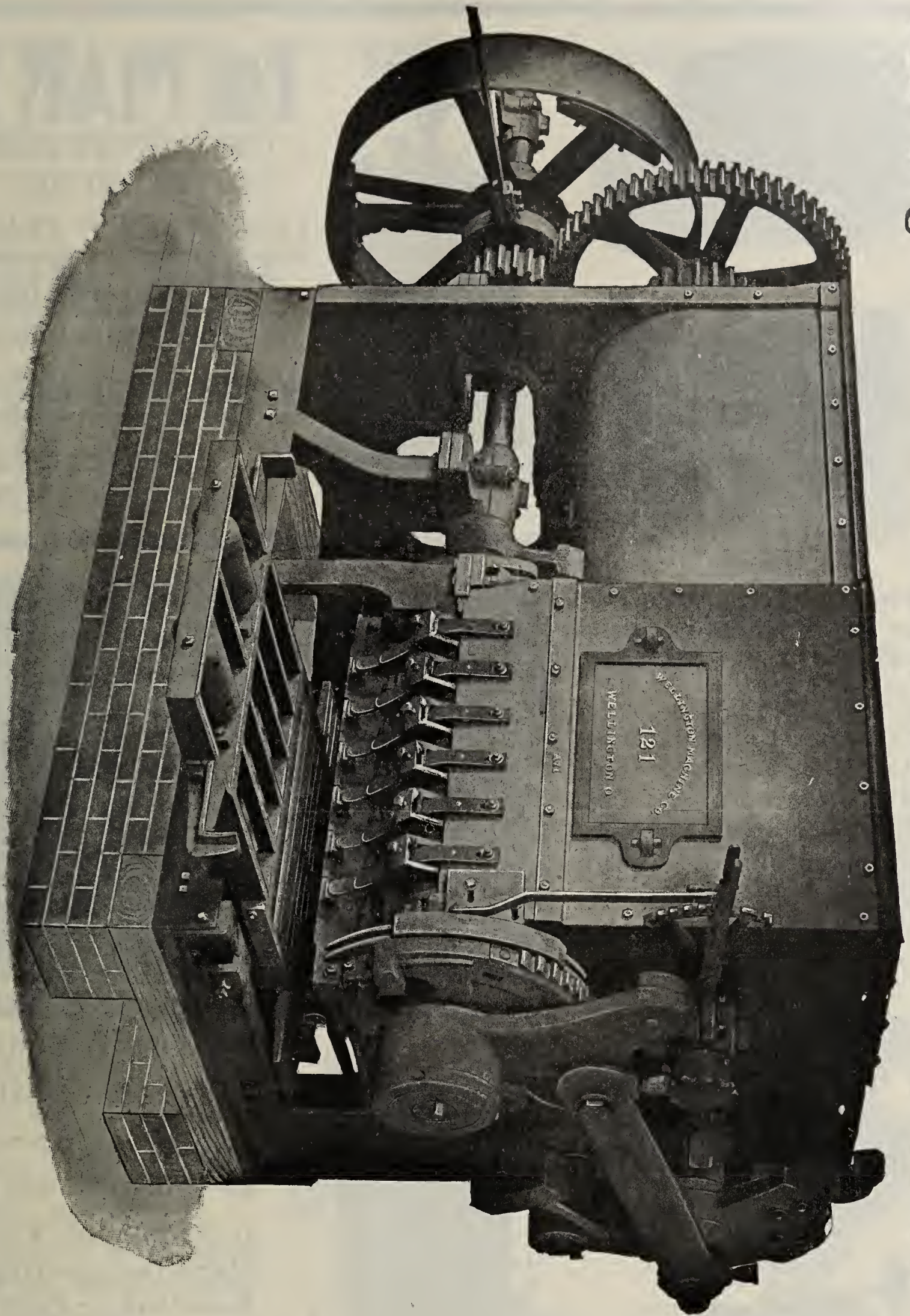
Indianapolis, Ind.

Mention The Clay-Worker.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

WELLINGTON,

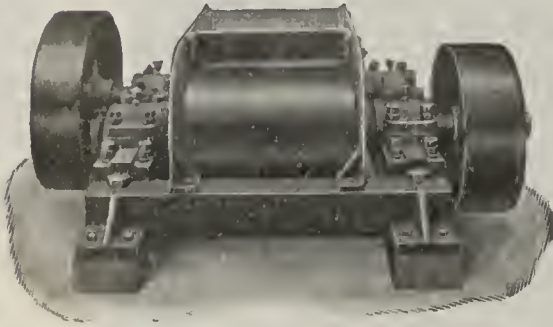
OHIO.

Send for Catalogue.

Mention the Clay-Worker.



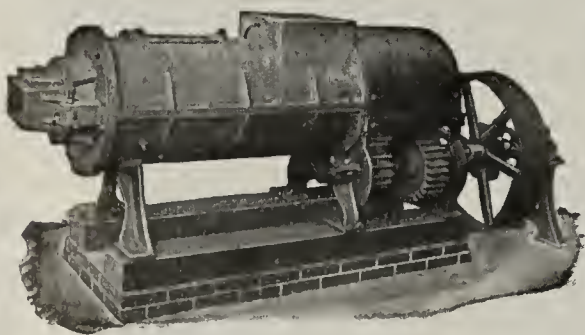
DISINTEGRATOR



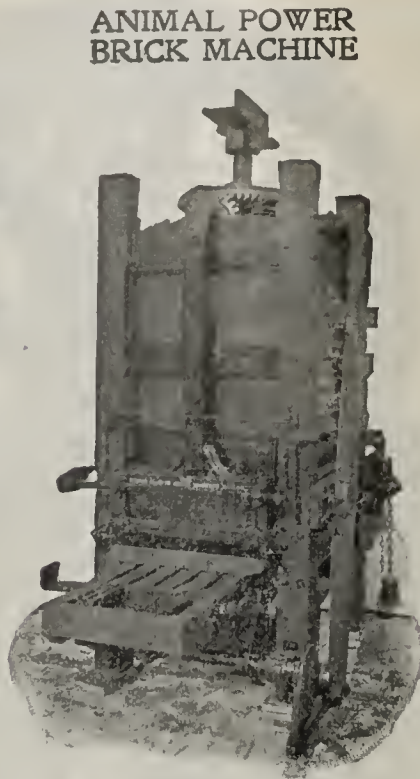
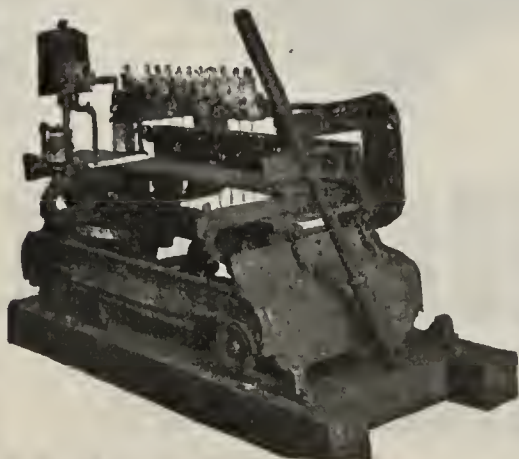
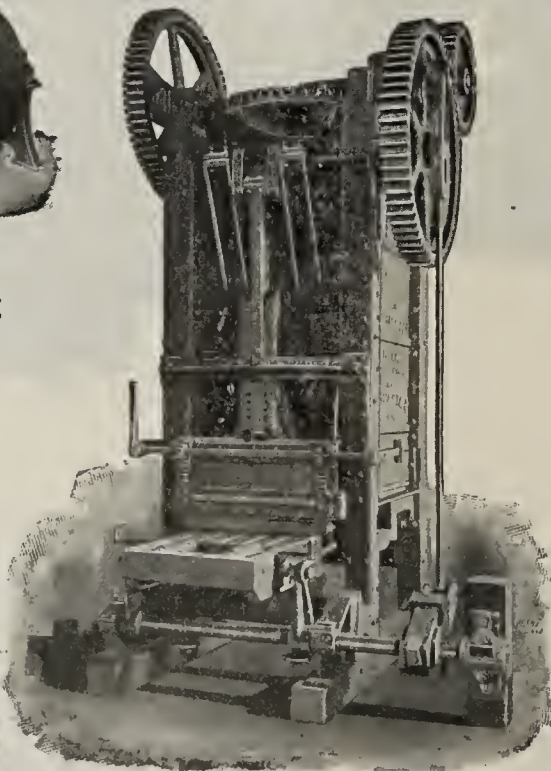
LET'S FIGURE TOGETHER

Handling Brick From the Brick Machine to the "Martin" Patent Dryers

We Build the Most Complete Line of Brick Machinery, Disintegrators, Pug Mills, Elevators, Conveyors, Clay Cars, Hoisting Drums, Mould Sanders, Barrows and Trucks.



STIFF MUD BRICK MACHINE

ANIMAL POWER
BRICK MACHINE

STYLE "A" BRICK MACHINE

THE "MARTIN"

PLANS, SPECIFICATIONS, ETC.

WILL BE

CHEERFULLY FURNISHED

ON APPLICATION

FOR CONSTRUCTION OF

COMPLETE BRICK PLANTS

FOR THE MOST

LABOR-SAVING SYSTEM



"WE FURNISH EVERYTHING
THE BRICKMAKER NEEDS"

DO YOU HAVE OUR CATALOG?

It Will Show You How to
Manufacture High-Grade
Building or Paving Brick

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

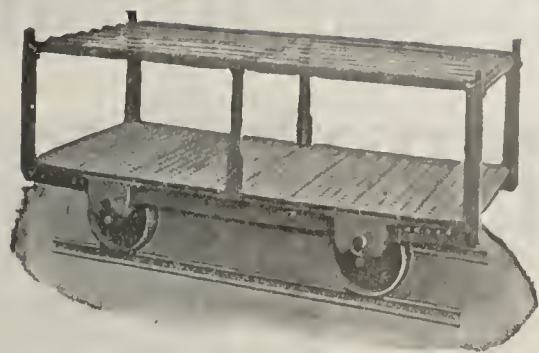
PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

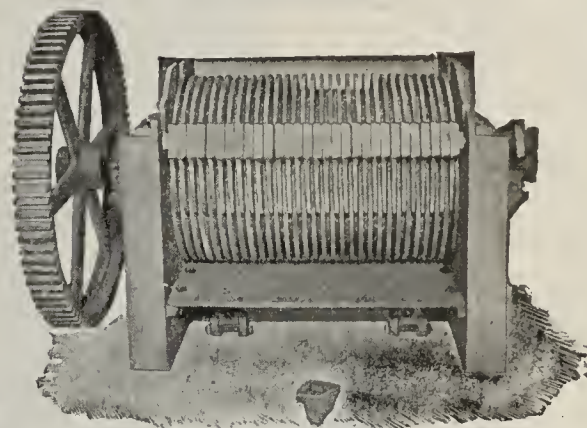
And Additional Patents Pending.

UNITED STATES & CANADA

SATISFACTION
SAND DRYER



DRYER CARS



CLAY SCREEN



Interior View of a
"Martin Patent System"
STEAM BRICK DRYER

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem--Quick to Install and
Low in Price--Write Us.

THE "MARTIN" COMPANY
AT LANCASTER, PA.

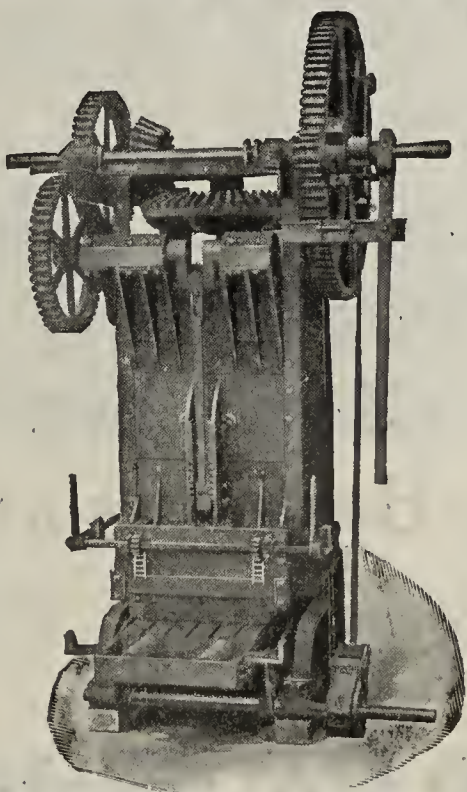
Own and Control These
Important Dryer Patents
and Have Authorized

— NO ONE —

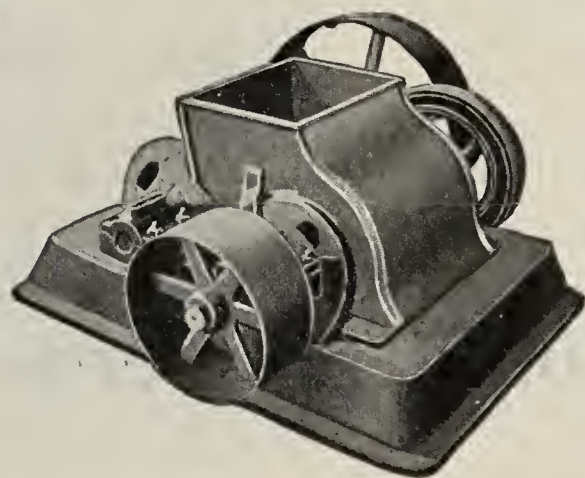
To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

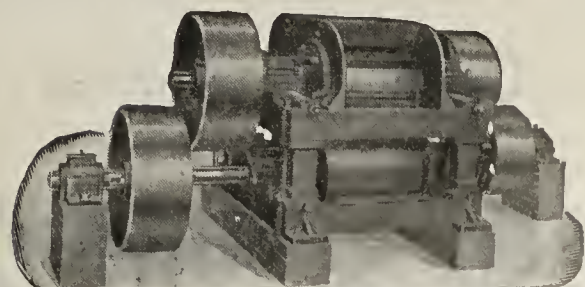
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



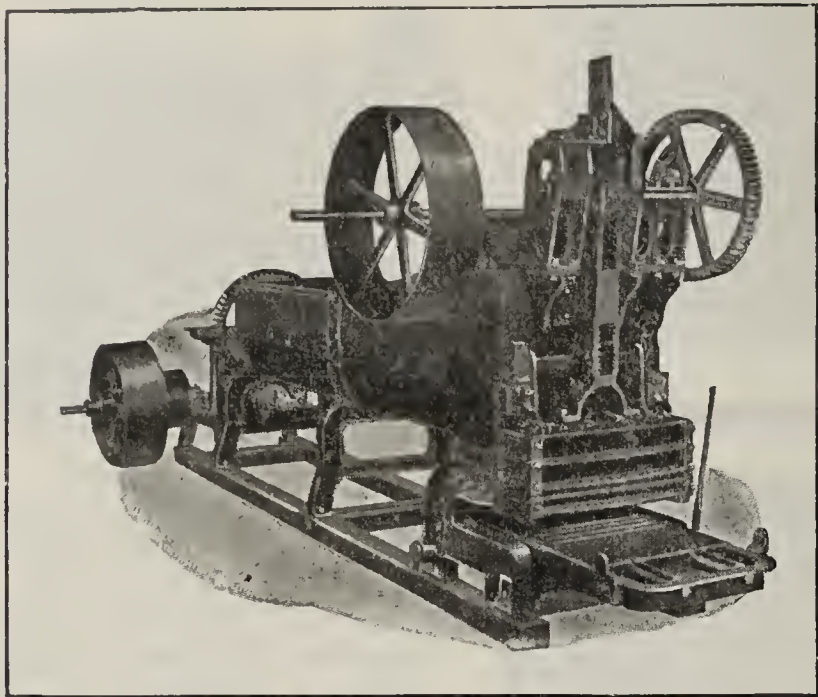
STYLE "P" BRICK MACHINE



HIGH SPEED CRUSHERS



SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

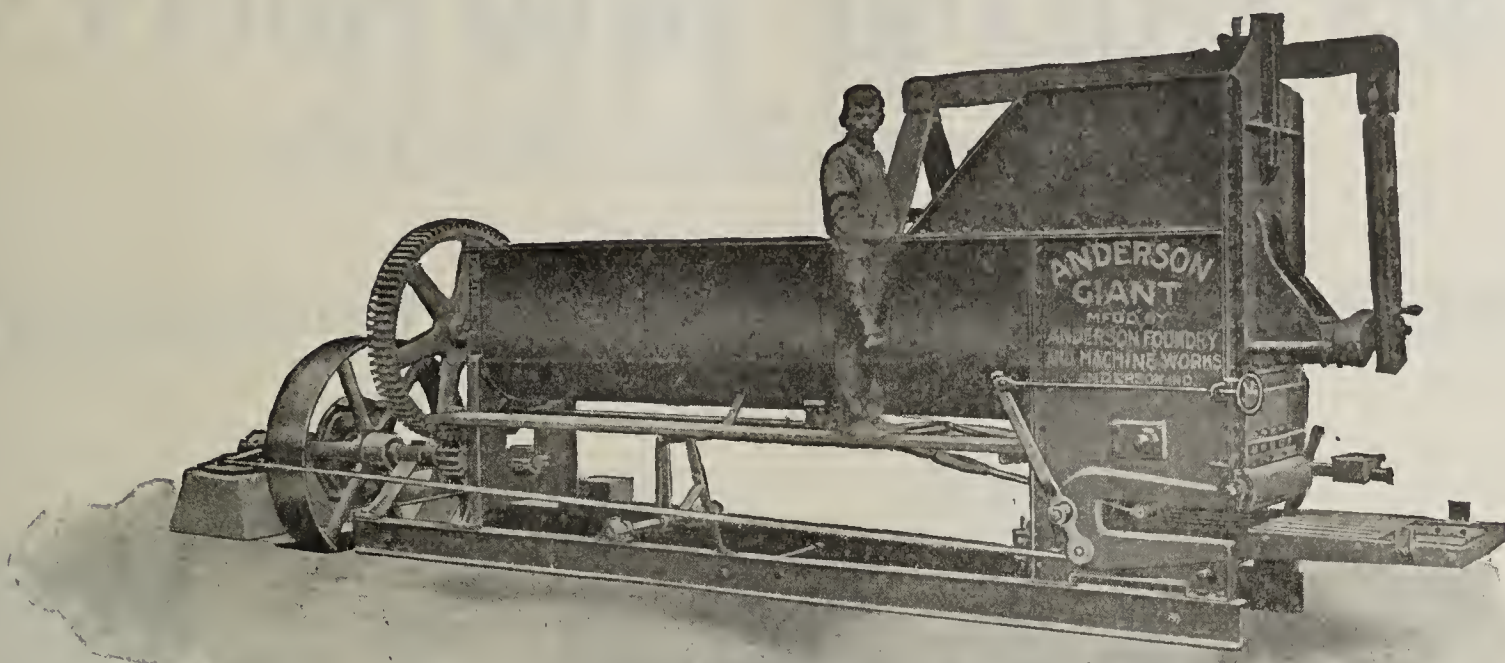
Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.

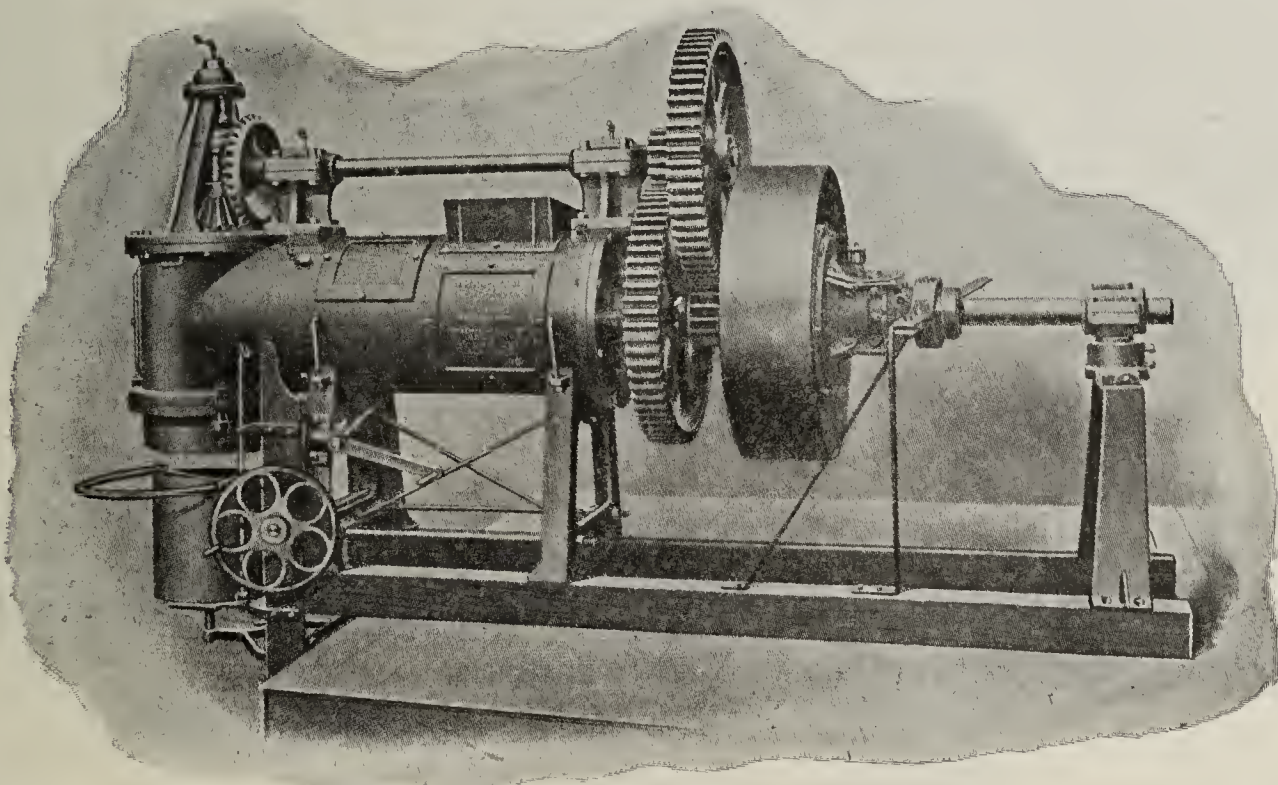
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

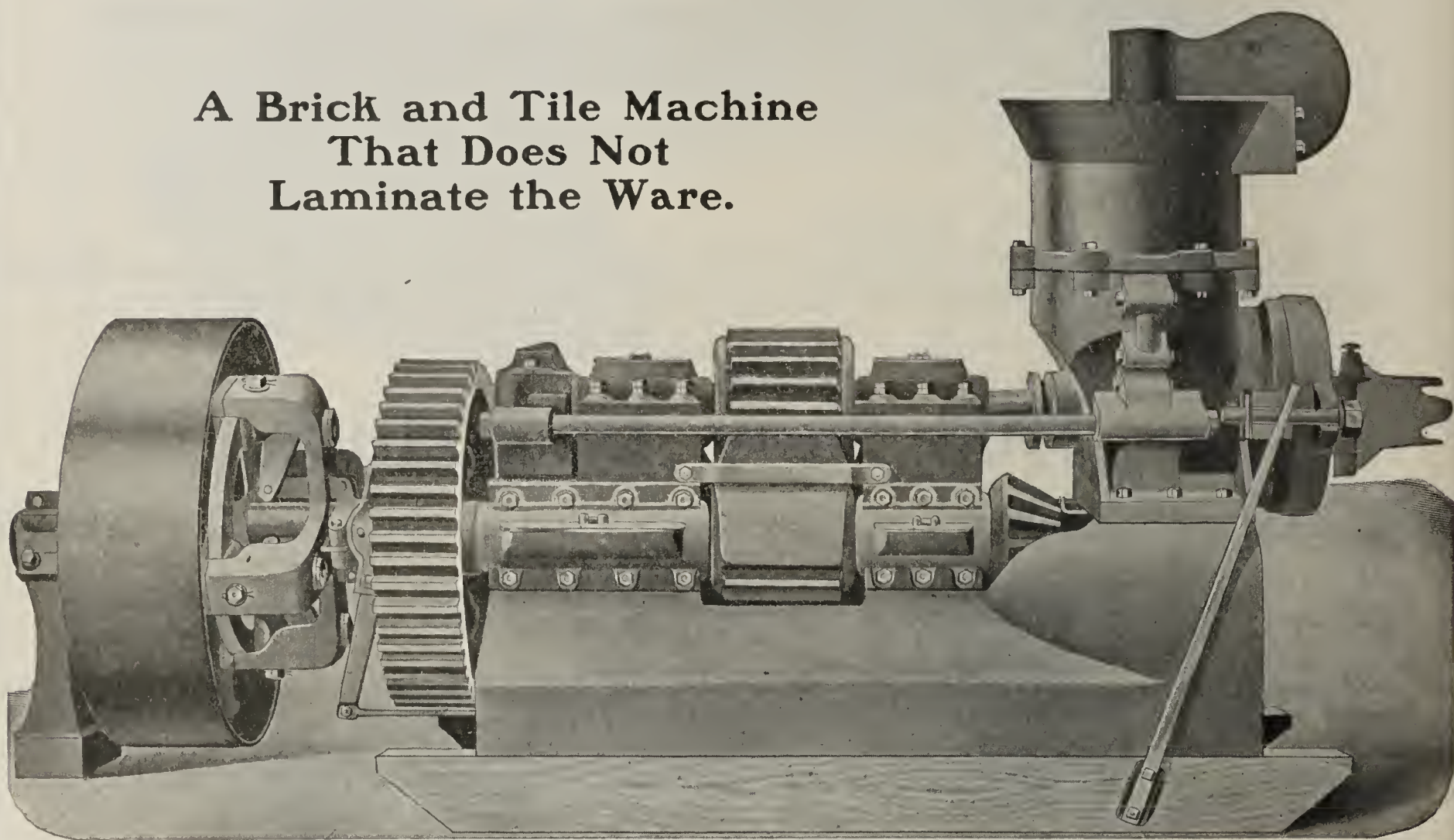
See ad on page 673.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

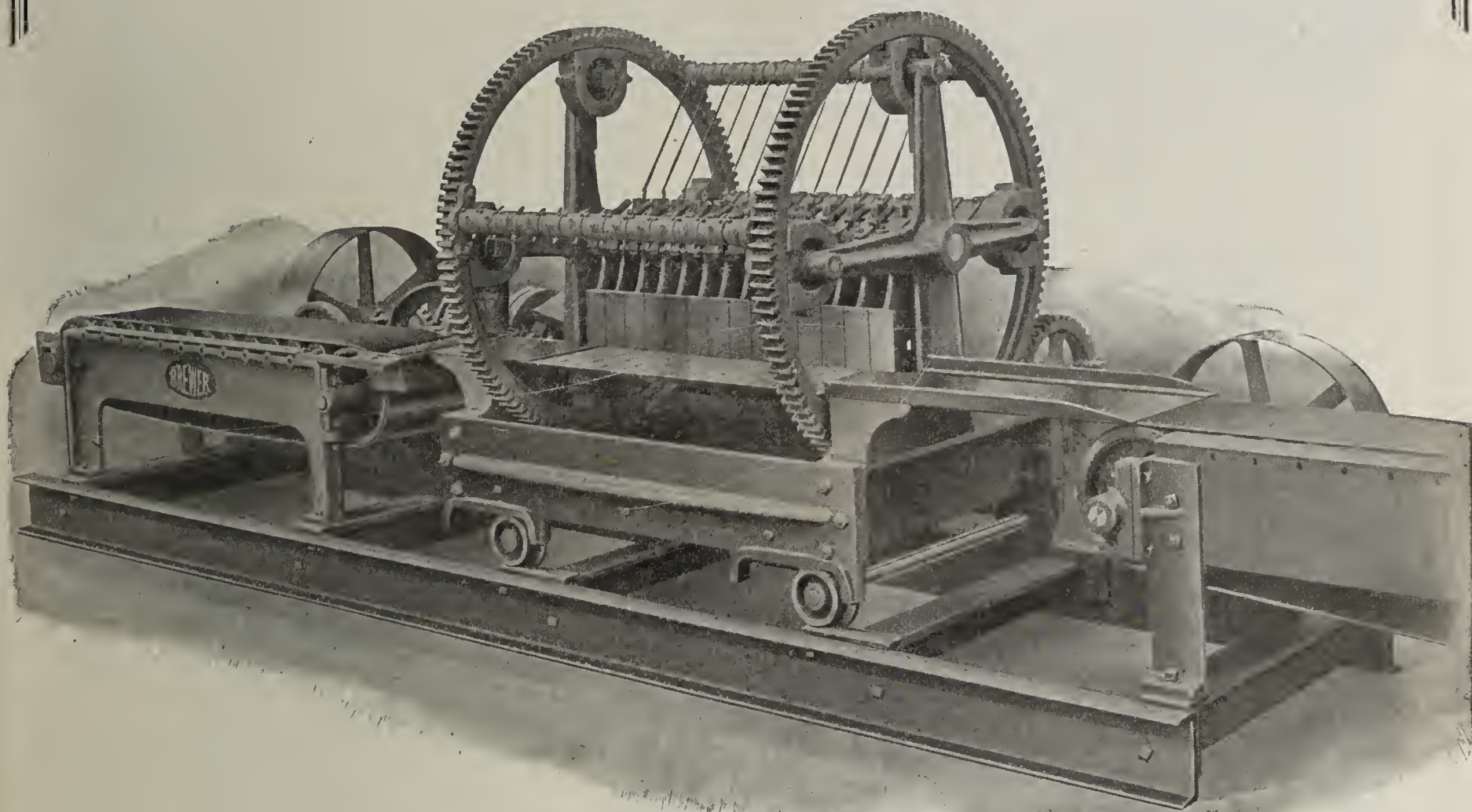
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

SIMPLICITY

is the noticeable feature of all Brewer Cutters. No mechanical complications. No small or delicate parts.



The Brewer No. 30 Rotary Automatic Brick Cutter

is distinctly down-cut. Wires have a pronounced shearing passage through the column. Wires replaced while running without the manipulation of thumb screws or levers. All movements free from shock or jar. Catalog capacity rating 5,000 brick per hour. Will cut 7,500 under ordinary circumstances.

We have a catalog for everyone. Ask for yours.

If Marked



It's Good.

H. BREWER & CO.,

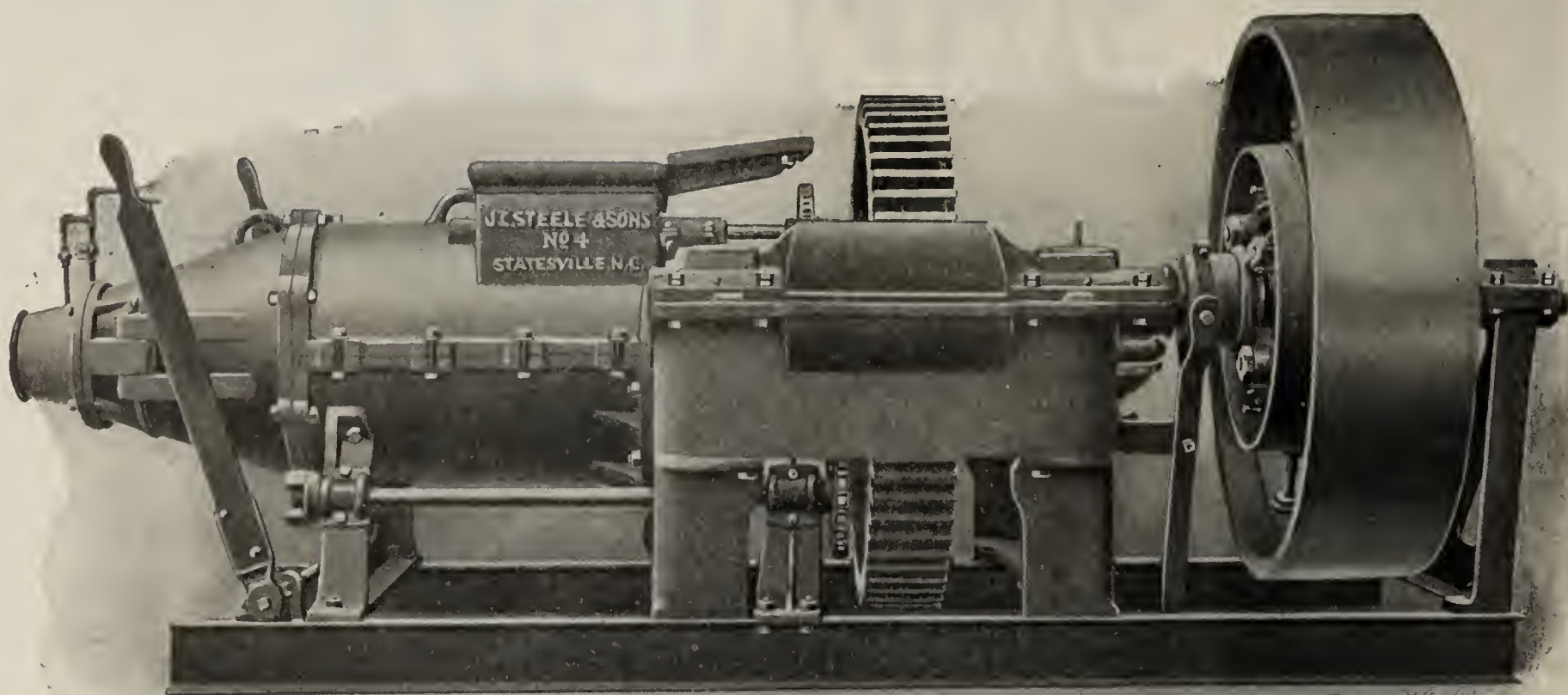
Tecumseh, Michigan.

If Marked



It's Good.

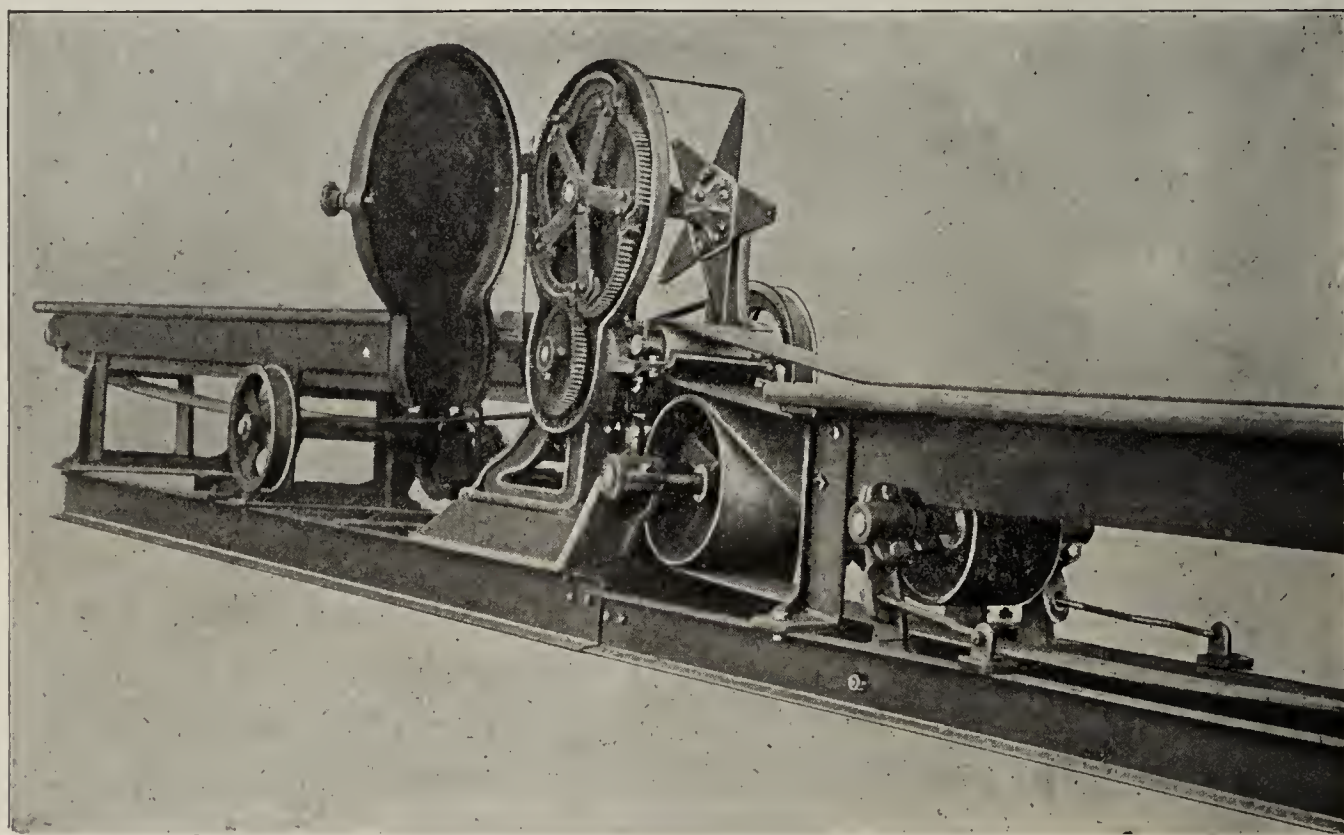
Ask the Man Who Owns One.



FRANKLIN (9-4)

No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

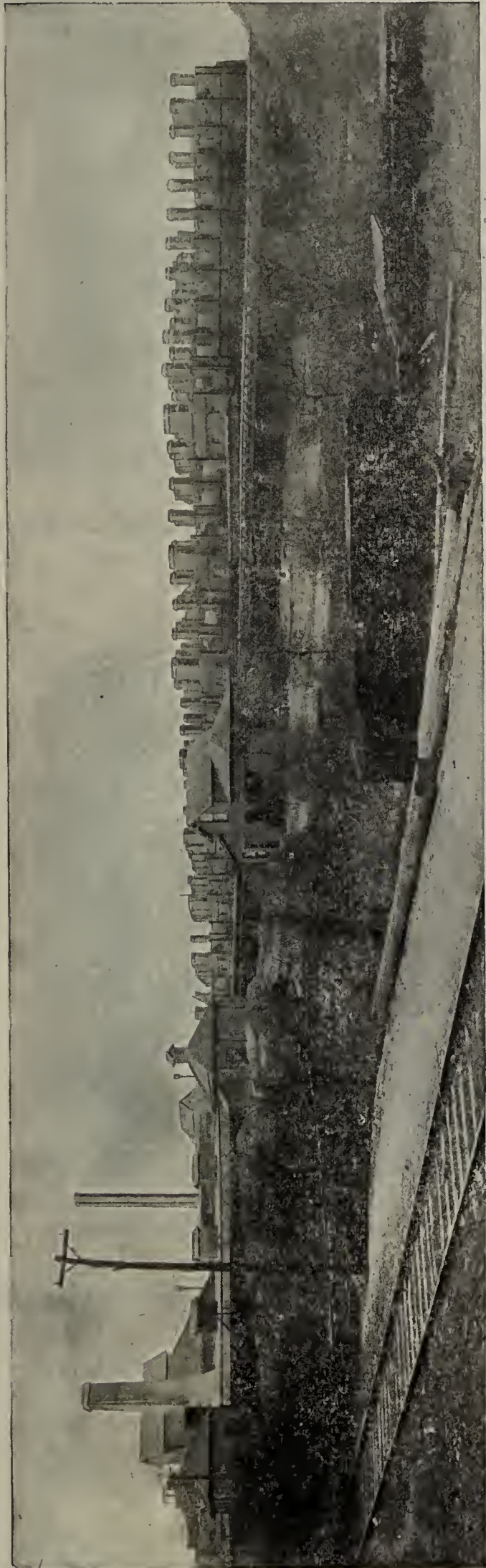
J. C. STEELE & SONS

STATESVILLE, N. C.

Success Brick Machinery Co., Memphis, Tenn., Western Agents.

Mention The Clay-Worker.

SO BIG WE HAD TO PRINT THEM THE LONG WAY



Pictures
Cannot Tell
the
Inside Facts
about these
Modern
Plants.

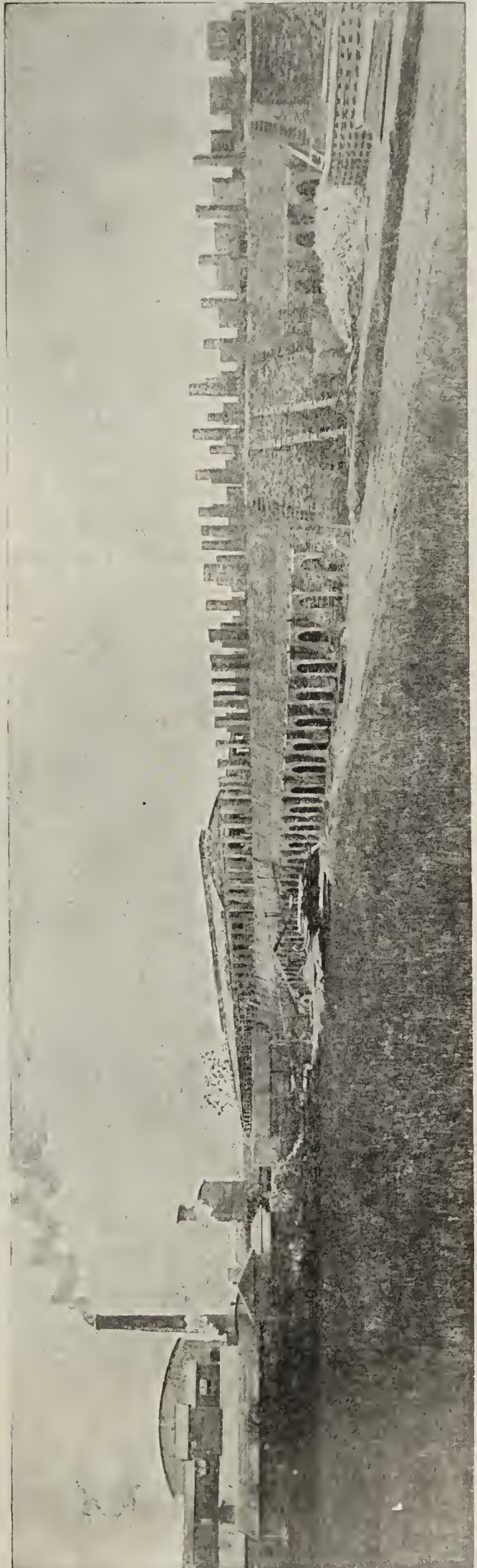
Write us
For Facts
And Figures

Plants of
Bessemer
Limestone Co.
Youngstown,
Ohio.

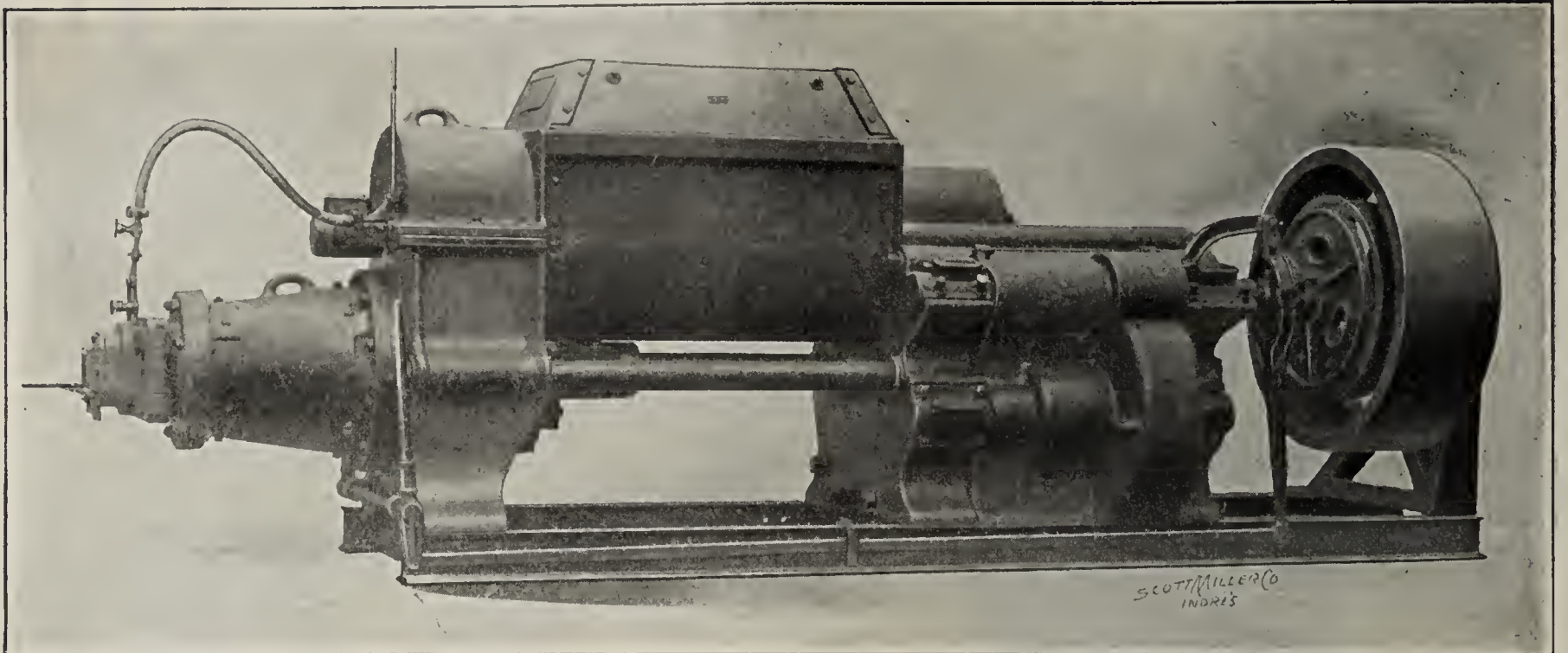
They are
EQUIPPED
WITH
BONNOT
MACHINERY

The
Bonnot Co.,
Canton, Ohio.

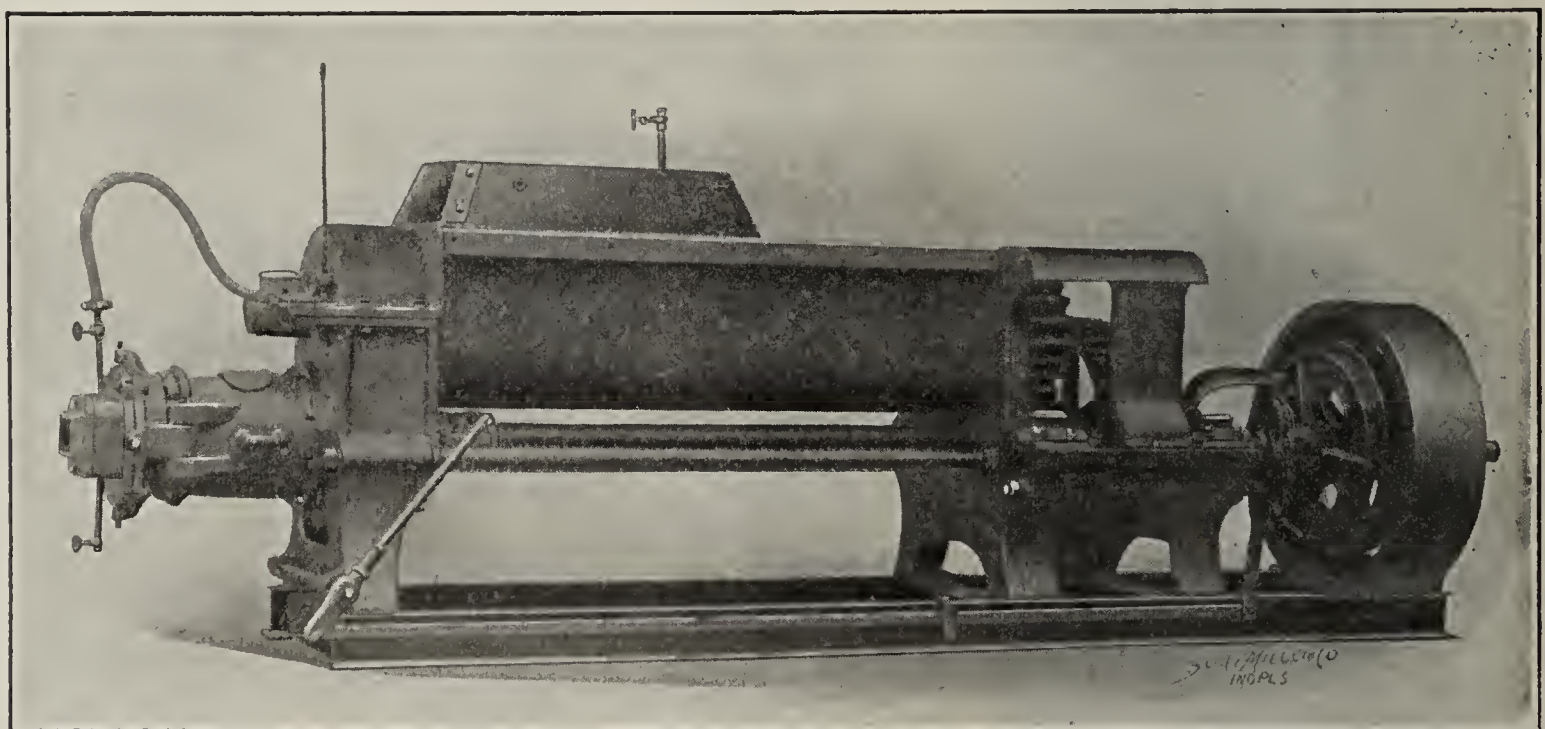
305 N. Y. Life Bldg.,
Kansas City, Mo.



Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.
Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

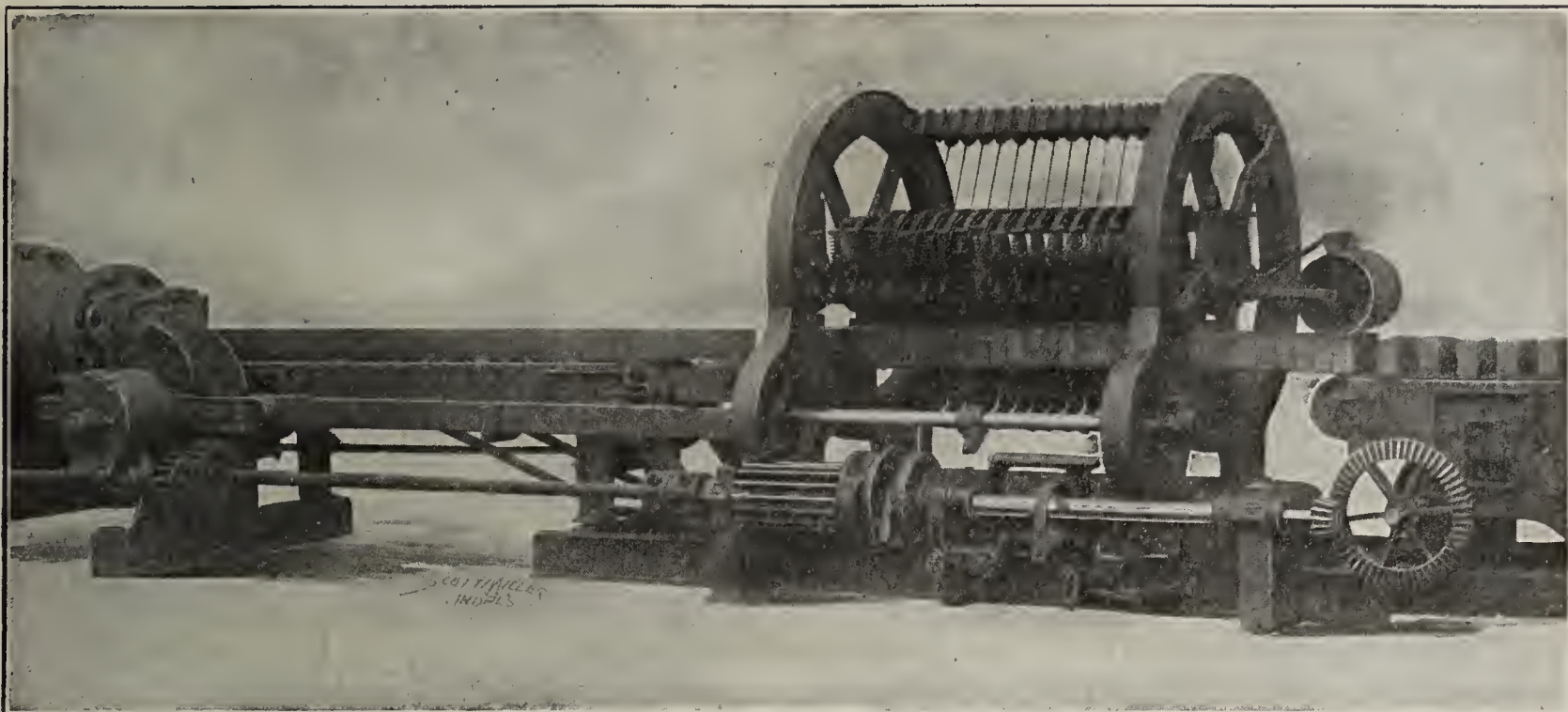
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

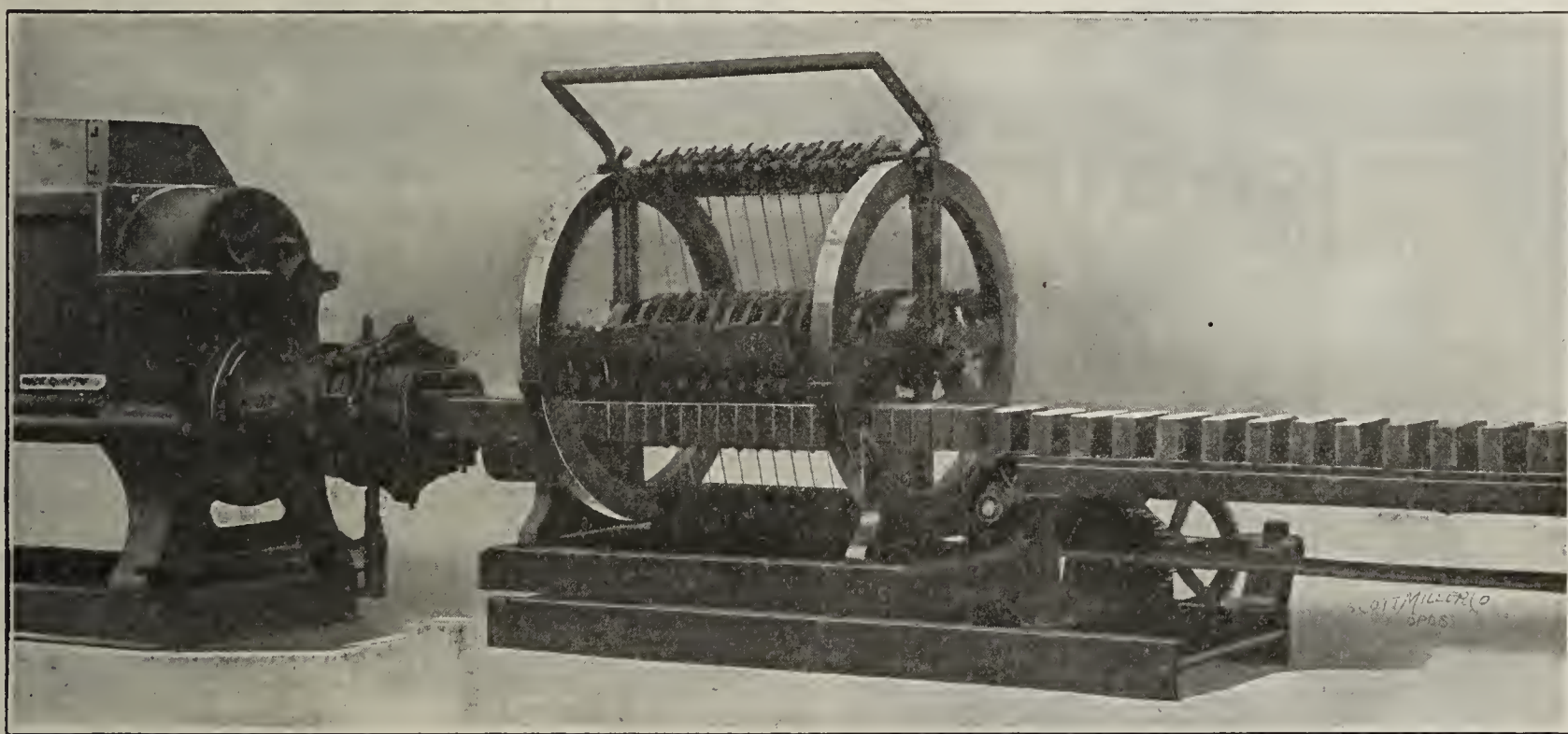
Write for Catalog

Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

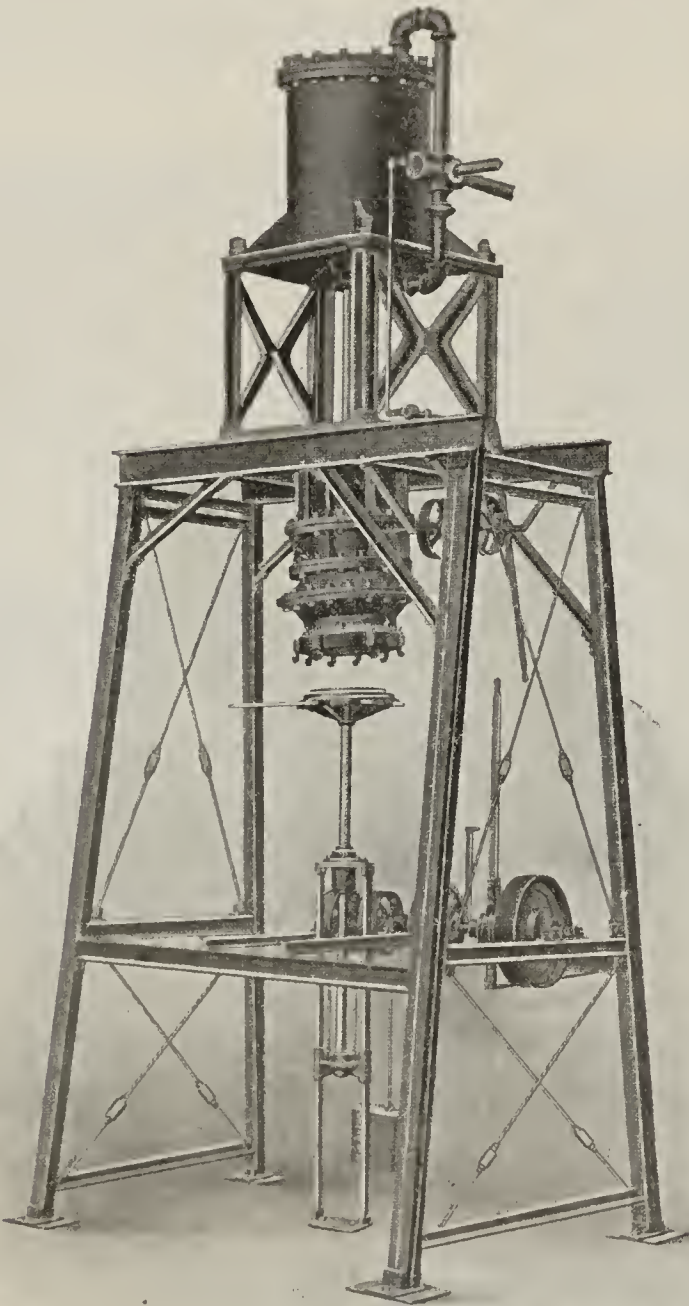
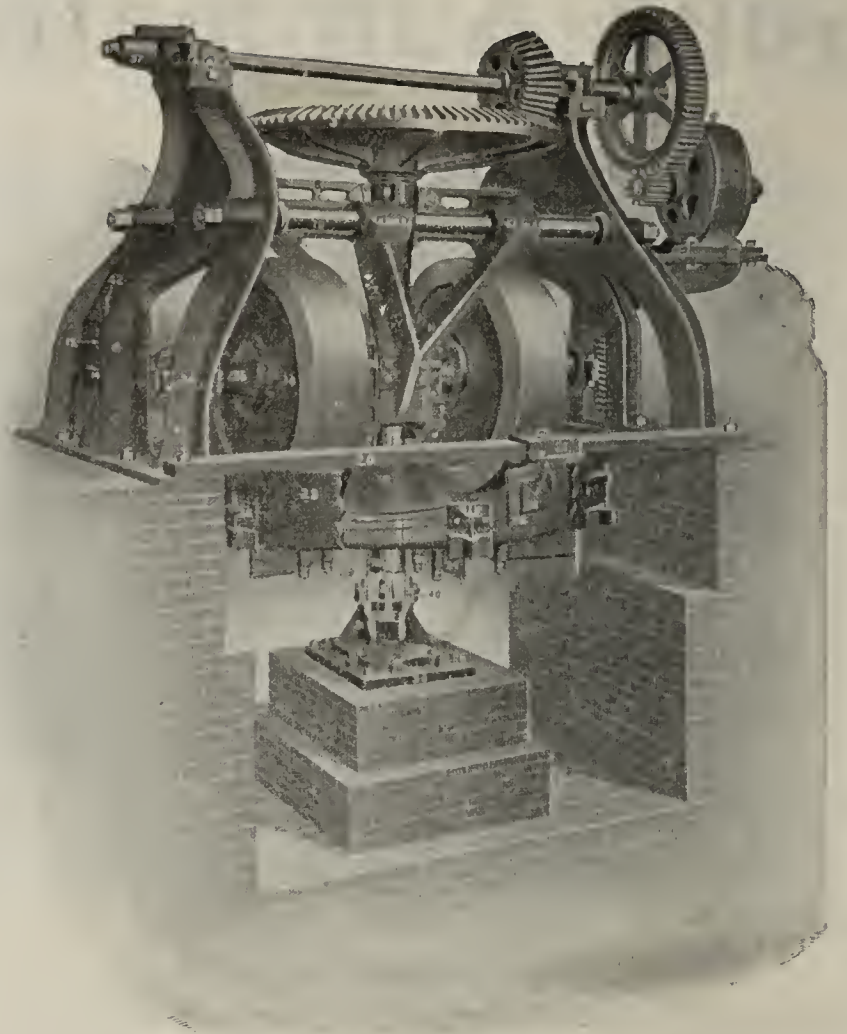
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the equal of **Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

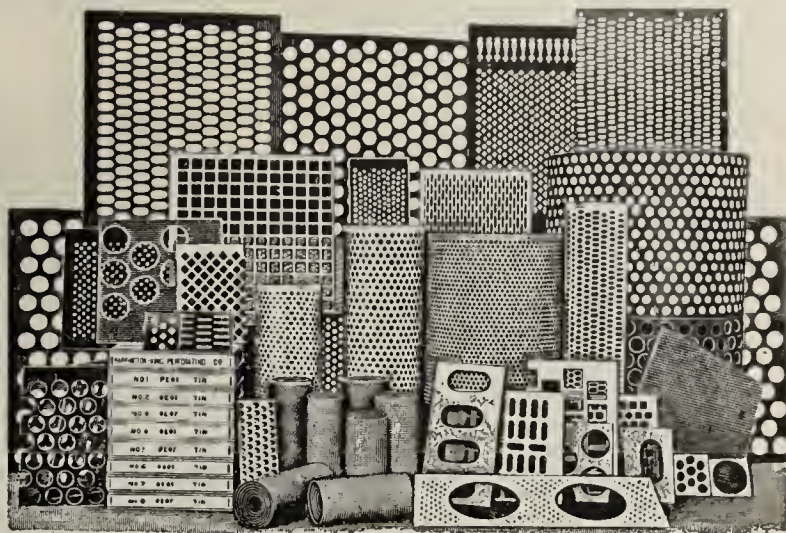
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 231 North Union St.,
CHICAGO, ILL., U. S. A.



You Are Robbing Yourself

of part of the profits of your business if you are not using the WASTE HEAT from your Down-Draft, Up-Draft, or Continuous Kilns for drying your brick.

Prove the assertion for yourself by inquiry among the brick manufacturers who have equipped their plants with

Rodgers Waste Heat Dryers

and who KNOW from ACTUAL EXPERIENCE just what they are saving.

WASTE HEAT IS GOLDEN.

WHY ROB YOURSELF?

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

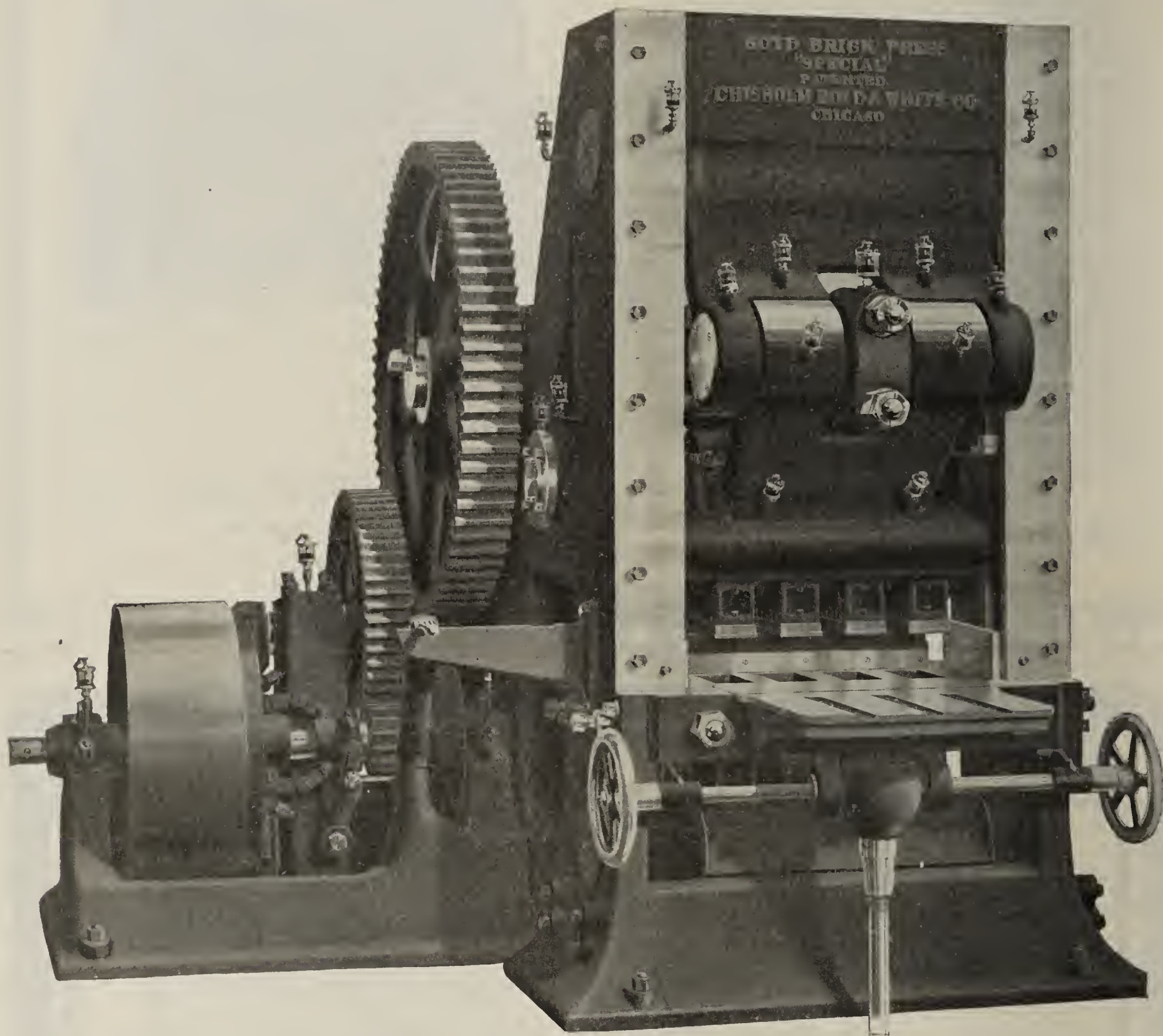
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

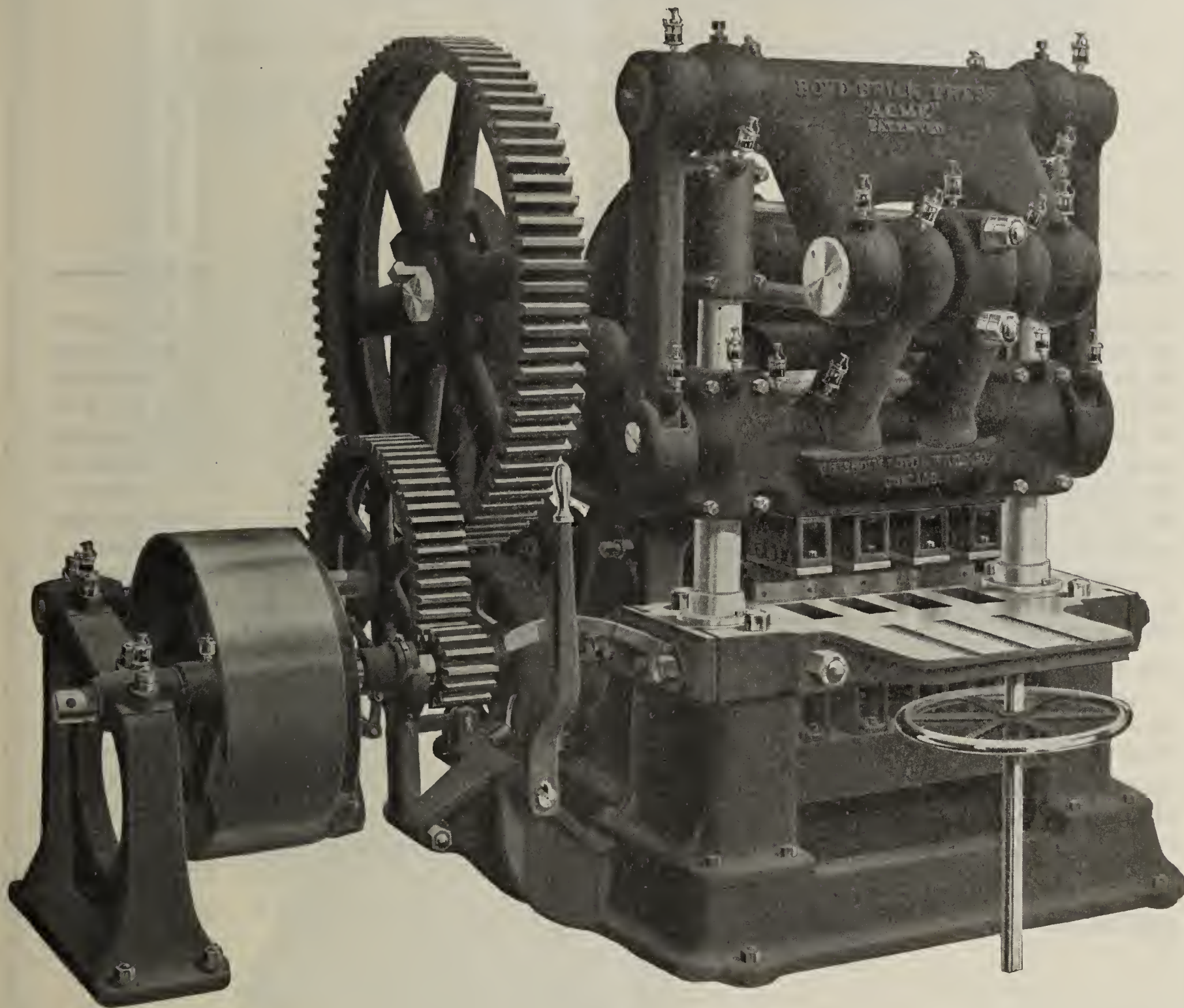
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

Chisholm, Boyd & White Company,
Office and Works, 57th and Wallace Sts. CHICAGO, ILL.

Mention The Clay-Worker.

THE GRATH SPECIAL

Five-Mold Brick Press

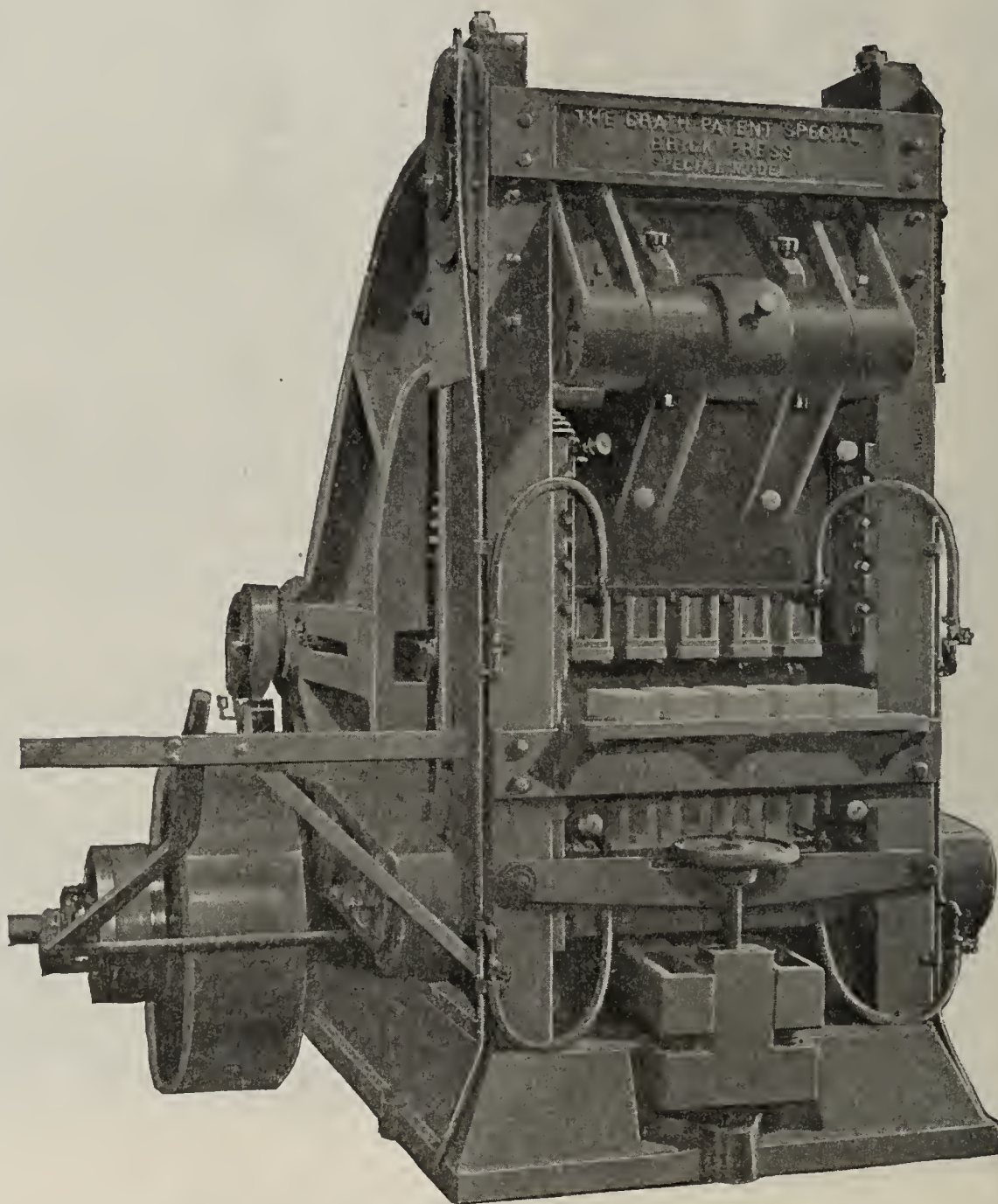
For Dry or Semi-Dry Clay Press Brick of Highest Grade

THE PRESS THAT MAKES THE PROFITS

You can not afford to make anything but the BEST brick; the kind that finds the market in dull times; the kind that gets the orders even though the other fellow bids under you. To make this BEST brick you must have BEST machinery.

That is why the **GRATH** has won its way into popularity.

The GRATH Special is built in two, three, four and five mold sizes.



It is built by experts. Embodies the most correct mechanical principles. Made from the best obtainable materials, and the best attention is given to every detail of its construction. It represents perfection in brick presses.

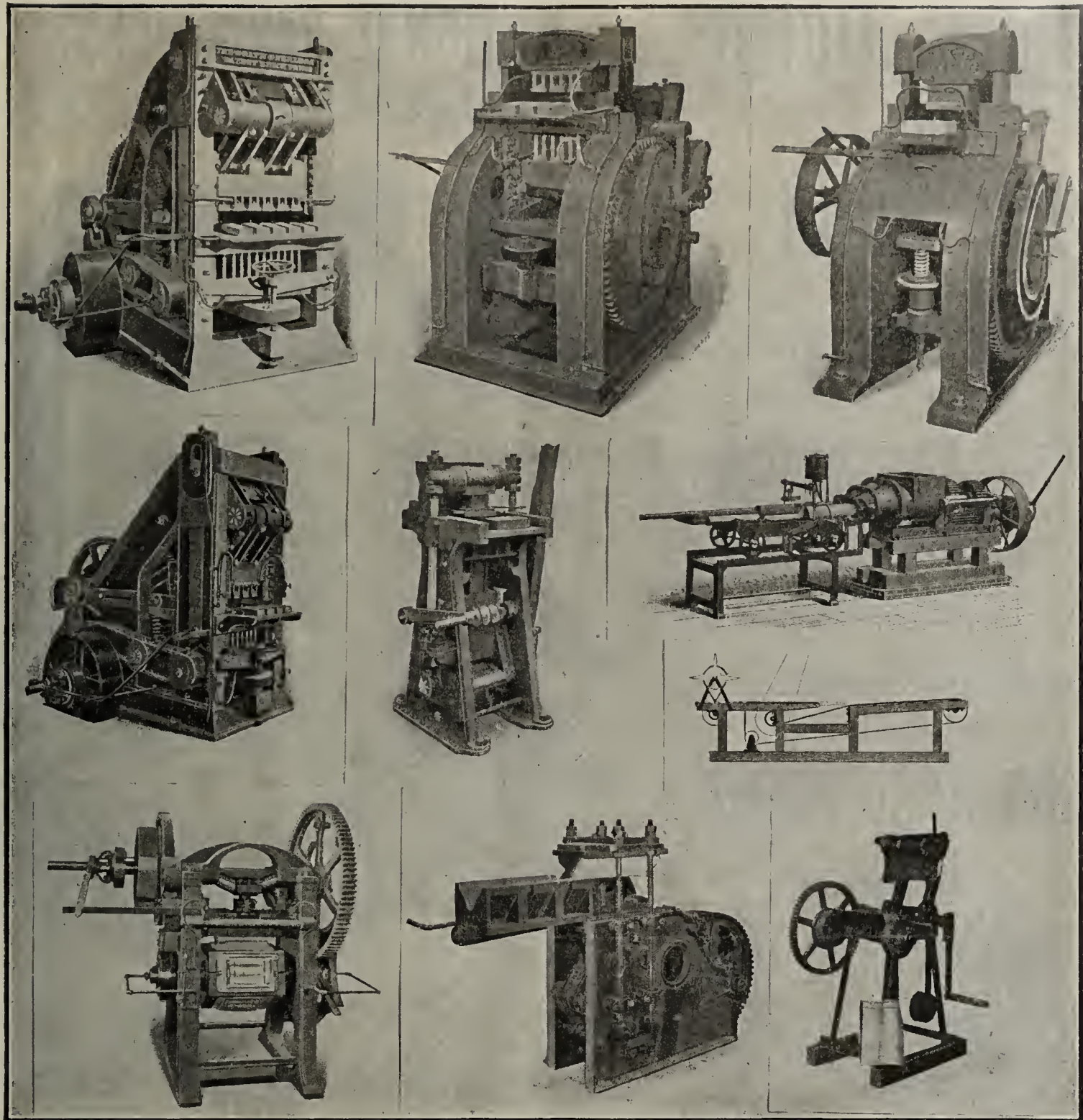
The **GRATH** presses equally from top to bottom. It is simple in construction and operation. Is strong, massive, indestructible and guaranteed against breakage.

DRY PRESS BRICK

If you have suitable clay or shale, we can show you WHY and HOW you can make more money by making pressed brick than wire cut brick. If you are not sure send us a sample of your material and we will tell you.

Send for our "Treatise on the Manufacture of Dry Press Brick" and Catalogue.

Illinois Supply & Construction Co.,
CENTURY BLDG., ST. LOUIS, MO., U. S. A.



Press Brick and Roofing Tile Machinery. All Guaranteed Against Breakage and to Give Satisfaction.



Selling Agents for The
**SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be turned upward, downward or sideways. Most economical Steam or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Mention The Clay-Worker.

Long Distance
Phone
Bell, Main 235.

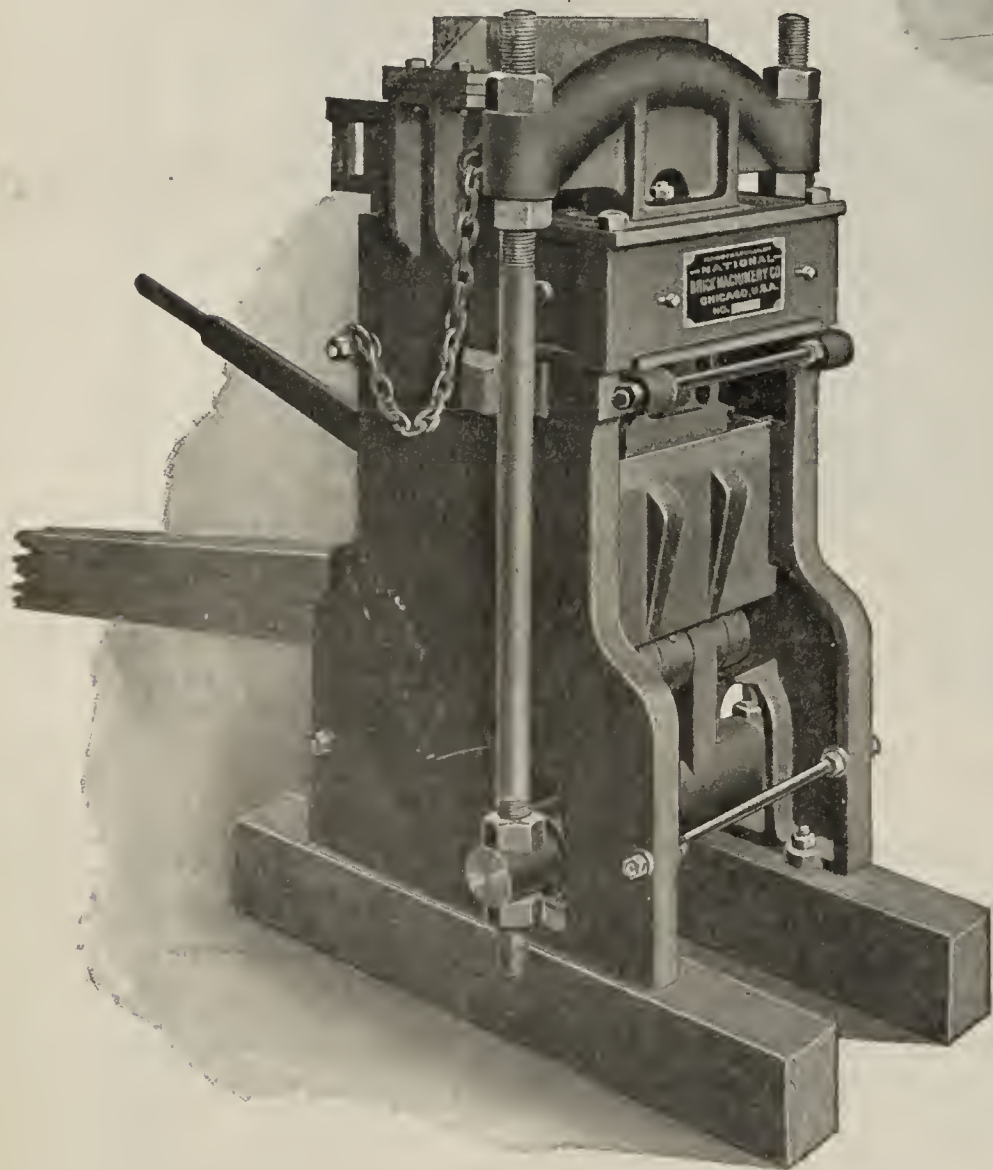
Complete Outfits for Brick Plants.

SEND FOR OUR NEW TREATISE
ON
DRY PRESS BRICKMAKING.

Write for prices on supplies of all
kinds for your yard.

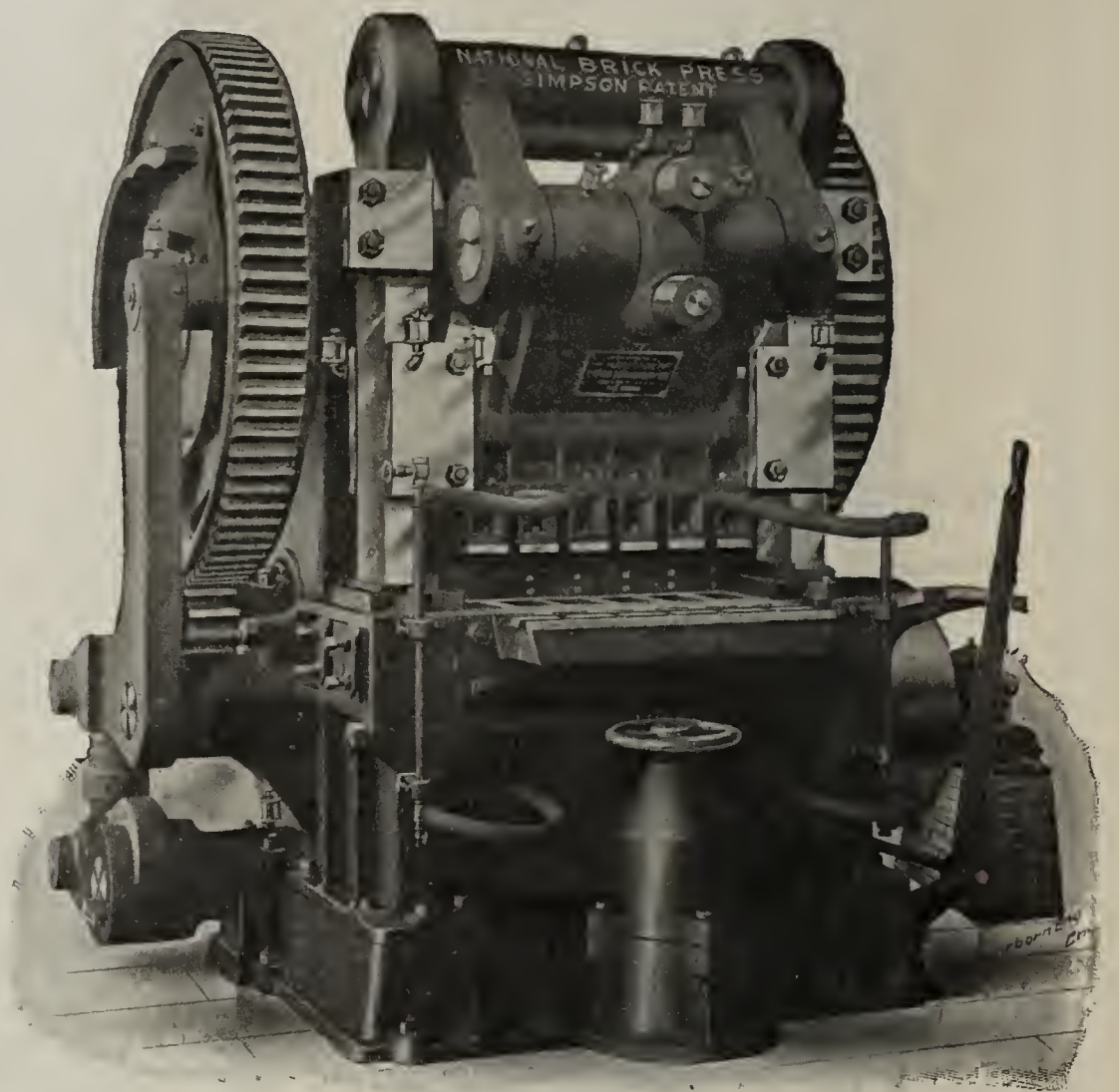
Correspondence solicited.

SIMPSON HAND PRESS.

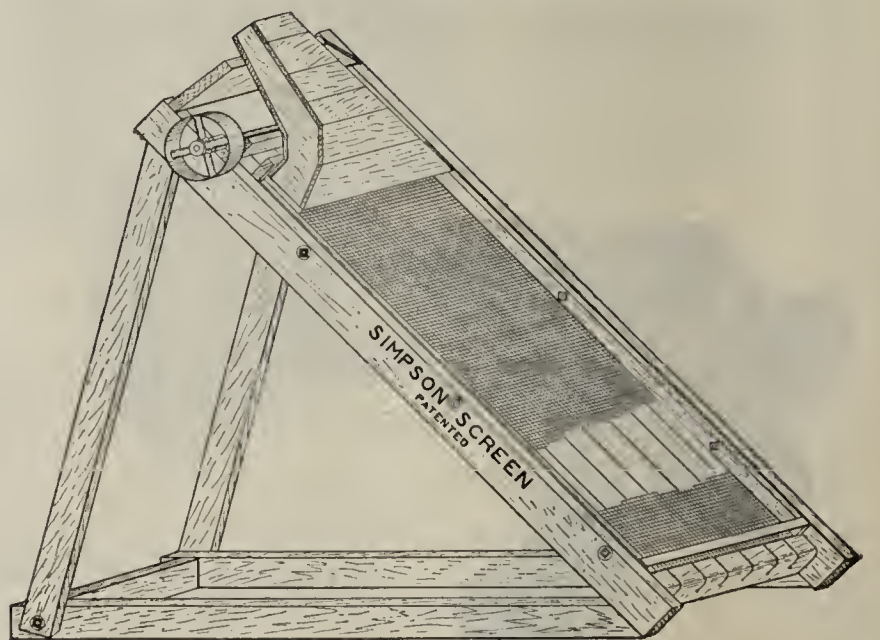


NATIONAL BRICK PRESS (SIMPSON PATENT)

Built in Four, Five and Six-Mold Sizes.



SIMPSON SCREEN.

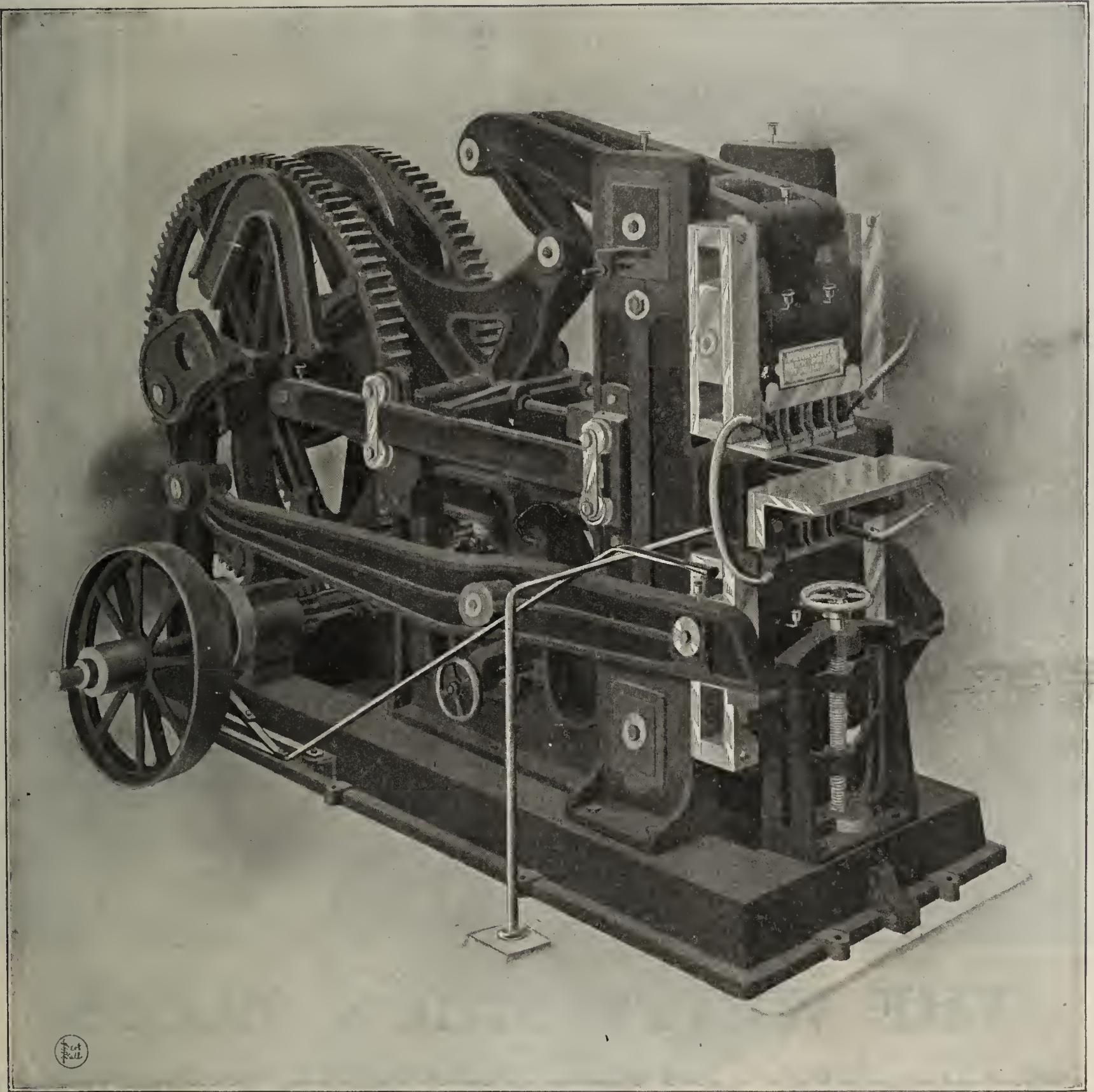


National Brick Machinery Co.,
Chamber of Commerce Bldg. **CHICAGO, ILL.**

Mention The Clay-Worker.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

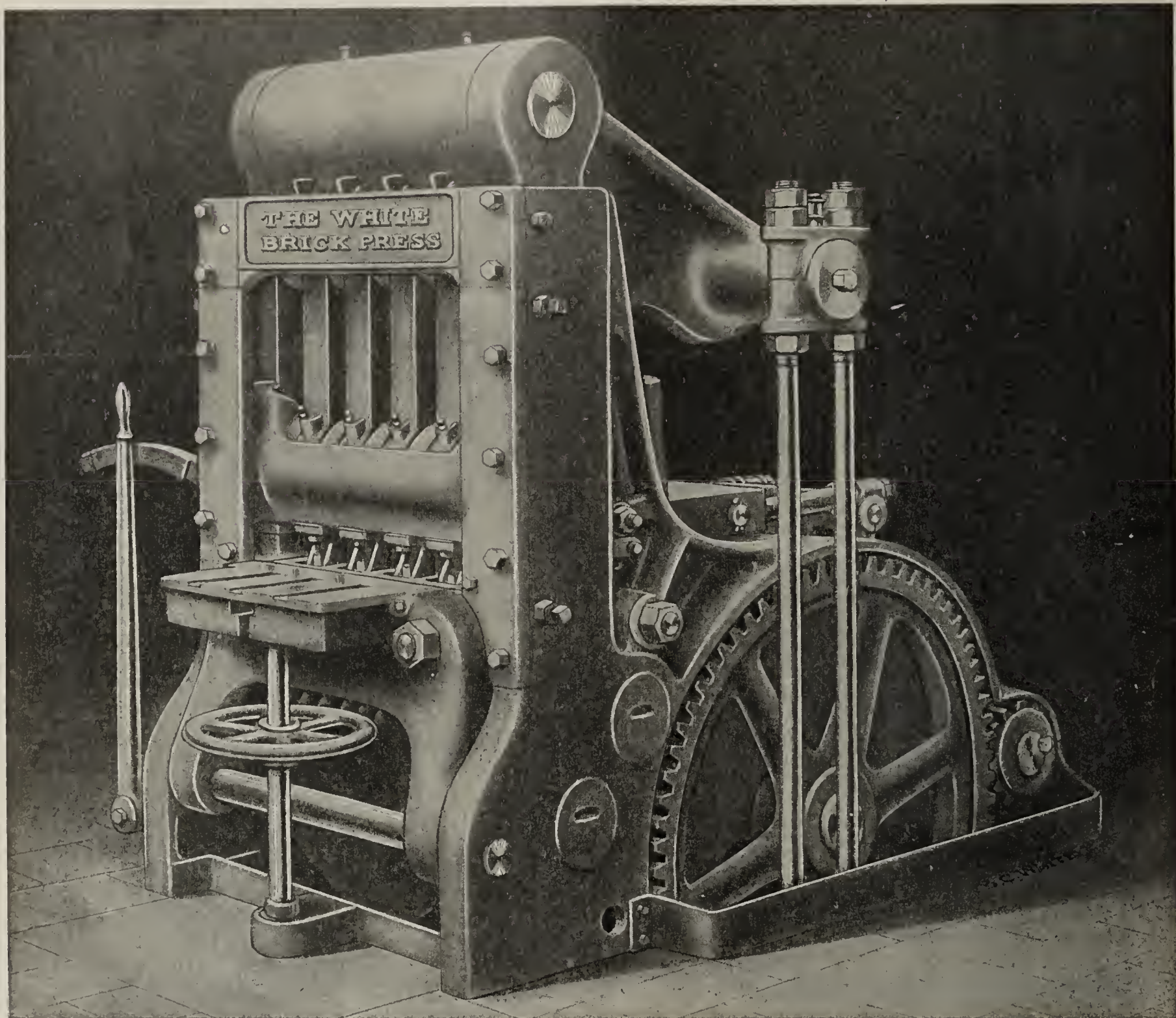


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

Always Worth More Than You Pay For It



THE WHITE BRICK PRESS.

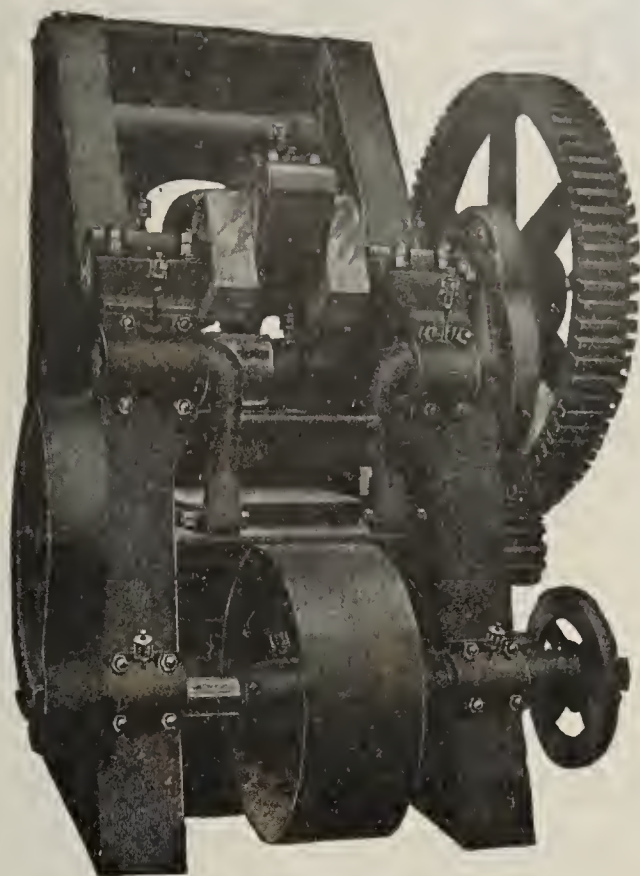
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than
ever, and all self-con-
tained. Greater pres-
sure and fewer working
parts than any other
machine. Simple, mas-
sive, compact and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

of either iron or steel, if desired.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,
ANDERSON, IND.

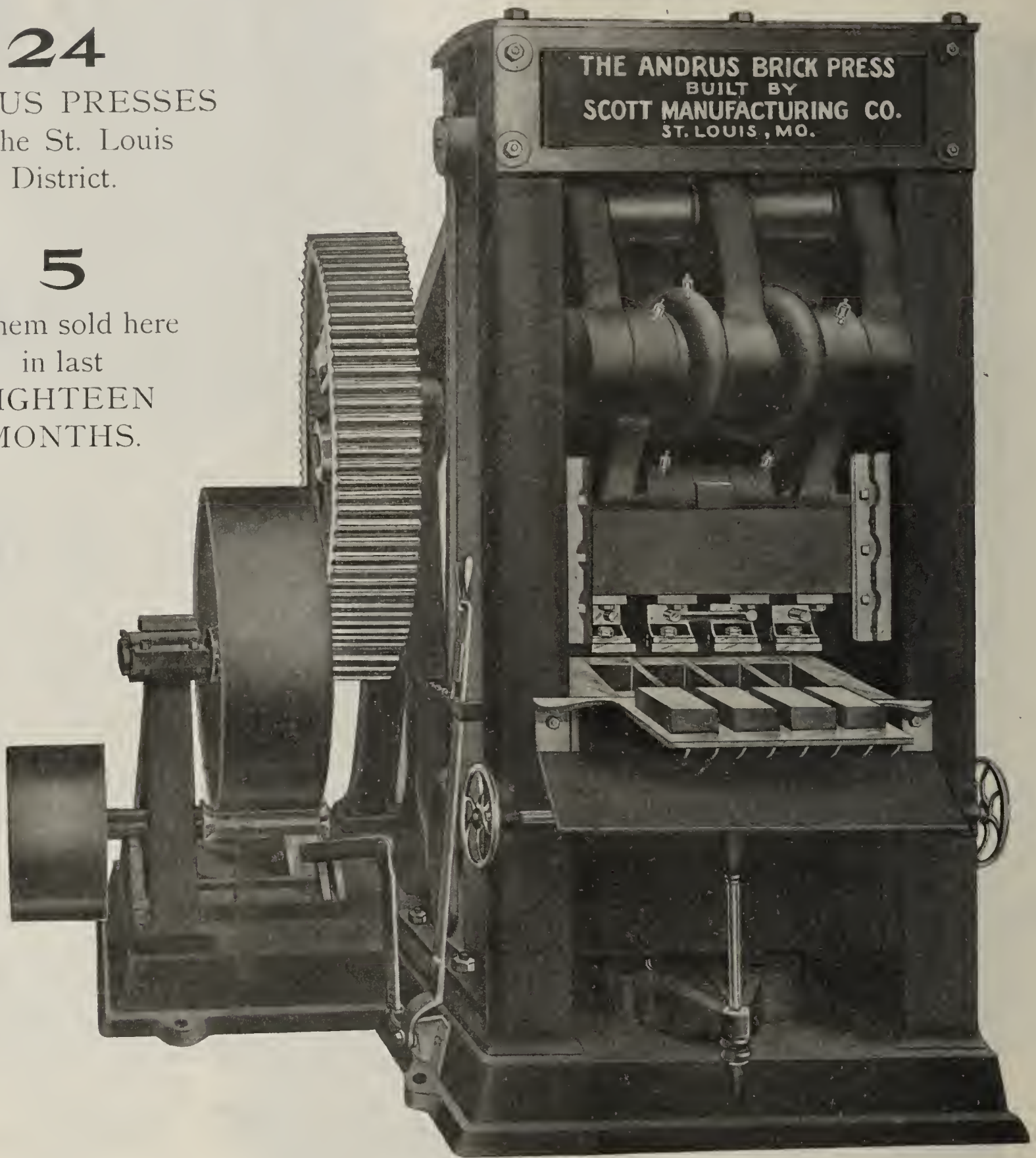
The Andrus Brick Press.

24

ANDRUS PRESSES
in the St. Louis
District.

5

of them sold here
in last
EIGHTEEN
MONTHS.



The Press That Scott Builds.

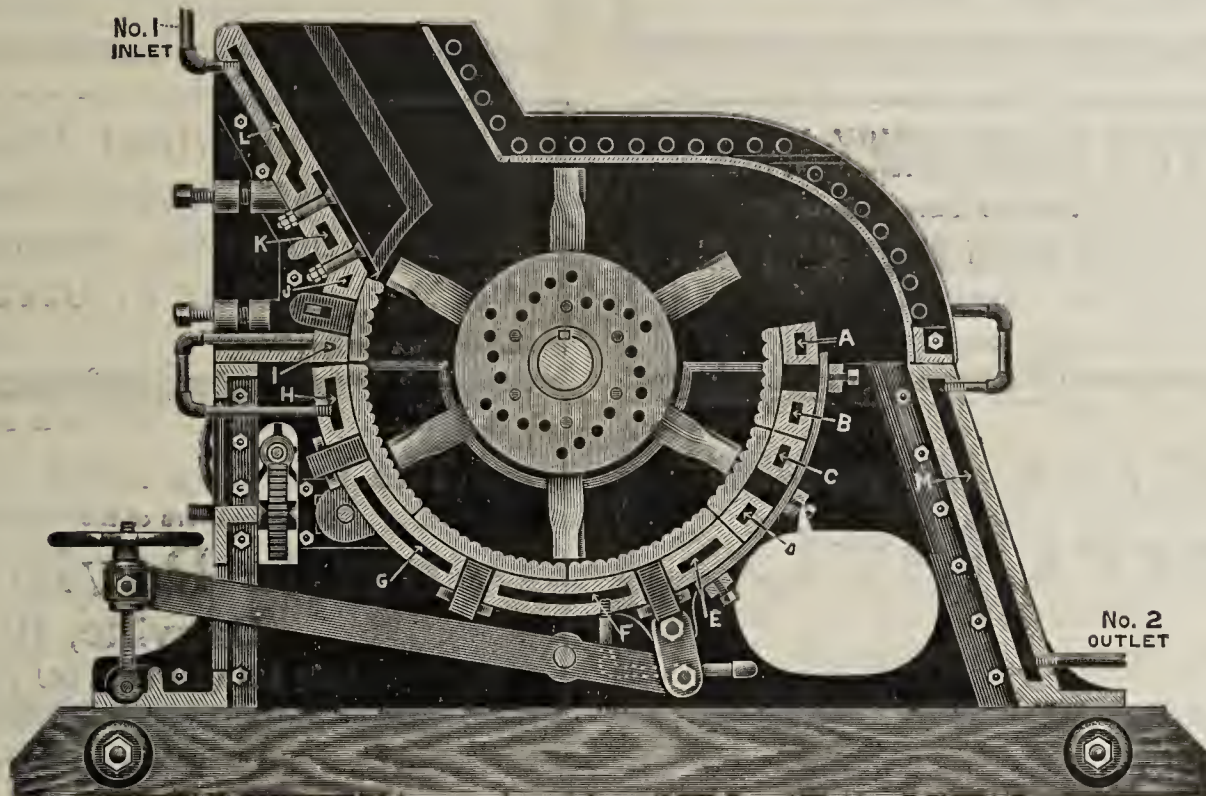
Come and see the Andrus Press Making face brick, common brick, fire brick and shale brick right here at home.

Scott Manufacturing Company,

1812 Third National Bank Bldg.

St. Louis, Mo., U. S. A.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

San Francisco Office, 428 Monadnock Bldg.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements."
 "Proper Construction of Brick Street Pavements."
 "Why Vitrified Brick Street Pavements Are the Best."
 "Why Should You Pave at All?"

Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

PRESTON BRICK COMPANY,
 Manufacturer of

Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
Hornellsville, N. Y.

OXBLOOD RED FRONT BRICKS

DEVONSHIRES and REPRESSED
KUSHEQUA

Highly Vitrified by Natural Gas.
 Made from same shale as our well-known Kushequa Paving Blocks.
KUSHEQUA BRICK CO., Kushequa, Pa.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.
 Burned in Yates' Patent Kiln.
 Samples and Prices on Application.

Thurber Vitrified Paving Brick
 and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.
Arthur S. Goetz, Agent,
 Factory at Thurber, Texas. Ft. Worth, Texas.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

The Danville Brick Company,
 Manufacturers of the Unsurpassed

Danville Paving Block.

Danville, Ill.
 LET US QUOTE YOU PRICES.

THE DECKMAN-DUTY BRICK CO.

Paving Brick and Block.

Annual Capacity 30,000,000.
 Plants, Collinwood, Ohio, Carrollton, Ohio, Malvern, Ohio.
 Offices, Electric Bldg., Cleveland, Ohio.

JOHNSONBURG VITRIFIED BRICK CO.
 Johnsonburg, Penn.

Street
 Paving

Brick and Block.

Samples on Application.

Marion Brick Works

Indianapolis, Ind.

MARION PAVERS

A Strictly High Class Paving Block.

Also

FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.



The Best
Paving Block
Made

SIX FACTORIES
DAILY OUTPUT
500,000

The Metropolitan Paving
Brick Company
CANTON, - - OHIO

Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified PAVERS.

Samples Free.

Address

Terre Haute Vitrified Brick Co.,

Arcade Building, Terre Haute, Ind.

New York Brick & Paving Co.,

Manufacturers of

VITRIFIED PAVING BRICK,

Sewer and Hard Building Brick,

... ALSO ...

Berlin Vitrified Brick that Withstands all Acids.

OFFICE:
204 S., A. & K. BUILDING.

SYRACUSE, N. Y.

R. D. CULVER,
Pres. and Gen'l Manager.

L. A. CULVER, JR.,
Sec. and Treas.

The Wabash Clay Company,

MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

Office and Works at VEEDERSBURG, IND.

Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

Office and Works: Clinton, Ind..

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P O. Box 413.

METUCHEN, N. J.

J. G. BUTLER, JR.,
President.

CHAS. M. CROOK,
Gen'l Manager.

Bessemer Limestone Co.

Youngstown, Ohio,

MANUFACTURERS OF

BESSEMER BLOCK,

An unexcelled repressed shale paver.

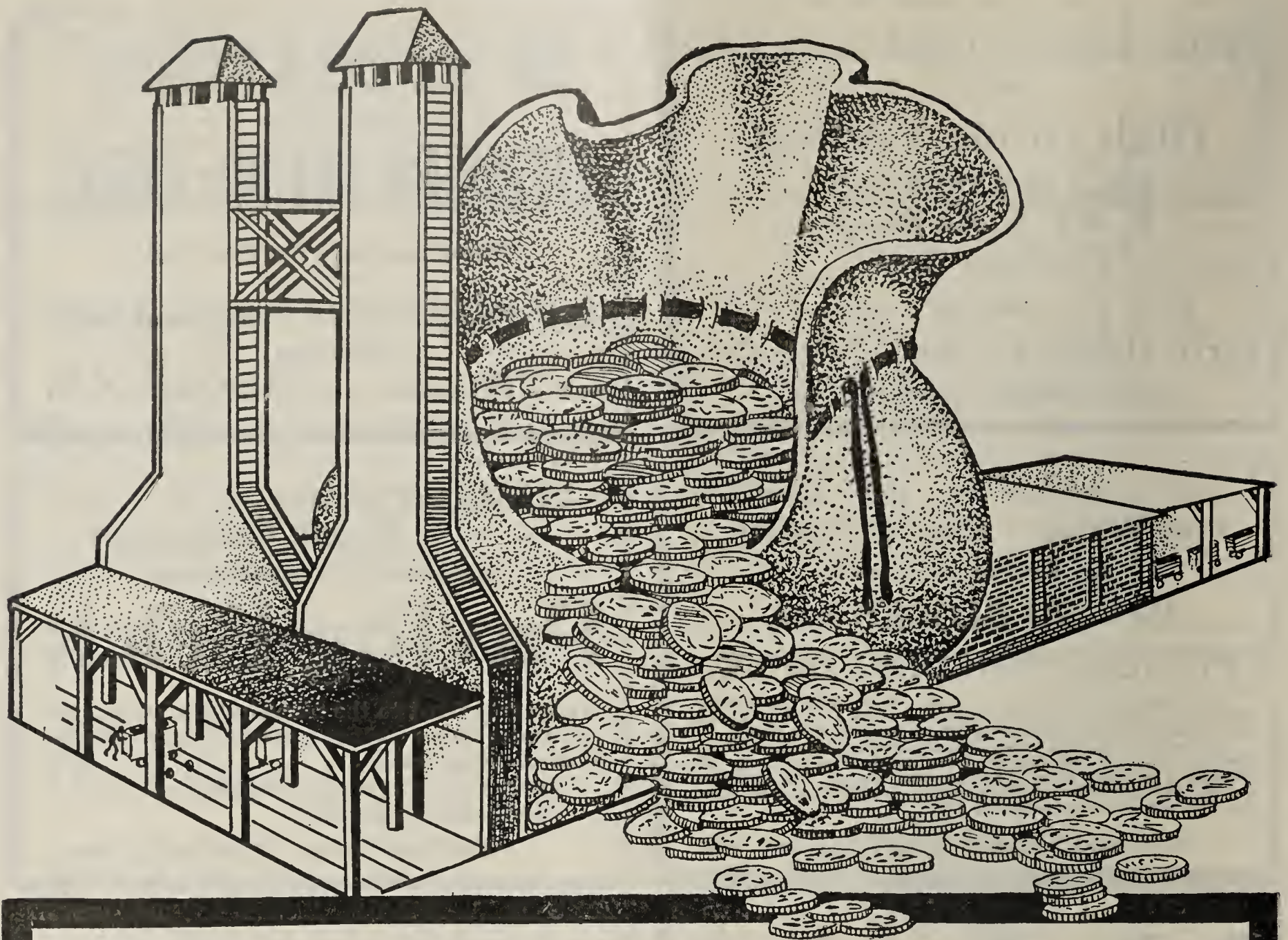
Correspondence solicited.

The Purington Paving Brick Co.,

of GALESBURG, ILLINOIS,

HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

Correspondence respectfully solicited.



MONEY FOR YOU In The Standard Drier

THE STANDARD DRIER is a money-maker for its users, because of its unequalled success and economy in drying *all natures* of clays. The Standard Improved Heating System has been demonstrated by brickmakers in all parts of the country to be the most efficient on the market—and particularly so in the use of *exhaust steam* for drying.

Get and read our new complete catalog. It states facts about drying that every brickmaker should know, for his own profit. And it contains letters from scores of satisfied users, giving evidence that these facts *are* facts. Write us for this book now while you think of it, or cut this ad out as a reminder.

The Standard Dry Kiln Co., 647 South Pennsylvania St.,
INDIANAPOLIS, IND.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LI.

INDIANAPOLIS, IND., JUNE, 1909.

No. 6.

Written for THE CLAY-WORKER.

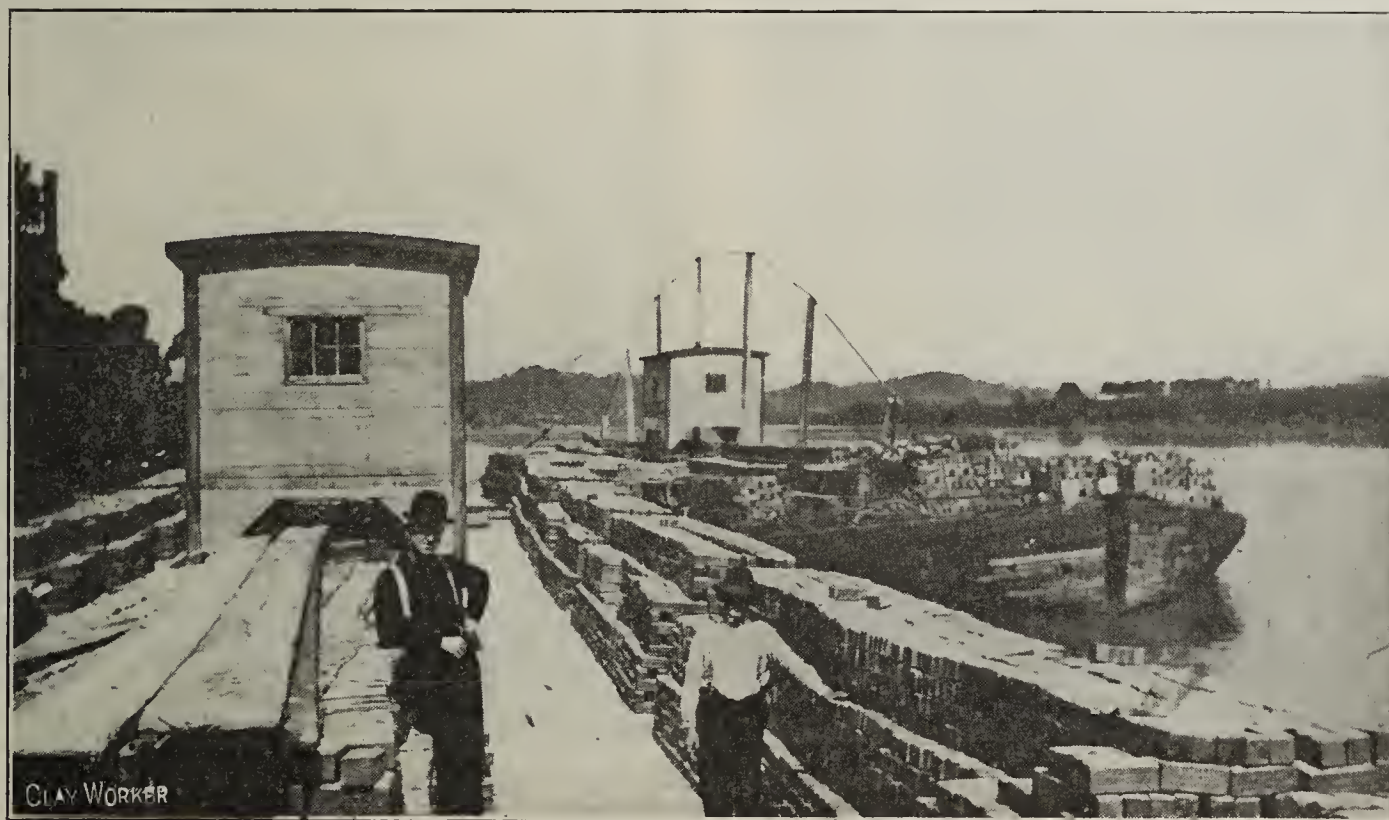
AN UP-TO-DATE PAVING BRICK PLANT.

**The Carlyle Paving Brick Company, of Portsmouth, Ohio,
Manufacturers of High Grade Block.**

A REPRESENTATIVE of THE CLAY-WORKER recently had the pleasure of meeting G. E. Carlyle, president and general manager of the Carlyle Paving Brick Company, and secured from him a number of views of their plant, as well as much information pertaining to the paving brick industry in the Portsmouth district.

The building of the Carlyle Paving Brick Company's plant

percentage of plastic clays to give it more plasticity and toughness. The bank is 75 feet thick extending over 100 acres. The shale is carried to the plant on a tramroad by gravity in three-ton cars, and the cars are hauled back with mules. All miners, shooters, air men, brakemen, drivers and hoistmen are paid by the car. The cars are elevated at pans by a 10 h. p. hoisting engine, dumped and returned to the driver by one man. The hard shales are dumped in the center chute leading to the crusher and the plastic clay in chutes leading to the pans. The grinding outfit consists of two 9-foot Stevenson pans and one No. 5 Champion crusher. All the material is fed by gravity into the crusher and pans and is mixed accurately to give best results. The crusher is located above the pans and the shale goes through



Boats Loaded With Carlyle Paving Block Ready for Shipment to Jeffersonville,, Ind.

was started March 27, 1905, and the first brick were made July 31 the same year. The officers of the company are: G. E. Carlyle, president; Simon Labold, vice-president, and W. L. Hitchcock, secretary. Their output is entirely paving blocks and their plant is located on the bank of the Ohio River, with the Norfolk & Western Railroad and Baltimore & Ohio Southwestern and the electric line on the north side of the plant. The river enables them to reach the entire Ohio and Mississippi valley, and the two railroads give them excellent railroad facilities.

The shale used is very hard and is mixed with a small

the crusher in equal quantities to both pans. Shale sufficient to make 1,000,000 brick is stored in sheds near the dry pans, being used in wet and disagreeable weather.

The ground shale is elevated to two piano wire screens made by the Portsmouth Machine and Casting Company, and from the screens drop into a twenty-ton bin built over the pug mill. The brick machine is the largest type built by E. M. Freese & Co., Galion, Ohio, and their revolving cutting table is used in cutting the brick. Two Eagle represses take care of the pressing, and from these they are loaded on cars and taken to a Rodgers twelve-track waste heat dryer.

One feature of the dryer was mentioned to our representative, and that was the covering. The original construction of the covering or roof was 6 inches of reinforced concrete, which gave them good satisfaction, but to improve the drying, as well as water shedding capacity of the dryer, brick were laid the length of the dryer 9 inches from center to center, and on these, brick were laid the reverse way close together. The interstices between these brick were filled with shale and cement, and finally tar was swept over this roof to make sure of filling all cracks and openings. We were informed this covering has materially increased the drying capacity.

The brick are taken from the dryer to seven rectangular kilns. These kilns are 18 feet wide by 86 feet 6 inches long and hold 135,000 blocks, and have proven very satisfactory.

magnesia, 1.12; titanac acid, 1.20; alkalies, 2.83.

Visitors are always welcome on this plant, and the management will take pleasure in explaining every detail of their plant or mode of manufacturing used by them. They claim they receive as much benefit from these visits as their visitors.

ANCIENT METHODS OF HOUSE CONSTRUCTION.

In the development of new ideas in house building and construction, of new materials and different methods of construction, we occasionally find an interesting reference to what was done by the ancients. In connection with the use of concrete in building, we find it referred to as having been used thousands of years ago. The same is true of brick,



SCENES IN AND ABOUT THE CARLYLE PAVING BRICK PLANT, PORTSMOUTH, OHIO.

- (1) Shipping gang loading car with blocks. (2) Interior view of kiln, showing setting gang. (3) Carload block on way from dryer to kiln. (4) General view of plant.

The power is furnished by a 200 h. p. Erie City engine and two 125 h. p. boilers of the same make.

The company has been able to secure all the orders they could fill, and on account of the superior quality command a good price. One of the important features of their plant is the rattler they installed when their plant was erected. They have been testing their material constantly to keep their output up to a high standard and through these tests have been able to make changes in mixing their shales, which improved the quality. They have also been able to detect weaknesses in their mode of manufacture, which defects have been corrected.

The analysis of the Carlyle Sciotoville block is as follows: Silica, 71.86; oxide of iron, 5.00; alumina, 16.50; lime, .50;

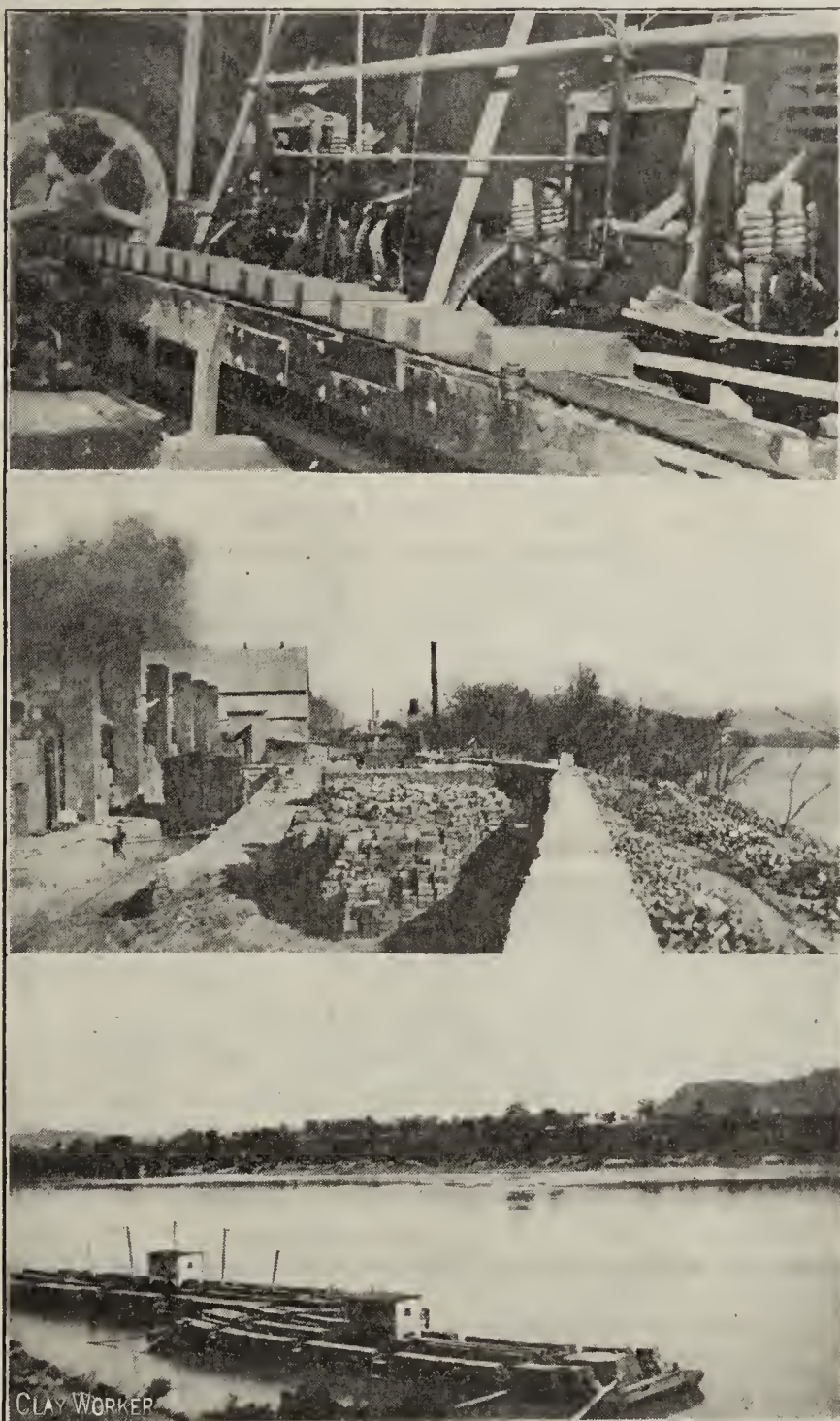
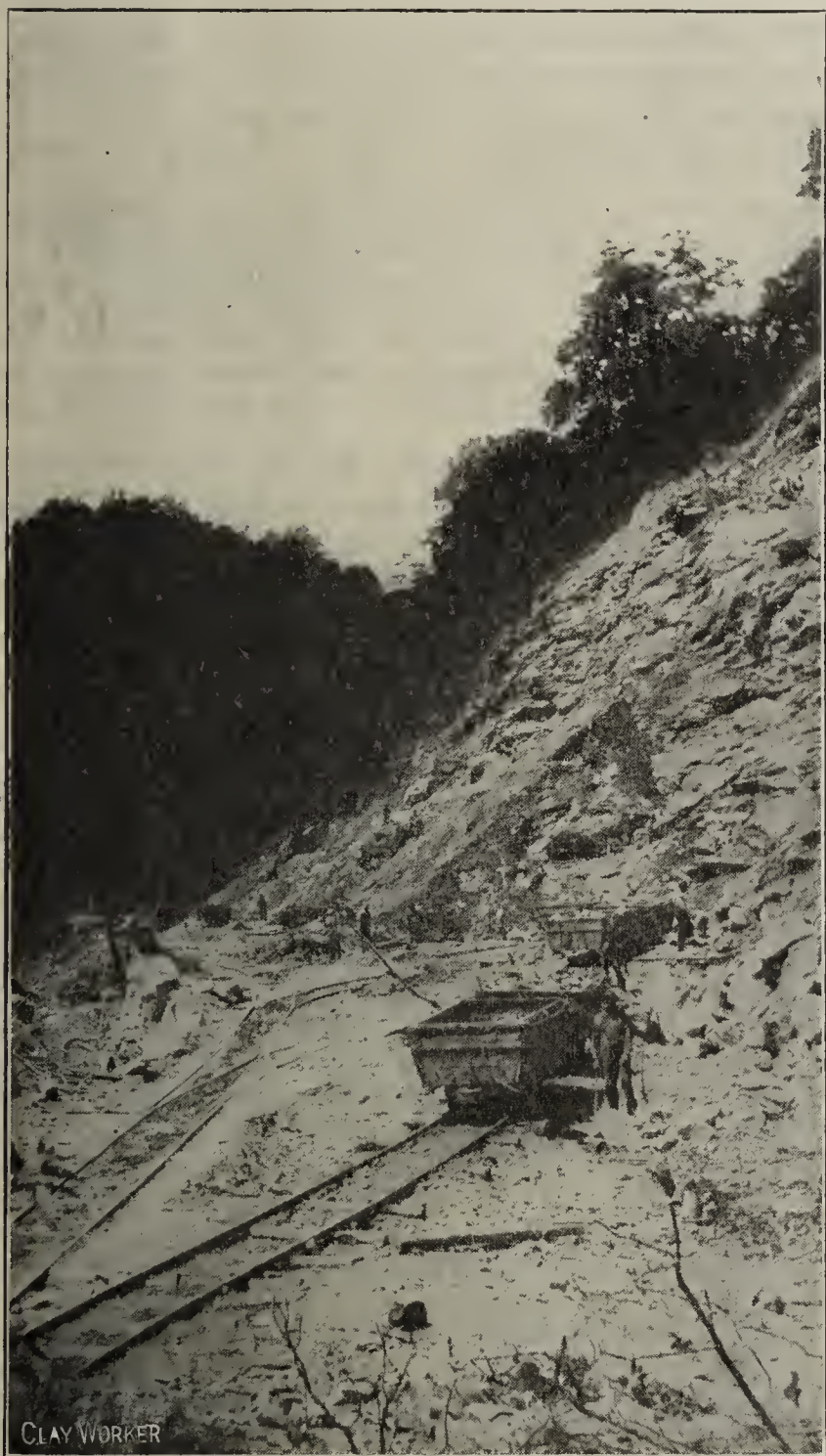
but there is yet a method of construction that is more interesting than either, which partakes somewhat of the nature of concrete work. which is called by the great encyclopedia writer on industrial arts, Charles Tomlinson, pise work, a method of constructing very durable walls of kneaded clay. It was probably suggested by the building processes of the ants: Pliny calls these walls formacie, and the method of constructing them was well known to the ancients. Any kind of earth that will sustain itself with a small slope is adapted to the work, but that best suited to it is clay containing small gravel of sufficient consistence to be dug with a spade. It is first well beaten, then screened to separate stones larger than a small hazelnut.

After the clay is prepared by screening, it then has

enough water added to enable it to retain the form given to it by kneading, and in the old times this kneading was done between the fingers, after which it was ready for use and was made into walls by the use of forms or movable boxes and planking, pretty much the same as the false work now in use for constructing concrete walls. The walls seem to have been made about 20 inches thick at the bottom, gradually diminishing in thickness upward, and after the walls were put up and the clay had dried they were plastered over on the outside and inside with lime mortar or cement mortar, or whatever was available in those days in the different localities. We get today some of the same construction

where the climate favored it, it seems that the houses were very durable. As an illustration of this Rondelet states that in 1764 he repaired a chateau in the department of Ain which was at least 150 years old, and in which the walls had acquired a hardness and compactness equal to ordinary stone, so that in enlarging the windows and other apertures the men used the same tools as in a quarry.

"Cob walls," as they are termed in Devonshire, resemble pise work. They are formed of clay, loam and chopped straw, and are generally 2 feet thick, resting on brick or stone foundations 3 or 4 feet above the level of the soil; they must be carried up several times and not be hurried. After each addition the sides are carefully pared down with



INTERESTING VIEWS FURNISHED BY THE CARLYLE PAVING BRICK COMPANY.

- (1) Shale Bank. (2) Machinery Room. (3) East Side of Plant Showing Flood's Defense. (4) Boat Load of Block on Way to New Albany, Ind.

in boiler wall work in certain sections of the country where stone is scarce, but where there is a good clay. Boiler walls are sometimes built by constructing the false work of planking inside and outside and using clay which is thrown in and moistened and carefully tamped and gradually built up until the proper height is reached. Then, after it has become dry, a fire is built inside the furnace and the inner planking is burnt out, but the outer planking is generally left standing to protect the wall against any falling out. The burning on the inner part of it reduces it to a sort of burnt brick, and it gives very good service where it is only required for a comparatively short period of time. In some of this form of construction done in the older times and in the countries

an iron cob parer which resembles a baker's peel. When dry it is coated with fine stucco, or plaster, and if kept dry at its top and foundation it is very durable. It is usually tiled or thatched at the top."

This method of construction is interesting, but it is hardly applicable to this country because of the difference in climate. In some of the older countries it was found that sun-baked brick would stand for ages, but in this country anything of that kind would be out of question, for between the freezing and the spring downpours of rain it would be destroyed. Possibly in some sections of the country where it seldom rains it would hold good, but it has been found that the building and cementing material used in the earlier days in ancient countries are not so durable here.

Written for THE CLAY-WORKER.

SALT GLAZES OF CLAY WARES.

L. E. BARRINGER, ENGINEER OF INSULATIONS, GENERAL ELECTRIC COMPANY.

THE PROCESS OF SALT glazing is applied principally to sewer pipe, stoneware (jugs, crocks, bowls, etc.), bricks, and, more rarely, to specialties, such as glazed chimney tops, artificial logs, decorative works, etc. This is the simplest and cheapest method of glazing, but the appearance of the ware is not always attractive, and latterly the practice has declined in the stoneware industry, where the use of Albany slip and the compounded stoneware glazes has superseded salt glazing. For sewer pipe and brick, however, where the appearance is of secondary importance, the practice continues. Especially in sewer pipe which are hidden from view, the appearance of the pipes, whether light or dark, or mottled, is of no consequence, as long as the glaze is sufficiently perfect to resist the organic acids of sewerage, and to give a uniformly impervious coating to the pipe. The process is probably used to the greatest extent in sewer pipe manufacture, for which work it is ideal, considering both the cost and the quality of the glaze. The handling of such large ware as sewer pipe by any other process would indeed be expensive and clumsy.

Reactions of Salt Glazing.

Reactions which occur during the process of salt glazing have been viewed as taking place in a variety of ways. Common salt is volatile at a temperature slightly above 800°C., but the vapors do not readily act on heated clay wares below 1150°C. At the last named temperature a fairly good glaze for sewer pipe is obtained, but a much better glaze is obtained when the operation is carried on at a high temperature—say Cone 8 or 9, corresponding to about 1300°C. With this heat a very heavy, smooth glaze layer is obtained. Some state that the salt vapors are first broken up by the water vapors present in the kiln gases, the sodium uniting with the oxygen thus set free, and the oxide in turn attacking the silica of the clay. The free chlorine combines with the hydrogen from the water, to form hydrochloric acid.

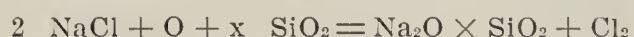
Emile Bourry¹ states that "the salt is decomposed at a high temperature in the presence of silica; the production of hydrochloric acid is one of the consequences of this reaction, but is not the cause of it," and continues by stating that the glaze is thicker and more impermeable the greater the amount of silica that is contained by the body. These statements are partly true and partly erroneous, as will be seen later.

I. A. Williams² presents the following reaction:



stating that water is required for decomposing the salt. Simple dissociation of the salt vapors, he states, does not take place.

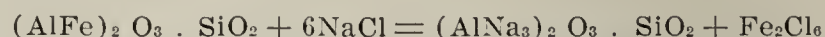
In the preceding we have first silica given as the essential factor for breaking up the salt fumes, and secondly water vapor. Bourry's theory will not give a balanced equation. Williams' reaction necessitates the presence of water vapor to supply oxygen for the sodium and hydrogen for the chlorine. Bourry's reaction would require oxygen, as follows:



but the question arises as to where this oxygen is obtained. Jos. Knett³ states that it might come from air in the furnace gases, or from the water vapor present. If the former condition were necessary, a reducing fire would fail to give a

good salt glaze, which, of course, is a fallacy. The writer has shown⁴ that silica alone, or very highly silicious bodies, will not take a salt glaze, even with the presence of water vapor and oxygen. The second condition has been proven not entirely necessary by de Sandervals⁵ experiment, showing that when NaCl is vaporized in dry air around a porous tube, free Cl collects in the inside of the tube, and a compound of sodium and the silica of the tube is formed.

A combination of theories would seem to the writer to cover the case, but Knett gives what seems most nearly correct; viz., that the highly heated, vaporized salt reacts with the iron or with the ferric oxide of the stoneware, and forms the salt glaze and volatile ferric chloride, the reaction being



The last is decomposed by steam, as follows:



The deposition of iron oxide crystals was noted by the writer on kaolin briquettes which failed to take a glaze.

In the light of the above it appears that silica, of course, is necessary, but that water vapor is not essential and takes part in only secondary reactions. The silica must be associated with oxides, preferably iron oxides. Entirely free silica or entirely combined silica are but slightly acted upon, if at all.

Clays Adapted for Salt Glazing.

Whatever the theoretical conditions may be, it is quite clear in practice, as the writer has shown,⁶ that clays may be too aluminous or too silicious for salt glazing. The clays adapted for salt glazing should have alumina and silica in a ratio between the limits below:

1.00 alumina to 4.6 silica
1.00 alumina to 12.5 silica

If these limits are exceeded in either direction, good results should not be expected. For practical purposes, when plasticity of the clay is of importance, the upper limit of silica might be taken as 10, instead of 12.5. As illustrating the clays which fall within these limits, there are given below the compositions of two clays used with success commercially. No. 1 is a high-grade fire clay, used principally for salt-glazed bricks. No. 2 is a sewer pipe clay, used entirely for sewer pipes. Clay No. 1 is fired at a temperature of Cone 8 (1,290°C), and Clay No. 2 at Cone 3 (1,190°C). In addition to the chemical analysis, the corresponding formula and ratio of alumina to silica are given:

	No. 1.	No. 2.
SiO ₂	63.11	56.81
Al ₂ O ₃	23.30	19.31
Fe ₂ O ₃	2.24	5.85
CaO	.73	2.56
MgO	.97	.04
Na ₂ O	.49	.84
K ₂ O	.93	1.55
SO ₃	.24	.19
H ₂ O	7.81	(loss on ignition) 13.57
	99.82	100.68

—Formula No. 1.—

.056 CaO	1.00 Al ₂ O ₃	4.605 SiO ₂
.105 MgO	.06 Fe ₂ O ₃	
.034 Na ₂ O		
.042 K ₂ O		

Ratio of alumina to silica, 1:4.6.

—Formula No. 2.—

.238 CaO	1.00 Al ₂ O ₃	5.00 SiO ₂
.005 MgO	.19 Fe ₂ O ₃	
.063 Na ₂ O		
.084 K ₂ O		

Ratio of alumina to silica, 1:5.00.

The glaze obtained in Clay No. 1 is very much heavier and

¹Treatise on the Ceramic Industries, page 689.

²Brick, Vol. XIV, No. 5.

³Thonindustrie Zeitung, 1896, page 495.

⁴Trans. American Ceramic Society, IV, 221-222.

⁵Comptes Rendus, 116-641.

⁶Trans. American Ceramic Society, IV, page 222.

of much better appearance than on No. 2, due principally to the higher temperature and more energetic and thorough reactions.

Efflorescence interferes with the formation of a good salt glaze on clays, although it has been noted that clays may contain up to 3 per cent. of soluble salts without any very noticeable effect resulting on the quality of the glaze. A slight efflorescence is no doubt absorbed in the formation of the salt glaze, as evidenced by the formation of a salt glaze showing 3.5 per cent. CaO, while the clay itself showed by analysis only .725 CaO. If it is desired to salt glaze a badly effloresced clay, some means of preventing scum formation should be adopted, such as the addition of barium salts.

Apart from the chemical nature of clays suitable for salt glazing, there is the consideration of their physical nature. At the finishing temperature the clays should not be too vitreous or dense. The free silica present may be either coarse or fine, but a more pleasing color is secured with finely divided sand, the lighter shades being obtained. Of course the material should be fairly uniform in its nature to secure uniformity of glaze, and if a mixture of clays is being used, the mixing operation should be very thorough, indeed.

Temperatures Employed.

The temperature at which salt glazing is carried out ranges from Cone 3 (1,190°) to Cone 8 (1,290°C.) in this country, but as high as Cone 10 (1,330°C.) abroad.

Should a clay be found somewhat unfitted for salt glazing, either chemically or physically, it is evident that by mixing it with other clays, possessing the needed characteristics, it is quite possible to secure the desired combination.

The Salt Glazing Operation.

Assuming that the proper clay is being used and a satisfactory grade of ware can be formed and fired from the material, the actual operation of salt glazing is carried out as follows:

When the kiln of ware has been brought to the finishing heat, as determined by trial pieces or Seger cones or measure of settle, common salt is thrown over the surface of the fires. Before salting, care should be taken to see that the fires are clean and clear. The last charge of fuel before salting should have burned to a bright, clean mass. The salt should not be thrown on dirty fires, or irregular beds of fuel, nor upon fires freshly charged with fuel. The draft should be reduced to check the rapid passage of the salt fumes through the kiln before their mission is accomplished. The volatilization of the salt, when thrown on the fire, is accompanied by an immediate lowering of the temperature of the kiln, considerable heat being consumed by the conversion of the solid salt to vapor. Time should be allowed after the first salting, and observations taken both of trial pieces and of the condition of the interior of the kiln, through the peep-holes. If the salting has apparently had no effect and yet the kiln seems full of fumes, the chances are that the heat has been too much reduced to permit of the ready reaction between the salt vapors and the clay. Under these circumstances a light firing should be given the kiln, and the heat raised until the salt begins to act and the kiln clears somewhat. In the salting period light, frequent application of salt and light firing, if necessary, accomplish more than heavy salting or heavy firing. It must be remembered that time is necessary, and the salt glazing should not be expected to be complete within a very short period after salting. The chilling of the kiln when the fires are salted of course necessitates a period of time required to bring the temperature back to the proper degree. In some plants two or three saltings are given, with intervals ranging from one half hour to one or two hours. To offset the chilling of the kiln by the vaporization of the salt, it has in some places been the practice to mix with the salt substances high in calorific value, such as oils or resins. Williams has endeavored to establish a method by which the amount of such substances necessary to maintain the approximate temperature before

salting can be calculated, and in a particular instance, where sewer pipe kilns fired at a high temperature are involved, estimated that a mixture of heat-generating material (consisting of one part of oil to eleven of rosin) to each 7.14 parts of salt, would be necessary to maintain the temperature which the vaporization of the salt tends to lower.

The advantage gained by this practice does not seem to the writer to be great, unless a very poor grade of fuel is used, which would render it difficult to quickly regain the necessary temperature after each salting to quickly give a bright, smooth glaze to the ware. If the fire and kiln temperature are in the right condition before salting, the volatilization of the salt is accomplished without much difficulty, and the salt fumes, once in the kiln and their escape checked, a light after-fire will serve to bring the temperature to the proper point again. The combustion of oil and rosin is accompanied with dense smoke, and a carbon deposition in the glaze is probable. For dark sewer pipe glazes this is not objectionable, but very often the light glaze is sought, and in this case the practice would not be desirable.

To better the quality of the glaze, Voget recommends the mixing of one-third of soda ash with two-thirds of salt, maintaining that soda ash is a good ingredient for glass. It is probable that when the carbonate is used it is decomposed in the presence of H₂O vapor, forming NaOH and CO₂, and the NaOH is in turn volatilized and decomposed. The writer sees no especial advantage in the use of the carbonate, as the same final reactions result, while on the other hand, the carbonate is not as easily broken up as the chloride under the conditions involved, and a still greater lowering of the temperature of the kiln may be expected if the carbonate is used than is the case with chloride alone.

While on the subject of substances used in the salt, it occurs to the writer that perhaps volatile substances could be used to give color to the glaze, where high-grade ware is salt glazed. Among such would be arsenious oxide (As₂O₃), or white arsenic, which is volatile at red heat. This might be used on a stoneware clay containing but little iron oxide and where a light gray glaze is desired, or perhaps a fair degree of whiteness could be obtained. There would also be the volatile salts of bases which would color the clay, as some of the chlorides.

The amount of salt necessary to salt glaze a kiln of clay ware is given by most authorities as ten to twenty ounces for each cubic foot of ware. If too much salt is used and the salting operation is carried on too long, ridges and "tears" form on the brick and destroy the uniformity of the glaze layer. If the salting is not sufficient, the glaze is dull and rough. In applying the salt, it should be thrown over the fires in small portions, and the result noted before the next application.

After the salting of the kiln has been successfully completed, it is a good plan to draw the fires, in order to lessen the chances of the glaze becoming marred by the sulphurous acid fumes which are given off from the smoldering fires. Of course, where gas or oil is used, the sulphur smoke is not so frequently obtained.

If the right clay and temperature is being used, the operation of salt glazing should not be difficult. Care in both the firing and application of the salt, together with watchfulness on the part of the burners, will give the desired results. It must not be considered sufficient to throw salt over the fires at the proper temperature. Close regulation of the draft, light firing, light salt applications and frequent observations of the conditions of the interior of the kiln, are necessary precautions.

The bag walls and side of the kilns in which clay wares are salt glazed are, of course, attacked by the salt fumes in the same manner as the ware, and in some cases very considerable slagging of the bag walls and inner course of bricks in the kiln walls results, so that renewal is necessary at frequent intervals. It would be well to consider the limits of composition above given for clays which are acted upon readily by salt fumes, and in using bricks for lining the kiln there should be selected, if possible, a composition which would fall well outside the limits given, so that the attack of the salt would be slow and the firing action comparatively slight. In other words, it would be found advantageous to use a highly aluminous or a highly silicious composition.

J. OSMAN AND CO. LTD. KILN BUILDERS

LONDON ENGLAND



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THE
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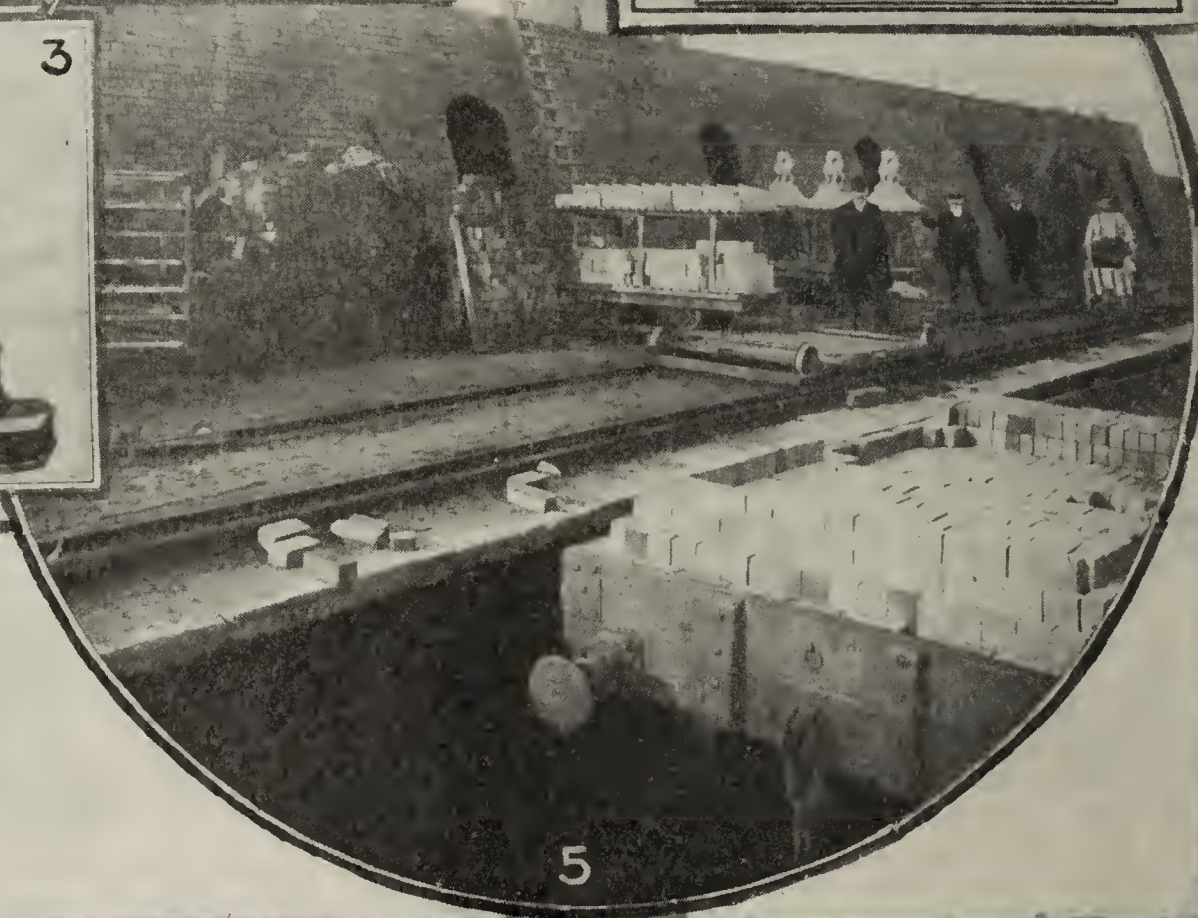
THE
IDEAL KILN

REMEMBER
OSMAN'S BUILD KILNS OF ALL TYPES
ALL OVER THE WORLD.

4



3



5



6

BISPHAM ORRELL HALL COLLIERY N.WIGAN.

The Largest Kiln Builders in the Old Country.

J. Osman & Co., Ltd., London, England, a Well Established Firm Building Kilns In Many Foreign Countries.

IN ALL PROBABILITY this firm is the largest kiln builder in the world, at any rate they have substantial claims to that position as they have erected kilns in England, Scotland, Wales, Ireland, America, Australia, New Zealand, Mexico, South Africa, India, China, Egypt, etc., etc., etc.

Our illustration introduces James Osman, the founder of the business, who has had twenty-five years' experience, and whose cheerful geniality allied with his business ability has won him the respect and friendship of hundreds of clayworkers at home and abroad. His untiring zeal is made manifest by his present endeavors to place more prominently before American clayworkers the advantages of continuous kilns in general, and the merits of the New Perfect kiln, Ideal and Dominant in particular.

Without doubt continuous kilns have not been adopted here in anything like the numbers that their great economy and simplicity of handling entitle them, and it must be ad-

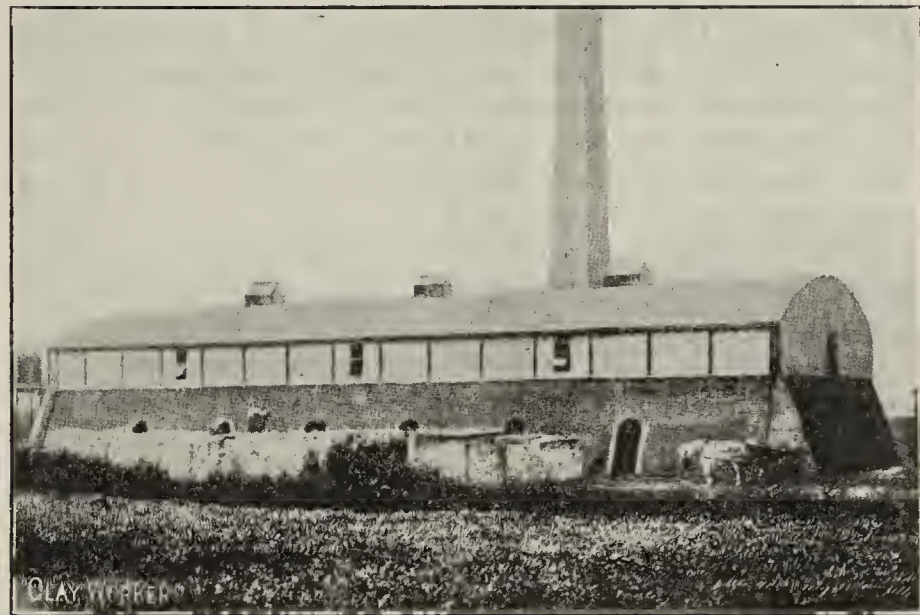
mitted, too, that Americans have been unaccountably prejudiced against them.

This prejudice we are pleased to say is now fast dying out and clayworkers here are recognizing the economies that their German and British confreres have long since availed themselves of.

The original Hoffman kiln forms the basis of the present modern continuous kiln, and Messrs. Osman's New Perfect kiln can undoubtedly well sustain its claim to be a real improvement on the Hoffman. This is no idle boast, but a plain statement of facts.



The Osman Kiln on Reid & Co.'s Yard.



The Osman No. 4 "New Perfect" Kiln.

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A client for whom they erected a kiln and who has two Hoffmans in use stated that his New Perfect was taking 2½ cwts. of dust coal per 1,000 of bricks (English size, 9x4½x3), whereas the Hoffmans were consuming 5 to 6 cwts.

To show an economy of 50 per cent. over the Hoffman is a great achievement, and deserves to be brought prominently before those clayworkers who find the coal bills swallowing the profits.

Messrs. Osman, while undoubtedly being principally occupied in the design and building of continuous kilns, nevertheless build any and every type of kiln.

Their kiln book and New Perfect catalogue are undoubtedly unique and firms who are in the market for kilns of any type would do well to make their requirements known

to J. Osman & Co., Ltd., when these interesting books will be sent free if the request be made on business lines.

the case of firms manufacturing a variety of mixed goods, it is often considered impossible to employ a continuous kiln profitably. This idea is often entirely without basis. Messrs. Osman have continuous kilns in use in which some chambers are occupied with fire bricks and blocks, chimney pots, others are burning common building and facing bricks, other chambers contain blue bricks and tiles, paving bricks and blocks, and again in muffled inner chambers, clean high-class architectural terra cotta and buff facing bricks, tiles and copings are burnt.

Of course the disposition and firing of such chambers calls for care and discrimination, but what manufacturer does not, at some stage, require brains to be used?

In the illustration, No. 4, is shown the works of the Bispham Hall Brick, Tile and Terra Cotta Co., Ltd., Wigan, England. This firm has in use one of Messrs. Osman's No. 4 New Perfect kilns, and Illustrations Nos. 5 and 6 show the class of goods that can and have been burnt therein.

The terra cotta lions have passed through a Sutcliffe twelve-track tunnel dryer, and are about to be set in muffled chambers inside the continuous kiln. The kiln shown is a No. 4 size of fourteen chambers, each 18 feet by 18 feet by 9 feet high, and each chamber has a 20,000 English size brick capacity. The stack is 6 feet up-draft and 60 yards above ground level. (The New Perfect kiln does not of itself

require so large a stack, but additional round and rectangular down-draft kilns are also attached thereto).

The New Perfect kiln is of the continuous tunnel type and usually consists of fourteen chambers. Where, however, the bricks are set therein in the stiff plastic or semi-dry state and there is more than the usual amount of moisture to deal with, the number of chambers is increased to sixteen, which allows of more margin for sweating or water-smoking.

The latter operation is performed by waste heat abstracted from burnt chambers which are in process of cooling. This hot air is drawn out from the top of a chamber and passes down a short branch flue into a main hot air flue running the length of and central with the kiln. From this main, square shafts drop down to the floor level, and, opening, allow this waste heat to emerge into the chamber wherein the green bricks stand ready for steaming. The removal of another cover in the crown allows of the exit of this steam from the bricks, and a flue built between the kiln lining and the shell allows of the steam being pulled away direct into the main flue and away to the stack. Thus the operations of abstracting hot air and sweating up-draft proceed daily.

In those chambers devoted to blue brick burning, the fire is controlled by a system of patent flues invented by Mr. Frank Fidler, who designed and superintended the erection of this finely equipped works and who acts in the capacity of engineer to Messrs. Osman. By means of these flues the goods can be kept "in soak," isolated, in fact, while the back heat may travel forward and do work in chambers in front. The bricks are manufactured from a refractory pit shale overlaying the coal, while the buff bricks and fire goods are made from the mountain mine fire clay below the coal and separating shale and clay.

The drying of the main bulk of goods is done in a Sutcliffe steam dryer, designed and equipped by the Sutcliffe Drying and Ventilating Co., Ltd., of Manchester, England.

The Bispham Hall Company manufacture a great diversity of goods, ranging from common bricks to high-class architectural terra cotta.

Messrs. Osman are to be congratulated on securing the technical services of the designer of this up-to-date works. It is further evidence of their wish and ability to give clients sound, experienced advice on all matters appertaining to clayworking, and not merely proffer the installation of a special kiln. It is to this system of entering into the details of the clayworking business that their success is attributed. Clients are advised on all matters that bid for success and attention, not merely confined to the kiln, but instruction and opinion given as to the mode of setting, duration of firing, quality of fuel, etc. A few interesting illustrations of kilns built in other lands are shown in Nos. 7, 8, 9 and 10, and it will be of general interest to clayworkers contemplating additional kiln accommodation to know that Messrs. Osman have just completed building two kilns in China, one in West Africa, Mexico, Egypt, etc., etc.

In addition, they lately built two kilns (a twenty-four-chamber double race, i. e., two fires) in South Yorkshire, another in Newcastle, one in Anglesey, North Wales, and one in South Wales. Many kilns are now in course of construction in England and another is being constructed to their design in Italy. Messrs. Osman are builders of the Ideal, a most up-to-date continuous kiln for enameled and high-class goods, and also the inventors and patentees of a continuous lime kiln. A recent addition to their series has been the design of a special form of transverse arch continuous kiln, shown as the Dominant, and which offers exceptional advantages where outputs above the average are required. Its form is such that extensions are practically unlimited and yet speed of travel is unaffected. Provision for the driving off of moisture in the set bricks by means of waste heat from cooling chambers is an essential feature of the design. In this respect it agrees with the design of the New Perfect. The feature, however, which is entirely

new and novel, lies in the fact that the arches rest on arches and not on piers of brick work. Hence, there is production for every foot of travel and not the interruption of pillars of brick work that are only burnt over and over again to their detriment.

This simple feature allows of more freedom in the setting, likewise, a fact appreciated by those who have studied this point.

A smoke stack (usually placed in the center) provides the necessary draft and is proportioned to the size of the kiln and chambers. All flues in this kiln are above ground and foundations are practically nil. This is the most economical continuous kiln it is possible to erect, and the owners have incorporated in the design the accumulated knowledge and experience gained in a quarter of a century throughout the world. Appreciating, however, the demand that has arisen for a continuous kiln capable of burning the highest quality products, Messrs. Osman have purposely designed and brought before clayworkers their Ideal continu-



Chimney Stack of the "New Perfect" Kiln at the Plant of the Grahamstown Brickmaking Co., Grahamstown, Cape Colony.

ous kiln. In this kiln no fuel comes in contact with the goods whatever. Any chamber can be regulated at will and any desired temperature attained. Chambers can be shut off and left in soak and the chambers are arranged so that salt glazing may be done in one chamber and terra cotta burnt in the next, and another class of goods in the rear. All steaming can be done up-draft, a thing to be highly appreciated as it prevents swollen and crushed goods in the bottoms, a result often obtained in intermittent kilns.

Where firms possess their own building staff or have exceptional advantages that will allow them undertaking their own kiln erections, Messrs. Osman are prepared to provide on most reasonable terms remarkably fine detailed plans, sketches and illustrated quantities and specifications that will enable them to carry their work out accurately, cheaply and expediently. This fact is one well worthy of record by brickmakers contemplating extensions.

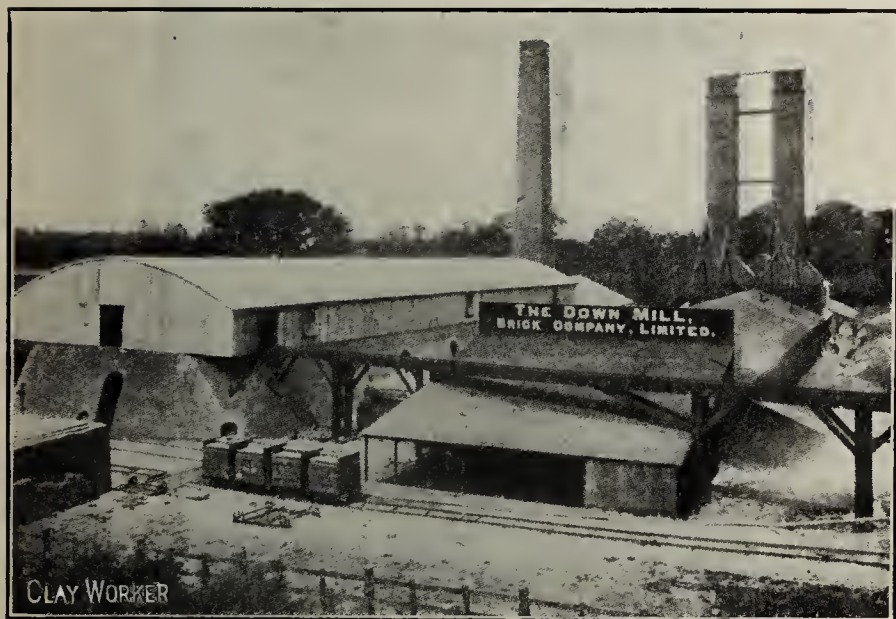
Messrs. Osman's postal address is 3 Arundel street, London, W. C., while their cable address is "Dampening London."

THE CATALOGUE vs. THE SALESMAN.*

By H. J. Flood, President and General Manager of the Chisholm, Boyd & White Co., Chicago, Ill.

WE ARE ASSEMBLED here for the purpose of consulting together for our mutual benefit as manufacturers of clayworking machinery. As my contribution to this end I have endeavored in this paper to set forth the advantages of selling our product by means of printed matter and correspondence rather than by the employment of traveling salesmen. Having thoroughly tested both methods for many years, I believe I am in a position to express opinions on the subject which are based on actual experience, and in which mere theory has therefore no part.

Those who are here present are well aware that there have been more improvements made in brickmaking and other clayworking machinery and appliances during the past twenty years than in all preceding time, and that in recent years hundreds of thousands of dollars have been expended by the various concerns represented here in developing and perfecting their product. No expense has been spared in the effort to bring clayworking machinery up to the high standard of today, and large amounts of capital have been invested in the building of modern factories and in the installation of new and the most modern machine tools and



"New Perfect" Kiln, Down Mill Brick Company, Ltd., Bracknell, Berkshire, England.

equipment, so as to be able to produce the best possible machinery at the lowest possible cost. The manufacturing cost has thus been reduced to a minimum.

But when the question of the cost of making sales is considered, I am of the opinion that, speaking generally of our trade, no improvement is discernible over the methods of twenty years ago. Then, as now, the plan generally employed in endeavoring to effect sales of clayworking machinery was to send a hired salesman or an agent to see the prospective customer, or for the manufacturer to go in person, and it was often necessary to travel long distances at large expense for that purpose. Sometimes this was varied by inviting the customer to visit the factory at the expense of the manufacturer, and also several brick and other clayworking plants where his machinery was installed, in order to see the machines in actual use. In this connection it should be said that the manufacturer who travels in the interest of the selling department of his business should be considered a salesman for the time being, and his time and expense while acting in that capacity should be charged to selling expense account.

There have been occasional cases in which persons who were contemplating the purchase of clayworking machinery have made trips of investigation, visiting various machine shops in order to see the machines both under course of

construction and in operation, so as to satisfy themselves as to what particular make of machinery they should purchase. These visits have usually been preceded by a large amount of correspondence with the manufacturer and the sending of catalogues and other advertising literature. But contracts were rarely closed by direct correspondence, without the intervention of traveling salesmen, and upon receipt of an inquiry the first thought of the manufacturer has usually been to promptly send a salesman to see the possible purchaser, whether the distance to be traveled were but a few miles or across the continent.

These methods of selling, as you all know, are still in general use, and it is apparent that in our trade manufacturers have not given as close study to the selling end of their business as they have devoted to the development, perfecting and building of their product.

It is impracticable to formulate fixed rules for the guidance of salesmen which will meet all the conditions they are liable to encounter. Consequently, unless they are intrusted with full authority as to prices, terms, delivery, etc., they are often liable to be handicapped in competing for an order, and they are frequently tempted to make statements which can not be verified and promises which can not be carried out, and that are neither satisfactory nor agreeable to the manufacturer and which result in misunderstandings, troublesome negotiations, and, sometimes, great loss.

The successful salesman of clayworking machinery should be an engineer of some ability, a clayworker in all its branches, and an honest man of good personality, and he should be capable of demonstrating in actual work the correctness of every statement he has made. Above all, he should thoroughly understand the machinery he is selling and be capable of adjusting himself to every condition he may meet during the negotiations. It is needless to say that men with these qualifications are hard to find, and necessarily command large salaries. They are, in fact, usually either in business for themselves or connected with some larger industry with greater opportunities.

When a salesman goes out after a contract, he generally meets a number of representatives from competing concerns in his line. The buyer knows that these salesmen are all very anxious to secure his order, and each salesman feels that his job may depend on his success in this particular case. Nine out of ten buyers will endeavor to take advantage of such a situation, and will proceed to dicker and hammer down prices and demand unreasonable terms, and will frequently intimate and often say: "We favor your machinery, but the other fellow's price is much lower." This is the sort of thing that gives the average salesman "cold feet," and often leads to ruinous price-cutting, with the result that when the contract is finally let, the manufacturer finds his margin of profit exceedingly small after deducting the average selling expenses. It must also be taken into account that out of all the salesmen who are in competition, but one gets the order. The expenses of all the others are a total loss to their respective employers. There have even been instances in which the direct profit on the sale was insufficient to cover the wages and traveling expenses of the successful salesman; and it is certain that in a great number of cases the combined expenses of all the salesmen concerned have amounted to more than the actual profit, and, in some cases, to nearly as much as the value of the machinery in question.

It is not my intention to make an analytical statement of the cost of selling machinery by the old-fashioned, two-legged-salesman method. Each of you can figure that out from your own books and your own experience. The purpose of this paper is to show that brickmaking and other clayworking machinery can be successfully marketed by the mail order plan, with a saving as compared with the other plan sufficient to constitute a handsome profit, and to prove that the traveling salesman is, as a rule, a wholly unnecessary and very expensive auxiliary to the catalogue.

There are in Chicago two mail order houses which sell almost every known commodity, from a paper of pins to a locomotive. Each of these concerns does a business of approximately \$50,000,000 per year. Neither of them employ traveling salesmen, depending wholly upon their printed salesmen; that is to say, on their catalogues, which are sent

*Paper read before the National Clay Machinery Association.

to any address on request. These enormous houses have been built up during the last twenty years. They are referred to here because of their conspicuous success in the mail order business, and their methods have been adopted with good results by a number of manufacturers throughout the country, who have dispensed with traveling salesmen and now rely on printed matter and correspondence for the promotion of sales.

It may safely be asserted, allowing the highest amount that it is practicable to expend for illustrated catalogues and other printed matter of the finest quality procurable, that the cost of salesmanship by this method is less than one-tenth of the cost of the two-legged-salesman plan.

For example, any person, firm or corporation having decided to go into the brickmaking business, is certain to ask the various manufacturers of brickmaking machinery for catalogues, prices and other information. Prices can be quoted and terms made and all other information be supplied as intelligently and satisfactorily by mail as through the direct medium of a traveling salesman, and with much greater certainty of their being in exact accord with the wishes of the manufacturer.

The ideal catalogue will contain engravings of the finest quality and well-written text matter, setting forth clearly in every detail the merits and utility of the manufacturer's produce; and it is thus possible to present the subject to the possible buyer more efficiently and convincingly than it is usually presented by the average salesman by means of a personal interview. All that would be left for him to do would be to repeat what had already been better said on paper.

Machinery manufacturers should not be drawn into the business of promoting companies to build brickmaking plants, and they can not afford to send out salesmen for that purpose, even though assured in advance of an order for machinery. Such expenses, if incurred, should be borne by those who are going to profit by them; that is, by the buyer of the machinery. Those who go into brickmaking do so because they expect to profit by it, and they will buy their machinery and equipment from somebody, whether they are interviewed by salesmen or not; and there would be just as many contracts made and as much machinery sold by manufacturers in our line if there were no traveling salesmen whatever employed, and on a much more profitable and satisfactory basis.

Many persons who desire to go into the brick business have had no previous experience in that line, and they frequently and naturally call on the manufacturer of brick machinery for information and advice in regard to every phase of the subject, from the quality of the clay to the marketing of the brick. If a salesman is sent to look over the ground and his recommendations are followed and the enterprise afterwards from any cause proves a failure, the manufacturer is sure to be blamed. But if the venture proves a success, does the manufacturer get any credit? Why should we send out salesmen at our own expense to act as consulting engineers and advisers without being paid for such service? In such circumstances, as in all others, "The laborer is worthy of his hire."

I have been for many years connected with a company which manufactures machinery for making brick by the dry clay process. In the early days we relied almost wholly on traveling salesmen for the marketing of our product. The selling expenses under that system were enormous, and so great as to swallow up nearly the entire profits of the business. The profits we should have made went for salesmen's salaries and traveling expenses. We finally decided to try the experiment of dispensing altogether with salesmen, and to do business solely by mail. The experiment has proved a gratifying success, and for the past six years we have been able to sell the output of our factory by means of the catalogue—our printed salesman—supplemented, of course, by active and painstaking correspondence.

In some cases the prospective purchaser asks for advice which can not be conveyed satisfactorily by mail, and when it becomes advisable we send a competent man to meet the customer, and we have found, as a rule, buyers are willing to pay for such service. The men we send out on such occasions are not salesmen, and are not expected to do any selling.

Sometimes a buyer prefers to come to our plant for the purpose of consultation and to inspect our machinery and go into matters of detail. The majority of these make this trip at their own expense, but sometimes when circumstances warrant it, we allow a credit of their railroad fares on the price of machinery purchased.

Our methods of salesmanship by mail are very simple. Having received an inquiry, we make it a point to give all the information asked for in as full and clear a manner as possible. If the specifications submitted to us are not clear, we ask for further information, and, if possible, have the prospective purchaser specify every machine on which he desires prices.

In our catalogue we illustrate our various machines by the finest engravings procurable, and the materials and printing of our advertising matter are of the very highest grade. In our experience, the finest printing is the most profitable.

Any manufacturer who decides to adopt this method of marketing his machinery should not overlook the fact that the preparing and issuing of an effective catalogue is but one element in the system. It is necessary to obtain and maintain an up-to-date mailing list of the brickmakers of the country and others interested in this industry. At intervals this list should be circularized and tried out with some



H. J. Flood, Chicago, Ill.

good advertising material, which will be a test of the correctness of the addresses embodied in the list. To those who respond in any way, it may be desirable to send the general catalogue—your printed salesman—followed by strong, practical letters of the business-getting kind, dealing strictly and intelligently with the subject in hand and with no other.

The precise treatment of inquiries resulting from the distribution of advertising matter is something into which I do not desire to enter, for each of you have your own ideas on that subject, and will doubtless prefer to be guided solely by the light of your own experience. In my judgment, however, every inquiry requires careful study and consideration and should be replied to with the utmost care.

I have endeavored to outline the system of salesmanship which we have found best and most profitable for our business and by means of which we have enjoyed a fair share of prosperity, and I trust these suggestions may result in some of you taking steps which will add some figures to the right side of your balance sheets. There is no question in my mind that if you adopt the printed salesman system, the volume of your success will be measured by the quality of brains and energy you put into the preparation of your advertising literature and the knowledge, care and force entering into the subsequent correspondence.

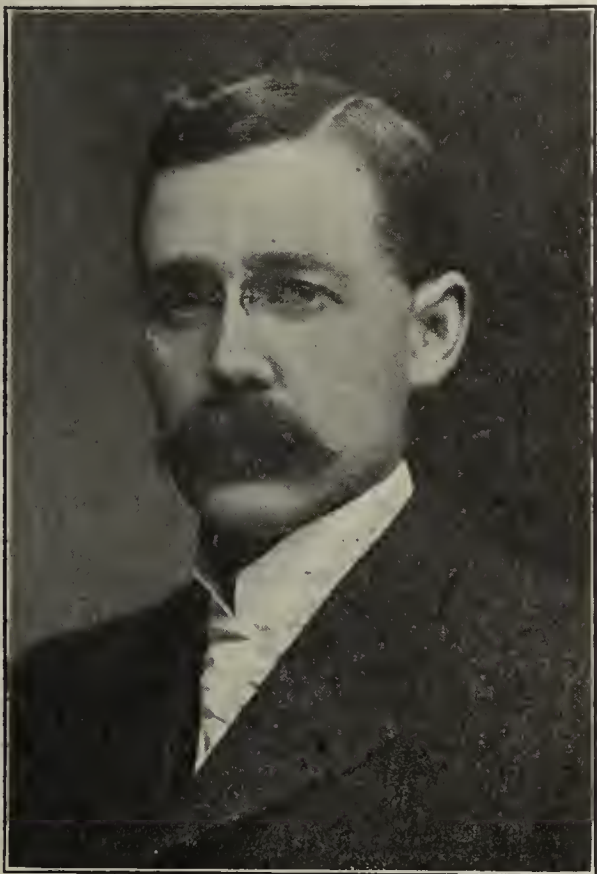
THE SALESMAN vs. THE CATALOGUE.*

By C. B. Sharer, Sales Manager for the American Clay Machinery Company, Bucyrus, Ohio.

AT THE REQUEST of your worthy secretary, I have prepared a paper in which I shall simply give my views on the above question and endeavor to explain why, in my opinion, it is neither practical nor profitable to sell clay machinery by catalogue without the use of salesmen.

The purpose of the catalogue, as well as any other printed advertisement, is simply to call attention to the machinery. An attractive advertisement will be noticed more readily and on that account is more effective. The catalogue goes a step farther than an ordinary advertisement, inasmuch as it more thoroughly illustrates and describes the complete line of machinery. At the best, however, a moderate description only can be given and there are many points left undecided in the customer's mind, even after reading the catalogue carefully.

When the catalogue or the advertisement has attracted the customer's attention and has been carefully read, I



C. B. Sharer, Bucyrus, Ohio.

consider that its work has been accomplished. It then becomes the duty of the salesman to interview the customer, and, by painting a word picture, illustrate so clearly and thoroughly the details of the construction of the machinery, the method of installing, the manner of operating, and, above all, the benefits to be derived from the use of the machinery, that the customer will have a picture in his mind's eye which will enable him to appreciate the value of the machine to him.

This picture painting by word of mouth is in reality the object of the salesman during his interview with the customer, and the more successfully he paints, the more successful is his salesmanship. To paint successfully, he himself must first have a picture in his own mind. He must be thoroughly familiar with the line of machinery which he is selling; he must know the details of its construction; he must know the various uses of the machinery and the manner in which it should be installed and operated in order to accomplish certain results. He must know the results which can be obtained under various circumstances and conditions. With this knowledge and this picture in his

mind, he is prepared to interview the customer, and, after learning the conditions and circumstances under which the machinery is to be used and the results which the customer expects, he will then be able to paint his picture well and clearly for the benefit of the customer.

The qualifications of a successful clay machinery salesman today are much more difficult to meet than under the conditions which existed years ago when the manufacture of clay machinery was in its infancy. At that time there were but few different kinds of machines and these were supposed to be quite capable of making first-class products from practically any kind of clay. Experience, however, has been a wise teacher and the clay machinery has developed. Today we have machines which were not dreamed of years ago, but which have been developed through the necessity of supplying the clayworkers with machinery which would give results under various conditions. The salesmen have developed and kept pace with the advance in manufacture. They themselves are responsible for the development of many new and improved machines. Circulating among the trade and learning the requirements of the clayworkers, they are able to report to the factory the conditions existing in the field, and give some idea as to the class of machines which are necessary to meet the requirements of the clayworkers.

The salesmen are not mechanical engineers as a rule, and their training has not been such as to enable them to enter the shop and design the mechanical features of a machine which they may have in their mind as being required to accomplish certain results. It has, therefore, been the duty of the mechanical engineer in charge of the factory to perform this part of the work in the development of new and improved machinery. The salesman, however, can appreciate the mechanical features after the machine has been developed and this knowledge enables him to more clearly picture the advantages of the machine to his customer.

The successful salesman today in this line, as well as in any other, must be thoroughly in earnest in his work. He must be honest and straightforward in his statements to the customer, and energetic and enthusiastic in his efforts to paint his picture for the benefit of the customer.

The inquiries received for clay machinery are often difficult to handle and a letter of explanation in reply to an inquiry, no matter how carefully prepared, may be seriously misleading, due to the fact that the customer may have a partially completed picture in his mind's eye, which prevents him from understanding and appreciating the explanation given.

The salesman on the ground, being a judge of human nature, first determines the standpoint from which the customer will view the matter and then performs his picture painting accordingly, with the result that both he and the customer are viewing the matter from the same standpoint. This method of salesmanship must be effective; much more so than a catalogue followed by carefully prepared correspondence. Results plainly show that a well-organized sales department with a corps of competent salesmen will produce more satisfactory and profitable business than the best-developed mail order department ever established. Some lines of machinery may perhaps be marketed to a limited extent by mail. Clay machinery, however, due to its variety and the various conditions under which it is installed and operated, can not be safely marketed by mail.

The number of contracts which have been closed by mail in past years is very small indeed. The personal attention of the salesman on the ground is necessary in order to properly protect the interests of the manufacturer and make sure that an equipment of machinery is sold which is adapted to the circumstances and conditions under which it is to be operated and which with proper manipulation will produce the results required by the customer.

The number of salesman required by any particular clay-machinery manufacturer will be governed entirely by the class of machinery he is making and the capacity of his factory. The sales of certain kinds of clay machinery is at the present time limited to certain districts and territories, due to the fact that the clay in these territories can be better manipulated by that particular class of machinery. Therefore the manufacturer who produces but one line of machinery

*Paper read before the National Clay Machinery Association.

should limit his corps of salesmen to a sufficient number to properly cover those territories in which he can reasonably expect to be more successful with his machinery and meet the demands of his customers. The greater the line of machinery manufactured, the greater the territory that can be covered, the greater the number of prospective customers, and, consequently, the greater the number of competent salesmen required to market the full output of the factory.

In the selection of salesmen, competency should be the first consideration. A good talker is not necessarily a good salesman. Experience in one line does not always qualify a salesman in another line. To meet the qualifications of a successful clay-machinery salesman at the present time a general knowledge of the clay industry is essential. This, combined with a complete knowledge of the line of machinery which he is handling, together with a light heart, a clear conscience, and a disposition to follow the "Golden Rule," will enable a salesman to conduct the business in his territory successfully and bring profits to his employer.

It is too often the case that a salesman's energy and disposition to work are measured by the encouragement he receives from the office. This is a condition which can be remedied and which by all means should be regulated so that the full effect of the salesman's ability is secured. An ill-natured or grumbling salesman is never effective and should be removed from the force. The clay machinery salesman may legitimately claim to have "troubles of his own" and is fully entitled to due consideration from the office. He should at all times be encouraged and never annoyed by unpleasant correspondence from the factory. If he has committed an error, it has not been intentional, but has been done with the welfare and interests of the company at heart. Therefore, he should not be hastily criticised, but should be given an opportunity to explain fully the conditions surrounding the incident, when, in a majority of cases, it will be found that severe criticism is not justified.

A successful salesman will not be unreasonable in his demand for consideration at the office. But unless he receives proper consideration, he is apt to become discouraged and his work will be less effective.

A satisfied customer may be classed among the assets of a company. The salesman fully realizes this fact and it is his aim to build up the assets of the company along this line. A dissatisfied customer is a liability of an unknown quantity. He may cost the company large sums of money and the salesman, realizing this, endeavors to reduce the liabilities of his company in this line. Therefore, the correspondence between the office and the salesman and the office and the customer, should be such as will assist the salesman in maintaining satisfied and removing dissatisfied customers from the list. If the office and the salesman work together in absolute harmony, their combined efforts will be effective and will result in the establishment of a satisfactory and profitable business in that territory.

Salesmen should work on a salary basis and devote their full time and best efforts to the interests of the company. Commission agents are poor salesmen and are never as satisfactory from a business standpoint as a salaried salesman, due to the fact that the interests of the company and the interests of the commission agent are not in harmony, and it but human nature for the agent to sacrifice the interests of the company to further his own. Therefore, he is never as reliable or as productive as a salesman working under the direct supervision of the main office.

I do not depreciate the value of the catalogue and the advertisements, but consider them accessories to the salesman. They are a part of the assistance given by the office to the salesman. The more thoroughly and carefully the catalogue or advertisements are prepared and distributed, the greater assistance they are to the salesman. But no matter how carefully prepared or how attractively the catalogue is printed, the salesman is more effective in establishing and maintaining satisfactory business relations between the factory and the customer.



Roofing Tiles for the Holy Land.—The Silicia Brick and Roofing Tile Company has obtained the contract to furnish roofing tiles for the Empress Victoria Memorial building, which is now being erected in Jerusalem. The contract calls for nearly forty cars of tiles, and the freight on each car will be about 700 marks (\$175).—Tonwaaren Fabrikant, No. 3, 1909.

The Water Street Basel-Constanz.—It has been contemplated to open up the River Rhine from Basel to Constanz, and to detour the waterfalls at Schaffhausen. The total cost of this improvement will be about 30,000,000 francs. In the building of the new bridges, locks and dams about 200,000,000 bricks will be used. The total length of the new canal will be 210 kilometers (130 miles).—Tonwaaren Fabrikant, No. 2, 1909.

Rotary Drying Machines.—In order to dry from 75 to 100 cubic yards of clay per month, which will approximate 140 tons of clay, the drying machine will have to have a capacity of about 5 tons per day, or one-half ton per hour. A rotary dryer will be the best system for drying this amount of clay. The power necessary to drive such dryer is about 1 h. p. It can be installed in such a way that it will work automatically, so that it only will require the work of one man to keep the machine in operation.—Tonind. Z., No. 13, 1909.

Cost of Manufacturing German Brick.—The cost of manufacturing brick bears a direct ratio between the cost of the manufacturing part at the machine and the burning of the bricks. If the continuous kiln operations are too expensive, a sharp check should be exercised on the burner. Piece work in brickyards has always been advantageous. The cost of manufacturing per thousand bricks is as follows:

Clay pit and digging.....	\$0.25
Clay delivering to machine.....	0.15
Labor dry pan (one man).....	0.05
Labor brick machine.....	0.11
Off-bearing and hacking.....	0.15
Drawing and setting brick kiln.....	0.625
Burning	0.125
Coal hauling	0.025
Coal consumption kiln.....	0.75
Coal consumption boiler.....	0.525
Salary foreman	0.06
Salary engineer	0.045
Salary burner	0.04
Salary superintendent and office.....	0.30
General expenses	0.225

Total \$3.53

—Deut. Topf. & Z. Z., No. 1, 1909.

The Time of Burning Continuous Kilns.—The capacity of a continuous kiln is regulated by the quickness by which the fire is advanced from chamber to chamber. With a close observation of the advance of the fire and the draft of the stack, many minor changes can be made which will advance the time of burning. As an instance, A. Schwarze cites a case where the fire advanced 20 feet in twenty-four hours with a chamber of 10x7½ feet. After making some change, this kiln now burns from 40 to 50 feet per twenty-four hours. The capacity of the chamber is 8,000 brick. To compare the burning qualities of continuous kilns by the feet advance of the fire per twenty-four hours is a very good method, and one which can be used as comparison between

two kilns; provided, however, that we always get the dimensions of the chamber.—Deut. Topf. & Z. Z., No. 17, 1909.

Capacity of Ball Mills.—In a large ball mill there was ground in twenty hours 40,000 pounds of stoneware body, which contained 16,000 pounds of quartz sand. The pebbles in the mill amounted to 4,600 pounds. It is impossible to grind the same amount of material with a lesser amount of pebbles without decrease of the resulting material.—Sprechsaal, No. 10, 1909.

Vitrified Tiles.—In making vitrified tiles, one of the first requirements is that the body should be cheap, but at the same time the finished tiles should be good. A good mixture, which matures between Cones 9 and 10, is composed of twenty-two parts of ball clay, eighteen parts of kaolin, thirty-four parts of feldspar and twenty-six parts of flint. A glaze for this body is made of forty-two parts of feldspar, twenty-seven parts of flint, eighteen parts of whiting and thirteen parts of kaolin.—Keramische Rundschau, No. 11, 1909.

German Paving Bricks.—The Oldenburger paver is the standard paving brick used in northwest Germany. The paver which is sometimes also called "Bockhorn paver" had a crushing strength of from 10,000 to 13,000 pounds per square inch. They are acid and waterproof, and stand the wear of the streets very well. On account of the cheap paving, they are mostly used for the building of country roads and turnpikes. They are also used for tunnel work, docks and locks. In the chemical industry and floors in stables and trainsheds their use is fast increasing. On account of the high quality of these bricks, they are also often used instead of face brick.—Tonwaren Fabrikant, No. 6, 1909.

One-Burn Terra Cotta Engobe and Glaze.—The glazing of terra cotta in a one-fire operation has caused many troubles, and while in the majority of factories the two-fire process is used, it is quite possible to make one-burn glazed terra cotta if all conditions are favorable to the glaze on the green body. The clay should have about one-half very plastic clay, and the other half can be some sandy clays. The engobe should be always of a very plastic nature, as this will stick better than non-plastic engobes. A good engobe for this purpose can be mixed as follows:

Norwegian feldspar	4 parts
Meiszen white engobe clay.....	30 parts
Saazar white engobe clay.....	12 parts
Washed Zettlitz kaolin.....	3 parts

The feldspar and the engobe clay are ground for fifteen hours and the kaolin is added afterwards. It is advisable to let this engobe stand for three or four days before using, in order to get all air removed from the slip. A good glaze which will fit this engobe is made as follows:

White lead	34 parts
Hohenbocka Flint	10 parts
Norwegian feldspar	6 parts
Zettlitz kaolin	2 parts

The different ingredients are ground together and the glaze is passed through a fine screen before using.—Keramische Rundschau, No. 2, 1909.

The Setting of Clay Ware in Kilns.—In the setting of brick in the different kiln systems, it must be borne in mind that necessary space should be left between the different brick. The amount of fuel used in burning the kilns is closely related to the methods used in setting brick. In some kilns it has been found advantageous to set the bricks looser on top than on the bottom. In kilns where brick, roofing tiles and drain tiles are set together, the last-named products are burnt on top of the kiln, as they will not stand the weight of the bricks. Small brick are usually set cross ways in order to get better bearing. Material made of very fusible clays are better burnt in saggars. On 1 cubic meter kiln contents, or about 35 cubic feet, there can be counted as being set in the kiln about 300 normal brick,

500 Roman brick, 300 Dutch roofing tiles, 1,200 8-inch pipe, 650 12-inch pipe, and 320 20-inch pipe.—Tonwaaren Fabrikant, No. 4, 1909.

An Old Roofing Tile.—Possibly the oldest roofing tile in existence has recently been brought to prominence in Alsace. The roofing tile has been used on the chapel in connection with the Castle Lichtenberg. The tile bears the inscription of the year 1682, and is remarkable for its size. Its length is 16 inches and the width is 6½ inches, and the tile weighs four pounds. The tile is burnt well and still of good color. The maker of the tiles has scratched in the tile clay a picture of the old castle with the towers.—Deut. Topf. & Z. Z., No. 16, 1909.

Plaster Molds for Roofing Tile Machines.—The best mixture for making a good mold for roofing tiles to be used on the revolving press is two parts of plaster and one part of burnt magnesia. This mixture is first mixed very thoroughly and then soaked and mixed with water which contains chloride of magnesia. Seven parts of chloride of magnesia are mixed with nine parts of hot water. One part of this solution and one part of warm water are used for every three parts of plaster mixture. It takes from three to four hours for this mixture to set.—Tonind. Z., No. 19, 1909.

Qualifications of Fire Clay Products.—In a paper read before the Association of German Engineers, Dr. Loser states that the most adopted rule to classify clays which will stand Seger Cone 26 as fire clay is misleading. He cites several instances, and especially a case where high-class fire brick did not give any satisfaction in a lining of a lime kiln, while a brick which melted considerable below Cone 26 proved to be the best adapted for the lining in this lime kiln. His qualification of fire-resisting is as follows: "A brick is fire-resisting when it has proven to be resisting against certain action under given conditions, of which the principal feature is technical firing conditions."—Deut. Topf. & Z. Z., No. 11, 1909.

German Idea of American Freights.—An American brick-maker who visited Germany recently and took up the matter of transportation, told a German reporter that he had, just before leaving for Europe, closed a contract for 1,000,000 glazed white brick to be delivered in San Francisco. The freight from the yard to San Francisco is \$12.00 per thousand brick, of which the weight is 5,280 pounds. In comparison, this would be a very low freight against the German rates. The distance from the yard to San Francisco is 2,500 miles. From the yard to New York, with a distance of 350 miles, the freight is \$2.10 per 2,000 pounds, while for the same distance in Germany the freight rate is \$3.40.—Tonind. Z., No. 24, 1909.

Roofing Tile Glazes.—To make a glaze for roofing tiles which will stand the weather, a temperature of more than 800 degrees centigrade is necessary. In some cases a very fusible frit is necessary to make a good glaze at low heat. Such a frit is composed of

White lead	75 parts
Soda ash	25 parts
Flint	35 parts

After fritting this mixture and grinding it fine, from 10 to 20 per cent. of clay is added, according to the heat used in burning the glaze. The highest heat takes the most clay. A good lead glaze which can be used without fritting is made as follows:

White lead	75 parts
Flint	16 parts
Clay	12 parts

A better glaze, which will stand the weather all right and matures at Cone 012-011, is:

White lead	30 parts
Flint	9 parts
Feldspar	4 parts
Clay or kaolin.....	1½ parts

To color most of these formulas, for green glaze use 1 per cent. oxide of copper and 1 per cent. oxide of tin. For brown use the same quantity of oxide of manganese.—Sprechsaal, No. 3, 1909.

MONEY=MAKING IMPORTATIONS.

Some of the Successful Introductions That Are Making Notable Sales.

By C. Ruge.

THE NAME "AMPHORA," a beautiful ceramic product of Austria, has been borrowed from the Greek, "Amphi," meaning "both," and "Phero," "to carry." Amphoræ were made in olden Greece to hold wine, honey or grain, and were usually vessels with two handles, hence the name. They were made of hard, baked, unglazed clay, and also of gold, silver, marble, alabaster and glass. The modern reproductions of Amphora come from Austria, and are executed exclusively in clay, which, however, is carried to a higher grade of technical perfection. In these new creations different colored clays are chemically combined and amalgamated to produce various tints of scintillating and iridescent beauty which symbolize the earth's colors when fused with fire. The modeling, coloring and decorative schemes are refined in their treatment, in perfect taste, and excel in softness and harmony of color. In some of the shapes the idea of the old Amphora, a vessel in which to carry liquids, has not been abandoned, but the forms have been varied to a great extent, and many decorative pieces are made which have no more relation to the old Amphora than the name. Many are simply pieces of modeling in clay for decorative pieces, and not vessels to carry liquids; neither is the antique style of decoration used exclusively, modern paintings, especially Millet's famous works,

often furnishing the subjects for decoration. Inlaid jewel effects and hand-painted tints, mellow in softness and in harmonizing color schemes, are also used for decoration. A grotesque line of dragons, sea monsters, fish and lizards, supposed in mythology to possess wonderful virtues and to be of divine origin, are produced, while many pieces are decorated with raised fruit and flowers.

Aside from the magnificent assortment of vase forms, the Amphora pottery embraces an extensive display of reproductions from life in which the detail of modeling is carried out to the minutest degree. The objects of art include figures modeled from life; children at play, women with baskets and bundles of fagots, and others portray the spirited action of animals in motion. The work is all by well known sculptors, the newest

feature being groups made after the last "durbar" (inauguration of the Viceroy of India), which are executed in a very realistic spirit that will greatly please all admirers of such lifelike productions. The subjects carry us into a world hitherto not so much exploited by European artists and craftsmen as other phases of European life and art.

Thus, the old Amphora lends its name to a pottery embracing not only fine reproductions of old art, but also very artistic modern creations.

George Borgfeldt & Co. exhibit an enormous number of samples of Amphora in their vast show rooms at 48-50 West Fourth st., New York City, where may also be seen hundreds of other no less interesting examples of bisque ware.

In Thuringia, Germany, entire villages are kept busy manufacturing bisque ware, and Borgfeldt's receive loads of it. These peasants have become so skilled that they produce real works of art in their home industry. Even the school children are taught how to handle the clays so as to produce artistic results. The bisque figures are made in the style of the Sèvres ware, and are mostly little figures and groups or plaques, with relief work. As a novelty, parts of the groups, usually the gowns, are executed in gold.

The Louis XV style, so long in

favor in bisque figures, is still much in demand, and is also produced in very graceful samples. There are also groups executed in a more modern spirit, however, and the art nouveau movement is giving good ideas to the bisque designers.

Besides the rich display of bisque on the third floor of Borgfeldt's, there is another on the floor below, which includes fancy ware and art objects of a cheaper price. It seems almost a miracle that it should be possible to produce such extremely dainty pieces of fine workmanship for such low prices. And it is possible only because whole families in rural Thuringian villages devote their lives to this industry.

This lower-priced ware displays a great variety of styles



*Photographed Specially for
Pottery and Glass*

Waltz Dream.

*Courtesy of
Geo. Borgfeldt & Co.*

and a great variety of figures and groups within those styles. Some of the pieces will appeal to the student of historical styles, some to the admirers of modern ideas, and there are even some which will catch the fancy of those who are looking first of all for something "funny and amusing." We see tiny figures in Oriental gowns; the reproduction of Japanese old ivory, and so well reproduced that the difference can not be perceived unless the piece is taken up and examined. Then, again, there are reproductions of Copenhagen animals excellently done, also tiny "snow figures," in which the graceful little men and women look as if they had just been through a snow storm, with their bluish-white dotted garments. The "lace figure" is a very graceful design that will certainly please many ladies. It is interesting to know that the lace part of these figures is first made of real lace, which is dipped in the porcelain mass and disappears in the firing, while the lace effect remains.

In old ivory effect, we find figures taken from the funny monk types of the celebrated German painter, Gruetznier. In old ivory and ebony effects also there are many striking figures. Especially pleasing is the "Chocolate Girl," after the



Amphora, "Durbar."

well-known painting in the Dresden Gallery. Many of the tiny Meissen figures are also beautifully reproduced. Other figures are done in ivory and gold. Among the samples we find reproductions of good works of art like Van Dyck's children, Alma Tadema groups, and copies from classic sculptors. There are also pieces, however, intended only to be funny, like the modern baby, which has close to its crib three electric buttons to be pressed for "milk," "mamma," or "songs." The very effective dancing group from the "Waltz Dream" will find many admirers, and the Tyrolese shepherds, boy and girl, are also very pleasing and full of grace.—Pottery and Glass.

BRICK TESTING AT THE UNIVERSITY OF ILLINOIS.

The University of Illinois has been making some brick tests for crushing strength, etc., under different conditions of mortar and in different classes of brick, the results of which are compiled in Bulletin No. 27.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.



WITH THE OPENING of the Alaska-Yukon-Pacific Exposition in Seattle, the start has been made to make the city as attractive as possible for the visitors. No eastern brickmaker will be disappointed when he undertakes the trip west and makes Seattle the goal of his travels. Seattle is well built and in the larger buildings enormous quantities of brick are used, and the field is still in its infancy. Clays for the manufacturing of brick are found along the shores of Puget Sound, on the mainland, and on the islands, so that this part of the country does not lack for raw materials out of which high-grade clay products can be made.

A new company has just started active operation and will no doubt relieve a little the shortage of brick this summer. The Ballard Brick Company, of which W. C. Mitchell is the moving spirit, has bought the old Great Northern yard and will improve the plant and start the making of brick at once.

Three different parties are now investigating the paving brick field in this section. One of the parties has secured control of some land in the coal mining district near Kanaskat. They have shipped three carloads of clay east, one to St. Louis, one to Cleveland, and one to one of the eastern



Amphora Vase.

machinery firms for test. According to some advance information, the tests have proven very satisfactory, and the building of the plant will be started before long.

The brick situation east of the Cascade mountains is much improved in the last few weeks. The Spokane Pressed Brick Company has been incorporated with a capitalization of \$150,000. They will manufacture pressed brick from the clay beds of Tekoa, and Wm. Hoare, of that place, will be manager of the new plant.

The Washington Brick, Lime and Manufacturing Company, of Clayton, has secured some large contracts in Spokane for brick and terra cotta. Their brick plant is now entirely rebuilt and in fine condition.

The Northern Clay Company, of Auburn, has secured several large contracts for terra cotta in Spokane. This company is also contemplating the enlargement of their plant to take care of their increased business.

The Tacoma Trading Company, of Tacoma, whose brickyard is located on Fox Island, has shipped several barges of brick to Port Townsend. This was one of the largest outside contracts this company has secured. SIWASH.

Written for THE CLAY-WORKER.

QUALITIES OF PAVING BRICK.*

BY PROF. A. N. TALBOT, UNIVERSITY OF ILLINOIS, URBANA, ILL.

THE EXTENSIVE use of brick for street paving purposes makes the formulation of the qualities requisite for a good paving brick a matter of importance to both producer and consumer. Although it may not be difficult to agree on these qualities in the abstract, it is not easy to express the requirements in definite and concrete form and in terms acceptable to both manufacturer and municipality. It is an accepted principle that the quality of an engineering material should not be left merely to the judgment of an individual, no matter how experienced the individual may be; recourse should be had to physical tests and these should be definite and discriminating. Such tests may not of themselves be conclusive, the results are in the nature of evidence which must be interpreted and judged in the light of other information. Perfect materials for a pavement may not be obtained and high quality usually means increased cost of production, but, on the other hand, the additional cost of a good article is usually made up many times over in the increased length of life and improved surface of the pavement as compared with a pavement in which an inferior brick is used. The problem of formulating requirements and making tests is further complicated by the difficulties encountered in selecting brick for test and comparison from the piles of brick along the street and in judging whether the variation from the average throughout these piles is sufficient of itself to be cause for rejection. Enough has been said to justify the view that the formulation of the qualities needed in a high-grade paving brick and the use and interpretation of physical tests for determining the qualities of the brick for aiding in deciding whether brick come up to the required grade, are matters worthy of discussion by engineers and manufacturers. A general statement of matters connected with brick testing may be of advantage to many who are interested in the construction and use of brick pavement.

Most specifications of materials set forth qualities of materials to be furnished by the producer to the consumer. In the case of brick pavements the producer (i. e., the manufacturer) and the consumer (i. e., the municipality and the property owner, as represented by the municipal administration officers) are to use certain requirements to define the material to be put into the pavement. Some of the purposes of these requirements and tests may be expressed as follows:

1. To make a basis or definition of what is wanted and what is to be furnished. This is the commonly accepted purpose of such requirements and tests.
2. To enable the city to secure material which will be as serviceable as other material which has passed the requirements and which has stood the test of traffic and time. This makes the tests in a sense a guaranty of quality.
3. To enable comparisons to be made between the products offered. It is quite possible that tests may show that a given brick is above the requirements, or that a slight difference in price is made up many times by the superior quality of the article.
4. To improve the general quality of the product put on the market. It has frequently happened that the formulation of requirements and the careful inspection of the articles offered have resulted in improved quality and this in many cases even without increasing the cost of production. The manufacturer has been stimulated thereby to study the process of production and to seek to improve methods of manufacture and quality of product. One need instance only structural steel and paints and oils to show improvements in quality following carefully made requirements and tests to show the beneficial influence of adequate inspection and tests.
5. To safeguard the interests of the public and of the taxpayer. The Illinois law requires, and rightfully, too, that

the nature and quality of the improvement shall be explicitly stated, and evidently intends that the taxpayer may be able to determine (1) what the improvement is to be, and (2) whether it is being put in as described.

6. In the occasional cases where abuse of authority or improper or dishonest construction may require a check, to enable control to be exercised over incapable or dishonest contractors or city officials, and to restrain careless or inefficient employes, or men who may have a mistaken notion of what their employer's interests are.

7. To educate producer, consumer and their agents in a knowledge of the qualities needed in paving brick—from the manufacturers and the contractor and their employes to the mayor, the engineer, the inspector, and the property owner. It should be recognized that those who have charge of municipal work are a constantly changing class, and that the property owner may have little knowledge of pavement construction.

8. Not the least important of the reasons for having an explicit and definite statement of the qualities and requirements for paving brick is to give the opportunity for all bids to be made on the same basis and for the bidder to fix his price according to the quality of the article wanted and thus to facilitate fair competition.

It is evident that a knowledge of the qualities of a high-grade paving brick and of the defects to be avoided in the selection of brick will be useful in making up the requirements defining the grade of brick to be used and that the method of making tests ought to be studied both in relation to the wear of the brick in the street and to the bearing of the results of physical tests upon the wearing and other qualities of the brick. In this article a discussion of the qualities needed in a paving brick will be given first, and the bearing of the tests upon these qualities will then be taken up, though it will be seen that the relation between the method of testing and the quality to be determined is so intimate that their discussion must be carried on together to a considerable extent.

Qualities for a High-Grade Paving Brick.

GENERAL.

Paving brick should possess the following qualities: 1. Toughness, hardness and strength. 2. Uniformity of quality throughout a given lot of brick. 3. Homogeneity of structure and freedom from laminations. 4. Weather-resisting quality. 5. Regularity in form and size. These qualities are named somewhat in the order of their importance, though it should be recognized that several of them are mutually inclusive.

I. TOUGHNESS, HARDNESS AND STRENGTH.

Toughness is that property of a material which indicates its ability to withstand destruction by shock or impact or by a marked distortion of the form of the piece. It is the opposite of brittleness. Of course, toughness differs in a given material. Mild steel has the property of toughness to a marked degree and will withstand distortion and abuse. One test of the toughness of a specimen of mild steel is to bend the piece cold 180 degrees flat on itself without sign of fracture. Cast iron is a more brittle material and ordinarily is not used to take shock except in large masses and at low stresses. Different grades of cast iron, however, possess different degrees of toughness, and a good quality of cast iron will bend considerably before rupturing. With such materials the physical property of toughness which will permit bending and distortion in relatively thin pieces will give ability to withstand blows and the sudden application of loads in thicker masses. In the case of paving brick, a lack of toughness causes the brick to chip and spall under the action of traffic. This element of toughness is one of the most important qualities in a good paver.

Hardness is that property of a material which indicates its ability to resist abrasion. The necessity for hardness is self-evident. The grinding action of loaded wheels sliding sidewise or even rolling forward wears away the surface of the brick and forms grit or dust. This abrasion is the principal source of wear in a well-constructed pavement made of good quality of brick. Soft brick will wear rapidly

*From Bulletin No. 9 of the Illinois Geological Survey.

under the action of traffic. Hardness is therefore a desirable property for paving brick to possess.

Strength is another important element. The loads of wheels are concentrated on a small area, possibly a ton on a fraction of a square inch. With an uneven bedding of a brick or other conditions like its being supported on a pebble or by an adjoining brick, considerable flexural action is developed, and even twisting action, and the brick acts as a beam. With uneven surfaces there may be considerable horizontal thrust. It has been argued that lack of strength in the brick does not seriously affect brick pavements and that pavements do not fail from this source, but the writer has seen brick of a mediocre quality spall under the thrust of a loaded wheel again and again, and it is not uncommon to see brick broken in two by the passage of loaded wagons. Moreover, when a material is otherwise severely strained the effect of abrasion and impact is greater, and the brick which under heavy stresses remains well below its ultimate strength will be better able to withstand the abrasive action which takes place under such conditions. Besides, high compressive strength is generally conducive to hardness, and for granular materials a relatively high tensile strength such as accompanies high values in cross breaking is an indication of toughness and high resilience in the material.

The elements of toughness, hardness and strength are difficult to differentiate, since one involves the other. On the other hand, a very hard brick may be quite brittle, so much so as to be an inferior article. Some very tough bricks are not hard enough to resist abrasive action sufficiently. Where this is so, there may be some defect in the process or treatment during manufacture. Generally flexural strength goes with toughness and compressive strength with hardness. Not all these qualities may be expected to exist to the same degree in brick of different makes, and hence the different properties should be considered in discussing the merits of a variety of brick.

II. UNIFORMITY OF QUALITY.

In the enumeration of properties needed in a paving brick, uniformity of quality throughout a given lot has been placed second in the list, and it is believed by the writer that it is hardly secondary to the qualities of toughness, hardness and strength. It is highly desirable that all the brick in a given lot shall be as nearly uniform in make-up as is practicable with the best materials and manufacture, and especially that brick which will be near each other shall be of uniform quality. If one brick is soft and the next one hard, an uneven surface will be produced more quickly than otherwise, the resulting soft spots receiving harder wear as the low spots appear. A pavement of soft but uniform bricks will wear away at a uniform rate, and its surface may remain less objectionable than one containing a fair proportion of harder brick. The products of some plants are particularly troublesome in this direction, while those of others are fairly uniform. This quality or lack of this quality renders inspection on the street very difficult, and has done as much as anything to throw discredit on brick pavement. Brick manufacturers will render service to this industry by striving to secure greater uniformity and municipalities must, on their part, protect their interests by holding stricter requirements than in the past. The importance of uniformity has not generally been sufficiently recognized.

III. HOMOGENEITY OF STRUCTURE AND FREEDOM FROM LAMINATIONS.

Homogeneity of structure gives uniformity of wear throughout the brick and adds to ability to resist wear and breakage. A brick of homogeneous texture is more likely to possess toughness and strength to the requisite degree than is one of variable texture. Laminations in a brick are particularly objectionable, since they markedly decrease toughness and strength, and permit chipping and spalling. It is important that tests for toughness, hardness and strength be made in such a way as to bring out the effect of laminations and other defects which may not be apparent near the surface of the brick. The brick should be uniform throughout, even vitrified, and free from spots which result from imperfect crushing and mixing of materials and from

any element which will tend to disrupt the brick by later changes in condition.

IV. WEATHER-RESISTING QUALITY.

Strong, tough, hard brick of low porosity and even texture are not injured by weather changes. Soft, weak and porous brick are affected by frost and other weather conditions, and a laminated and coarse structure promotes disintegration.

Generally speaking, high-grade paving brick are of sufficient strength to withstand weather influences, but the combination of weather effect and traffic is more noticeable. The writer has observed the spalling and grinding of soft brick under heavy loads during the time when they were wet and frozen on pavement where the wear was much slower under better weather conditions. Occasionally a pavement is found where rapid deterioration takes place during the early spring. Part of the trouble of this sort is due to improper bedding and filling.

V. REGULARITY IN FORM AND SIZE.

Well-formed brick of uniform size give a smooth and regular surface to the pavement, and thus add to its attractiveness. Besides, such brick will have uniform bearing and exert even pressure on the sand cushion below, and thus will remain in position during the life of the pavement. Desirable as this uniformity is, it does not pay to obtain it at the expense of the wearing qualities, and pavements with the smoothest surfaces do not always give the best results. Some irregularity in shape and form must be expected and permitted, especially with clays of a certain character. No general rule may be formulated, and the amount of irregularity may easily be settled upon in connection with any given lot of brick.

Tests for Quality.

GENERAL STATEMENT.

The main advantage of physical tests of paving brick lies in giving definite evidence having a bearing upon the properties and qualities of the brick. To make this evidence useful, the relation of the method of making the tests and their results to the qualities thereby determined must be understood. In several of the tests numerical standards may be set for general use. However, in many cases and especially for some of the tests which may be made, it is best to consider that the results are advisory in nature and that hard and fast limits may not be set. In subsidiary tests the results may give evidence which confirms findings otherwise made or which throws light upon unsettled questions and aids in interpretation of data obtained by other tests.

In tests of materials it is not essential that the material shall be subjected to the same action in the process of testing as it will receive in the structure in which it is to be placed. The cold bend test of steel is one of the most useful and instructive of tests, but it differs radically from any condition of service in which the steel will be placed. The value of a test will depend upon the properties determined, and the criterion will be, does the test establish definitely certain properties of the material, or does it give definite evidence concerning specific qualities, and does not the method give results similar to those found in service. Thus the ordinary rattler test is quite unlike the action of traffic on a street, but if it determines the toughness and hardness of brick sufficiently well it serves its purpose. Because high-grade paving brick do not crush in service is not conclusive evidence that the results of crushing tests do not give important information concerning the qualities of a given lot of brick. Of course, a test which approximates the conditions of wear and stress in the street pavement has a distinct advantage in that it appeals to the lay mind and gives the municipal officer and the taxpayer confidence in the findings which would not be possible in a test of seemingly less direct applicability. Whatever the test, its purpose and the bearing of the results on the qualities desired in the brick should be understood and accepted by all.

The tests which have been used, some of them very commonly, others only occasionally, are: 1. The rattler test (called also the impact and abrasion test); 2. the absorption test; 3. the crushing test; 4. the cross-breaking test; 5. the specific gravity test. The rattler test is commonly considered to determine toughness and hardness, or resistance to impact and abrasion. The absorption test gives information bearing upon the degree of hardness to which the brick has been burned. The cross-breaking test and the crushing test determine strength and incidentally give evidence of the hardness and toughness of the brick. The specific gravity test must be classed among those tests which are of value in giving general information.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

THE DAY had been spent in lazily cruising from one oyster bed to another trying to determine which was best. Each was pentifully sampled and each in turn pronounced "better," so that we still continued on our hunt for the "best."



W. D. Gates.

"As the sun sank into Mississippi Sound and the breeze died gradually down, we drifted into a misty fog that, with quick falling darkness, hid everything from sight, and came to anchor. Immediately we concentrated our attention on the doings of the mate, who was also the cook, as he worked over his little charcoal furnace and kettle. We watched him first drop in the customary fat pork and listened to its pleasing sputter. This, however, gave us no clew as to what we were to have, as that was the first ingredient of everything he cooked, with the exception of coffee. Then we followed his every motion as he sliced the onions and sent them after the pork. As the aromatic steam wafted to us from the kettle, we swallowed hard and tried to control our mouths. Then anxiously we watched him add the rice, the can of tomatoes, the can of corn and then hunt up and add as many of the other ingredients as our store afforded, one after another, limiting the ingredients only by what we had and putting in all we had; we then realized that we were to have "Jumbolia." Then, when into the whole boiling mass he added a big dish of oysters just fresh from the shell, we realized that we were to have "Oyster Jumbolia," and just held ourselves. As the appetizing and tantalizing odors drifted to us, we felt we were losing control of our druling mouths. Fortunately, now he lifted off the kettle, replacing it with the pot of black coffee, and yelled "Come on." But he didn't need to yell loud. We were there with our plates instantly, and would have been had he whispered.

"As to what followed, description is impossible. Days in the open salty air with appeties seemingly only whetted by the intermittent but frequent application of the raw oyster just pried from his home, made us each fill his plate to overflowing from the savory mess and wield the tin spoon in rapid transition from plate to mouth. Finally, filled to repletion, we rolled in to the coffin-like bunks and immediately became unconscious, dropping without a thud into peaceful, dreamless, happy slumber.

"The first break of dawn found us up and stirring. As the first rays of the rising sun caught and dispelled the mist, we saw that a jutting point of the island extended close to us and out and past us, thus giving us a sheltered anchorage into which the captain had piloted us the night before in the fog and dark, as perfectly as though in broad day.

"Right opposite us on this point and only a few rods distant from us, stood a rough board cabin a little larger than a sardine box, standing just back of the beach and on the edge of the wood.

"As we looked through the dispersing mist, a man and two or three boys emerged, came down to the water, got into a boat and paddled away. Then the door opened again and a woman and four or five children came out and went up the beach. Again the door opened and six or eight children came out and went down the beach. As we turned our astonished gaze at each other, the door again swung and ten or twelve children took to the woods. I stood silent. My eyes were hanging out so far I dare not rub them. Glancing furtively again at the door, the Colonel broke the impressive silence: 'What a blamed fool bird the stork is anyway, Gates,

when right in his own country of Holland a king and queen, with a great empty palace, are praying for just one visit from him, and he neglects them and comes way over here, trying to crack the boards of that cabin, seeing how many babies he can stuff into it." GATES.

Written for THE CLAY-WORKER.

NEWS FROM OHIO CERAMIC SCHOOL.

Prof. Orton Made Dean of College of Engineering at Ohio State University, and Granted a Much-Deserved Year's Leave of Absence.

Prof. Edward Orton, Jr., for fifteen years director of the Ceramic Department of the Ohio State University, has recently been appointed dean of the College of Engineering of that institution, and at the same time granted a year's leave of absence for study elsewhere. Professor Orton's plans will keep him in the United States for the next six or eight months, during which time he is to be employed on the Geological Survey of Ohio, making a study of the paving brick industries of Ohio, and, incidentally, of other states. This work, it is expected, will be completed about January 1, 1910.

During the next two months, Prof. Orton will be engaged in visiting the prominent engineering schools of the United States, in order to study them while in operation. He will leave this country for Europe probably in March, 1910, for a tour of observation of the foreign engineering schools, and especially ceramic schools, and hopes to see the latter in operation before the adjournment for their summer vacation.

Prof. Orton expects to return to the United States to take up his duties at Ohio State University once more in September, 1910. During his absence, Prof. Ross C. Purdy will be acting head of the Department of Ceramic Engineering, and he will carry Prof. Orton's lecture and laboratory courses. Mr. H. B. Staley, of Uniontown, Pa., has been appointed Assistant Professor of Ceramic Engineering, and will assume the duties of his position in September, 1909, and will take charge especially of the courses in chemistry and the application of chemistry to ceramics. Prof. Staley has been the successful superintendent of the large enameled iron plant—McCrum-Howell Co.—for the last three years, and leaves an enviable record behind him. He is resigning commercial work to take up educational duties because of his taste in that direction, and at considerable financial sacrifice.

Mr. Wolsey G. Worcester, who has been Prof. Orton's assistant for the last two years, has been promoted to the position of instructor of Ceramic Engineering, and will probably carry courses in the design of ceramic plants, including preparation of drawings and estimates, during the coming year. Mr. Worcester's experience in the construction of roofing tile plants at several places in this country should give him special ability in carrying these courses.

On Prof. Orton's return from Europe in 1910, it is expected that the same teaching force will be retained, though a reorganization of the work will necessarily take place. Prof. Orton will probably not carry more than one five-hour course of actual teaching, the balance of his time being consumed by the duties of the deanship and by investigation work, while the balance of the departmental work will be divided between the other three instructors. This should give the department the strongest equipment of teaching force it has ever enjoyed, and should make it possible for a considerable amount of research work to be carried in addition to the routine teaching. Altogether, the prospects for the growth and prosperity of the Department of Ceramic Engineering have never been so bright.

The graduating class this year numbers nineteen, a larger number than has ever graduated before, and in addition there are several short-course students who are going out to take their places in the industries. There are a number of students who have already secured positions in advance of the graduates, and inquiries for others are coming in nicely. A wonderful difference exists in this respect in the condition prevailing fifteen years ago, when ceramic education first began in this country. Then it was almost impossible to find a place for a ceramic graduate, whereas now the situation is oftener the other way.

Written for THE CLAY-WORKER.

AN IMPROVED FORM OF HOLLOW BUILDING BLOCK.

An Important Invention by Mr. Fritz Koch, of St. Paul, of Great Interest to Builders.

NO DOUBT the readers of THE CLAY-WORKER will be much surprised to know that an important improvement has been made in the form of hollow building block and the method of making same. The accompanying sketches and those shown on page 851 of this issue indicate clearly the nature of the improvement, which is the invention of Mr. Fritz Koch, president of the Twin City Brick Company, of St. Paul, Minn., whose practical experience as a brick manufacturer and builder extends over many years, and enables him to speak knowingly on such matters.

"My invention," says Mr. Koch, "relates to improvements in wall construction of the kind where the wall is built up of tiles or building blocks made from clay or other plastic material. Such blocks are usually molded by forcing the clay continuously through a die, from which the clay emerges in a slab, which is afterward cut by suitable machinery into blocks of the desired length. By using a die of the requisite shape, the blocks may be formed with one or more longitudinal openings or bores extending entirely through them, so that they will be open at both ends, as shown in the drawings. If these hollow blocks are laid end to end lengthwise of the course, so that the opening in one will register with the opening in the next, or even if the solid flat side of a block is placed against the open end of the adjacent hollow block, the open ended block does not afford surface enough to hold the mortar or plaster in the joint between the blocks, particularly when the joint is vertical, so that the mortar works loose and drops down, leaving the joint open. And the mortar can not be easily replaced between the blocks after the wall is built. For these reasons such blocks are seldom used in making outside walls.

It is the object of this invention to overcome these objections by combining with these open-ended blocks, which are laid lengthwise of the course as "stretcher" blocks, cer-

tain other blocks, which serve as "header" blocks, so constructed as to afford a large co-operating surface at the joint, whereby the mortar will be packed, retained, supported and anchored, and whereby the meeting surfaces of the stretcher and header blocks will interlock and afford mutual co-operating support.

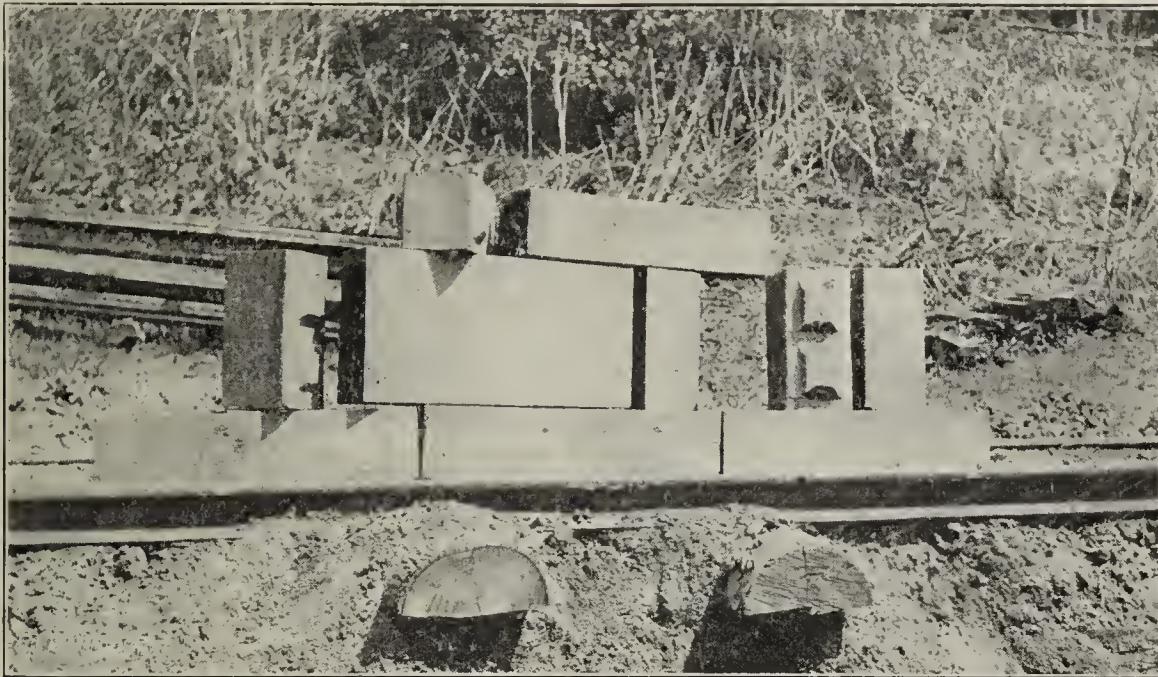
A further object of the invention is to construct the blocks so that there shall be some co-operating surface between the blocks of each course and the blocks of the course above and below it.

In carrying out the invention it must be borne in mind that whatever shape is given to the block must be such as can be formed by forcing the clay continuously through the die, and that in laying the blocks the solid flat sides thereof must be on the outside so as to form a solid unperforated wall. To this end the invention consists in the construction, combination and arrangement of parts hereinafter particularly described and claimed.

In the accompanying drawings forming part of this specification, Fig. 1 is a perspective view of the discharge end of a block-molding machine, showing the clay being forced through the die to form a block; Fig. 2 is a perspective view of a block designed to be used as a "stretcher" block; Fig. 3 is a perspective view of a "header" block intended to be laid crosswise of the course; Fig. 4 is a perspective view of a stretcher block adapted to be used for a wall of double thickness; Fig. 5 is a perspective view of a header block adapted to be used for a wall of double thickness; Fig. 6 is a perspective view of a fragment of a wall built up of blocks of single thickness, such as those shown in Figs.

2 and 3; Fig. 7 is a side view of a header block fitted into place between two adjacent stretcher blocks, the wall being shown partly broken away; Fig. 8 is a fragment of a wall built of blocks of double thickness, such as those shown in Figs. 4 and 5, and Fig. 9 is a perspective view of a fragment of a modified form of block.

As shown in the drawings, A represents the discharge end of a so-called auger machine, and B a slab or piece of clay being forced through the die 2. As here shown the molded blank B of plastic clay is formed on each side with a longitudinal rib 3, the die 2 being so shaped as to give the clay this form. By suitable mechanism, which need not



Specimens of Koch Hollow Building Block.



Panels of Koch Hollow Building Block Laid in Mortar.

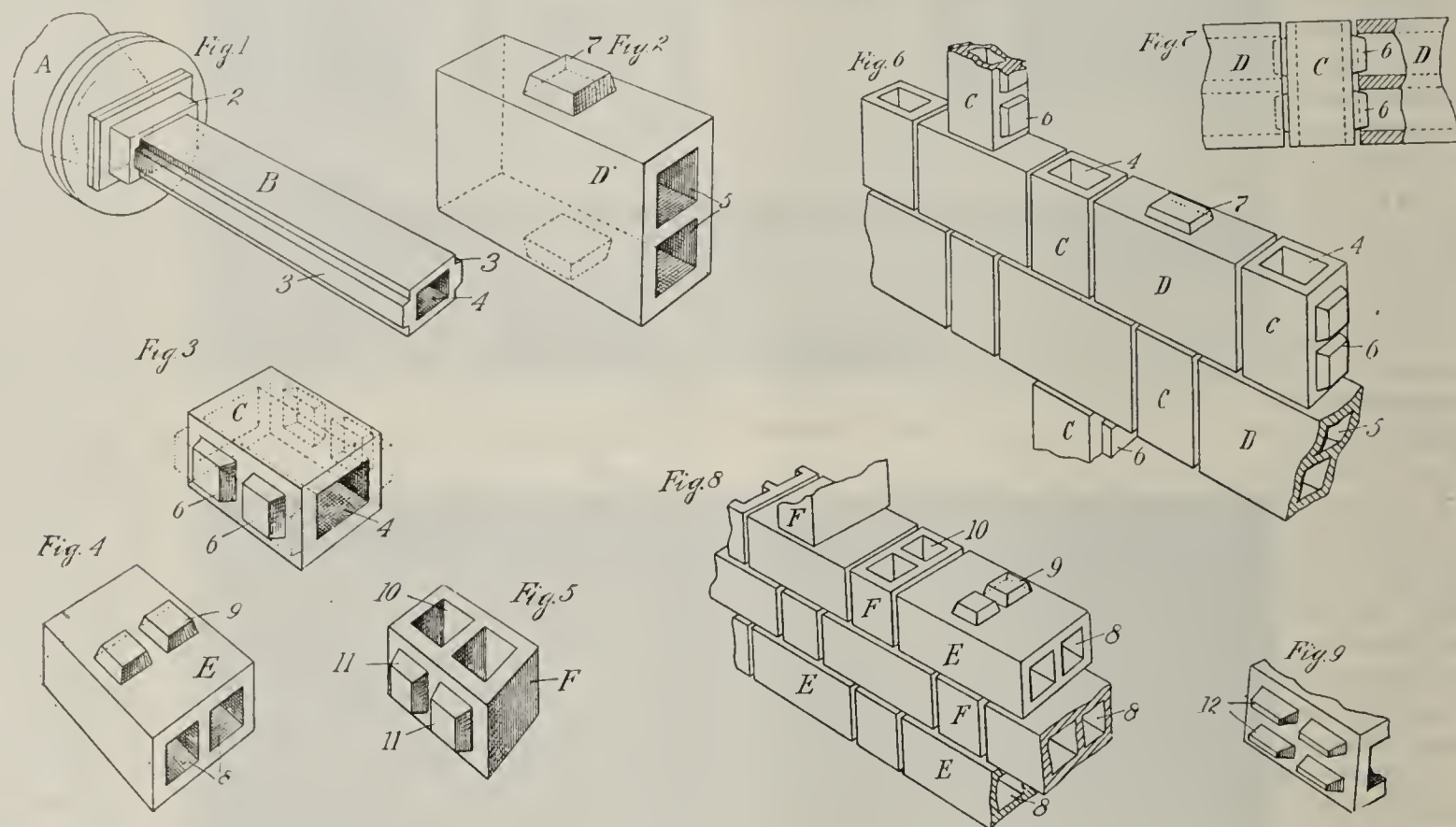
be here described, the molded blank B, while still plastic, is cut up into suitable lengths to form the blocks, while at the same time the rib 3 is cut away at each end of the block, and, when desired, at such intermediate points as will leave the desired projection or projections upon the block.

In the drawings I have shown a blank formed or molded with a single or longitudinal opening 4. This blank is especially adapted for what I have here called "header" blocks, such as the single thickness block C shown in Fig. 3. When designed for use with a "stretcher" block having two bores or openings 5, one above the other, such as the block D shown in Fig. 2, the "header" block C is preferably formed with two projections 6 upon its side wall. These projections are so positioned and spaced that, when the block is placed on end, the projections will enter the two bores or openings, respectively, of the block D, and almost seal the same, as shown in Fig. 7. The projections are formed by cutting away the rib 3 at each end, and at the middle, as best shown in Fig. 3, where the cut-away portions of the rib are indicated in finely dotted lines.

The stretcher blocks may be made with one or more longitudinal openings as may be desired, and of single or double thickness. In Fig. 2 is shown a single thickness

themselves interlocking with the open ends of the stretcher blocks. The second course of blocks is laid upon the first course, as shown in Fig. 6, each header block C being laid upright upon the middle of an underlying stretcher block, and each stretcher block being laid centrally over an underlying header block. Thus the bottom of each stretcher block will lie upon the open end of a header block of the course below. Although there is not the same need of a large holding surface for the mortar in the horizontal joint between blocks laid one above the other, because the mortar will be supported by the under blocks upon which it is placed, nevertheless I prefer to form the stretcher with the central projections 7 shown in the drawings. These are formed upon those side walls which are to be used as top and bottom walls as the blocks are laid, and fit within the vertical openings 4 of the header blocks arranged above and below.

For use in walls of double thickness, I have shown a wide stretcher block E formed with two bores or openings 8 arranged side by side, as seen in Fig. 4, and a wide co-operating header block F, shown in Fig. 5, having two bores or openings 10 arranged side by side. The header block is formed upon its side walls of greater width with two projections 11, which, when the block is placed on end, as shown in Fig. 5, will stand side by side and fit within the openings 8 of the stretcher block E. The wall is laid with these blocks



stretcher block formed interiorly with two openings, one above the other, and exteriorly with a single central projection 7 on its top and bottom walls. This projection is made in the manner above described, namely, by forming a longitudinal rib upon the outside of the block and then cutting the rib away at the ends of the block.

In building a single thickness wall, the open-ended stretcher blocks D are laid lengthwise in horizontal courses with their openings extending horizontally through them. Between every two adjacent stretcher blocks is placed a header block C. The header block is placed upon end, so that the projections 6 upon its side will extend into the corresponding horizontal openings 5 in the blocks D. Thus when the mortar is laid in the joint against and around the projections 6, and the blocks are pressed together, the mortar will not only fill the vertical space between the end of the stretcher block and the side wall of the header block, but will also enter the bore of the stretcher and fill the space between the inside of the stretcher walls and the projections of the header. Thus the mortar will harden in the shape of an angle-piece or hook and be held or anchored in place. The projections also enable a larger portion of the stretcher blocks to be used as a holding surface for the mortar, besides

E and F, in the same manner as the single thickness wall. The double thickness structure is shown in Fig. 8. I prefer to form the stretcher block E with two central projections 9 upon those side walls which are to form the top and bottom walls, as the blocks are laid. These projections will fit within the vertical openings 10 of the header blocks arranged above and below, and form a holding surface for the mortar.

In Fig. 9 is shown a block wherein the projections are not made in solid blocks, but consist of pairs of spaced ribs 12. In this form, as well as in the forms shown in Figs. 4 and 5, the die of the tile-making machine must be so shaped as to form upon what I have called the clay "blank" two longitudinal spaced ribs, instead of one as shown in Fig. 1. But in all of the forms the method of construction is the same. That is, the die is so shaped as to form upon the clay, as it is forced through the mold, one or more continuous longitudinal ribs, which are then cut away wherever necessary to form the projections here shown and described.

I have hereinbefore referred to the impossibility of effectively replacing the mortar in a vertical joint between blocks or ordinary construction when they are in place in the wall. If the mortar is pressed into the joint, it will be forced through past the shell of the open-ended block. In the pres-

ent invention the projections will form abutments to hold and retain the mortar, when the same is pressed into the joint.

I claim as my invention:

1. A wall constructed of hollow open-ended blocks of two kinds, those of one kind being arranged in courses with their hollow portions extending lengthwise of the same, and those of the other kind being arranged alternately in courses with the said lengthwise laid blocks and having their hollow portions extending vertically and being provided with projections on their abutting sides fitted in the open ends of the said lengthwise laid blocks and substantially filling the same, so as to co-operate with the sides thereof in holding the mortar.

2. A wall constructed of hollow open-ended blocks of two kinds, those of one kind being arranged in courses with their hollow portions extending lengthwise of the same, and the other kind arranged alternately in courses with said lengthwise laid blocks and having their hollow portions extending vertically, and being provided on their abutting sides with projections fitted in the hollow open ends of the abutting blocks and substantially filling the same, so as to co-operate with the inner sides of said blocks in holding mortar, said lengthwise laid blocks having projections on their upper and lower faces extending into the hollow open ends of the vertically extending blocks and substantially filling the same."

Those desiring further information relative to this system are requested to correspond with Mr. Koch direct. Mr. Koch's firm, the Twin City Brick Company, is making this building block in merchantable quantities. The block are cut by a cutting machine built on top of a Fate tile machine, as will be seen by referring to Mr. Koch's ad.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA NEWS.



THE GENERAL excellent conditions that were reported in this column last month have continued this month, and in some lines of manufacture have shown considerable improvement. General business conditions are better and are improving every month, so that at the present rate of increase it will be but

a short time until business conditions are again normal. Building conditions in Pittsburgh are a great deal better than they were at this time last year, and contracts that have been awarded are now about double the figures at the middle of June, 1908.

New projects in building also are coming to light in far greater numbers, and we are glad to be able to say that the number of brick residences, apartment and business buildings, etc., is steadily increasing, and that there are but few frame structures of any kind being built.

The reports received on our calls this month from the manufacturers and sales agents for all kinds of brick, sewer pipe, fireproofing and other clay products, are the most encouraging that have been received for a long time, and all seem to be most optimistic about the outlook.

There has been a particularly good demand for blast furnace and hot blast stove brick during the month, and some excellent contracts have been placed with local manufacturers. The iron and steel business is rapidly picking up, and this necessitates the use of many thousand additional brick per month. Several complete orders for blast furnace linings have been placed by the United States Steel Corporation and the National Tube Company, and as soon as these are delivered it is expected that there will be other similar contracts placed. As a contract for a blast furnace lining is a big order in itself, amounting to several thousand pieces, many of which are equivalent to a score or more of regular 9-inch bricks, it will be seen that even a few of these orders are sufficient to keep a large number of men and the greater part of the plant making the brick busy for some time.

One of the features of the month, however, has been the

excellent demand for vitrified paving brick and vitrified paving blocks. All of the local plants making this kind of material have reported heavier sales during May and the early part of June than they have had for two years, and that there are a large number of contracts that were expected to have been placed some time ago which are still being held up for various reasons. These bricks are being used by scores of the smaller towns for street improvements, contracts for which were let some time ago, and on which the work is just being started. There are also a great many additional contracts being awarded, so that the outlook for a continuation of this excellent business is generally looked for.

The Pennsylvania State Highway Department, of which Joseph W. Hunter, Harrisburg, Pa., is the head, is favoring the use of brick in paving the state roads, and this will do much to increase the volume of the paving brick business. It has been thoroughly demonstrated in this state that the brick road will outwear any other kind of road that has ever been built in the country, and where heavy traffic prevails the year around, and this class of road is also the favorite with the farmer. While it is considerably higher in first cost than the macadamized road, now so much in use around here, the repair cost is so small that the actual cost of the road in five years is less for the brick than the macadam. This has been taken into consideration in many counties in western Pennsylvania, with the result that a number of brick roads are now being built where it had primarily been intended to build macadam or telford roads.

The demand for building brick has steadily improved and building brick plants have generally been operating to their capacity for the past month. Several of the large local builders have been placing large orders for immediate delivery, and, as a result, stocks on hand have been pretty well cleaned out. Most of the brick shipped and delivered are being loaded direct from the kilns now, the sheds being practically empty. One of the leading companies which had a stock of over 1,000,000 common red building brick two months ago, reports that this stock has been entirely wiped out, and that they are falling behind in their deliveries.

The demand for fireproofing materials has shown some slight improvement locally, but is still considerably below normal. The demand for this material from other parts of the country is excellent, however, and the principal producer in this part of the country is still able to operate the plants to a good percentage of the capacity.

Sewer pipe orders continue to come in in large quantities, especially from this part of the state, West Virginia and Ohio, where there is a large amount of vitrified pipe being laid this summer. There have also been several good orders placed by the city of Pittsburgh, aggregating several thousand feet of four or five or the standard sizes.

The National Fireproofing Company, Fulton building, Pittsburgh, has been awarded a number of excellent local contracts for clay fireproofing during the past month or so, and reports business excellent from this as well as other parts of the country. The Pittsburgh plant on Bedford avenue is being operated to capacity on local work, none of the product of this plant being shipped out of the city. The local requirements are sufficient to consume the entire production. The company is furnishing the fireproofing for the new Oliver building that is being built this summer. The contract for fireproofing in this structure is the largest that has ever been placed for delivery in Pittsburgh. The building will have a frontage of several hundred feet on Smithfield street, Sixth and Oliver avenues, and will be the largest business block in this part of the country. The same company is also furnishing the fireproofing for the new T. C. Jenkins building, which will be a large six-story structure at Fifth street and Penn avenue. Deliveries are being made on this building, as well as on several smaller ones now under course of construction.

The Harbison-Walker Refractories Co., Farmers' Bank building, Pittsburgh, has been awarded the contracts for furnishing several new blast furnace and stove linings for the plants of the United States Steel Corporation, and has several of the plants running to capacity at the present time, with every indication that they will continue to do so for the remainder of the summer at least. The company has

continued to increase the production at the local works at Twenty-second street and at Hays Station, as well as at several of the plants in Clinton County, Pa.

The Ohio Valley Brick Company, Eighth street and Penn avenue, Pittsburg, will be incorporated under the laws of this state the latter part of this month by W. A. Buck, A. J. Kuhns and Charles Schneider, all well-known brick manufacturers, and at present identified with the company, which has heretofore been a partnership concern. The general offices of the company will be located as above for the present, and within a short time an interesting announcement will be made to the readers of THE CLAY-WORKER concerning this concern.

There are reports in circulation that another large brick manufacturing plant is to be built this summer in the vicinity of DuBois, Pa., but the parties behind the project are not yet ready to make their exact plans fully known to the public. A short time ago, George Hartzfelt, a well-known farmer of Brady Township, a short distance from DuBois, discovered a very large and particularly fine deposit of fire-clay on his farm, and took the matter up with the DuBois Business Men's Exchange. This deposit is one of the larg-

brick expert, and who has had charge of all brick work for the furnaces, etc., at South Sharon, Pa., has severed his connection with that company and has embarked in the furnace building and general brick contracting business for himself. He is an expert at this kind of work and has had frequent requests from some of the largest concerns in the country to give an expert opinion on some supposed faulty furnace construction, or to take a contract for the lining of a blast furnace, etc. He advises that he has already taken two contracts for rebuilding furnaces in the district north of Pittsburg. He has opened an office in South Sharon, where he will have his general headquarters.

The Stowe-Fuller Co., manufacturers of high-grade silica and clay brick, through the Pittsburg office, has been awarded several good contracts for brick to be used in construction in the local mills of the United States Steel Corporation, and has also received contracts for a portion of the brick that will be used this summer in the construction of the new plant of the Jones & Laughlin Steel Co. at Aliquippa, Pa.

The Harbison-Walker Refractories Co., Pittsburg, has been awarded the contract for furnishing the Pompeian brick that will be used in the construction of the large seven-story addition that is to be built this summer to the Allegheny



Before Paving—the Automobile Party Compare Unimproved with Paved Roadway.

est that has been found in western Pennsylvania for a long time, being about 14 feet in thickness and covering sixty-five acres. The entire deposit seems to be of the same grade. A short distance from this deposit, a large deposit of pottery clay, also of a fine grade, has been found, and, as a result, several large clayworking concerns have opened negotiations for the properties and are considering the erection of large and modern plants.

William S. George, president of the Canonsburg Pottery Company, Canonsburg, Pa., who has been seriously ill for several months, has almost entirely recovered and is able to move about in his home at Canonsburg. He suffered an attack of paralysis several months ago, and was in such condition that it was feared for some time that he would not recover. He has not been able to take hold of his business duties yet, but expects to be able to attend to business within the next month or so. Mr. George is a well-known pottery manufacturer, both in this state and in Ohio, having large interests and being officially connected with several concerns in the latter state.

Frank Carney, who for some years past has been connected with the American Steel and Wire Company as a

General Hospital on the North Side, Pittsburg. The contract is a large one, as the building will be 103x82 feet.

The Monongahela Stone, Clay and Brick Manufacturing Company, Monongahela, Pa., mention of which was made in the May issue of THE CLAY-WORKER, has been incorporated under the laws of this state, and has purchased a tract of thirty-seven acres of high-class clay in Fayette County, Pa., upon which a modern plant will be built, the construction of which will be commenced this summer. The company has five distinct veins of clay on this property, all of which is of first-class quality. Full information may be obtained by addressing H. T. Billick, Monongahela, Pa. The capital stock of the new concern is \$75,000.

The White Brick Company, New Kensington, Pa., has been awarded a fine contract which calls for the manufacture and delivery of about 1,250,000 brick to be used in the construction of the new plant of the Crane Company, at Oakmont, Pa., ten miles above Pittsburg. The company is operating the plant to its capacity, which is about 25,000 brick per day. In addition to this contract, the company is also furnishing a large number of brick to several builders up the Allegheny valley.

A. SMOKER.

Written for THE CLAY-WORKER.

AN OBJECT LESSON IN THE PERMANENT IMPROVEMENT OF PUBLIC HIGHWAYS.

THE BRICK-PAVED ROADS OF CUYAHOGA COUNTY, OHIO, THE BEST IN THE WORLD.

Municipal Officers from East and West So Declare After Carefully Inspecting Highways in and About Cleveland.

THE BRICK-PAVED streets of Cleveland and vicinity are attracting the attention of highway commissioners of other states. THE CLAY-WORKER has told and retold the story of the brick-paved roadways of Cuyahoga County and illustrated the splendid pavements of that section on various occasions, but the subject is of such great importance to the taxpayers of the nation that it will bear telling again and again.

Roadways new and roadways old, many miles of them, that are perfectly smooth and are to all intents and purposes wearproof, are the pride and joy of the Buckeye property

dollar has been spent for repairs since the road was paved with brick. The same can be said of nearly all the pavements of Cuyahoga County, and there are now 200 miles of brick-paved highways in daily use within the county limit.

The party covered some sixty miles during the ride. The members of the highway commission made careful inquiry as to the method of construction which afford such splendid wearproof pavements, and expressed themselves as greatly pleased and astonished both at the results accomplished. One of the visitors said after the trip: "I am astounded by what I have seen during the day. I never dreamed of such perfect, permanent highways. They are the finest I have ever seen. They are certainly the most durable and hence the most economical roadway that can be built. Such highways add vastly to property values. The advantages they afford for hauling produce to market at all seasons of the year make them invaluable to the farmer, to say nothing of the comfort and convenience. Such pavements virtually shorten the haul one-half by enabling much heavier loads to be hauled in much less time, and with much less wear and tear on teams and vehicles than is possible with ordinary roadways. The investment is certainly a good one, and I



After Paving—One of the Many Stretches of Splendid Brick Highways.

owners. The fame of these permanent pavements has gone abroad and Cleveland is now the mecca of those seeking information as to the best and most durable pavements, both for city streets and country roads. On June fifteenth a number of the Highway Commissioners of New York State and a similar delegation from Illinois met at the Hollenden Hotel, where, it so happened, the National Board of the National Paving Brick Manufacturers' Association was in session, and under the guidance of Charles Deckman, Spencer Duty and Will P. Blair, a party of inspection was formed, a half-dozen automobiles were commissioned, and a day was spent in going over and inspecting the brick roadways and investigating the methods of construction of same.

The party left the Hollenden at 9:00 a. m., and for seven hours went whizzing over mile after mile of well-nigh perfect pavements. Frequent stops were made to permit of careful scrutiny. The perfection of the pavements was a revelation to the visitors; particularly was this true of the older pavements, such as the Brecksville road, which has been down now for six years and subject to quite heavy traffic the year around, and yet it is as good as new, though not a

prophecy that it is only a matter of time when such roads will be the rule and not the exception in every prosperous community throughout the land."

The accompanying views illustrate the condition of country roads BEFORE AND AFTER paving with brick. In the first is pictured a roadway soon to be paved with brick; indeed the brick have been delivered and may be seen piled up in the background. In its present condition it is not a bad country road as unimproved country roads average, but it is a fright compared with the beautiful brick-paved roadway stretching "over the hills and far away," shown in the second view, a perfectly smooth roadway that is not affected by the heat of summer nor the freezing of winter and may be traveled with ease and comfort every day in the year, and that, too, virtually, with no cost for repairs. In view of this the prophecy quoted above is not without reason.

Sometimes a man who is deficient in scientific information thinks he is making up for this by a display of an unusual amount of horse sense, when, in fact, it is a simple case of mulishness.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

New England Prosperous.

MY DEAR RANDALL:

In reply to your inquiry, I am pleased to say that our New England market is in a very encouraging condition. Up to May 5th contracts have been awarded for \$49,705,000 worth of buildings, against \$19,118,000 to the same date last year.

The present figures are also the largest for the past nine years. Some \$10,000,000 of this is for new mills, and the demand for brick promises to be large and satisfactory. Cement construction is cutting a large figure here, and is covering almost the whole range of buildings, dwelling houses and churches included. Anyone who doubts the serious danger to the brick industry along this line should study the facts and will then be convinced.

GEO. M. FISKE.

Boston, May 12, 1909.

Buffalo Clay Company Plant in New Hands.

DEAR MR. RANDALL:

This company, the Jewettville Pressed and Paving Brick Company, has purchased the Buffalo Clay Manufacturing Company's plant, located at Orchard Park. This plant is located within a few miles of the Jewettville Company's plant, and has been idle for two years. We expect to manufacture the same high grade of impervious red front brick as we have manufactured at Jewettville.

This Buffalo clay plant, so far as machinery is considered, is complete, with a machinery capacity of 75,000 per day.

We are overhauling and improving the kilns and dryer and expect to be running in a short time. Mr. Geo. H. Morton, who has been our efficient superintendent at Jewettville, with Mr. S. C. Brush, will hereafter be associated with us. Trade prospects are excellent, and our spring shipments have been larger than any previous year.

Yours very truly,

JEWETTVILLE PRESSED AND PAVING BRICK CO.

Buffalo, N. Y.

Brick Roads for Automobiles.

EDITOR THE CLAY-WORKER:

Under the above caption, THE CLAY-WORKER reprinted in the May edition an editorial article originally appearing in the Scientific American. The comments and suggestions were correct, true and timely for the most part. However, there are some matters in the article that must be noticed, otherwise they are likely to lead to trouble.

The article says: "Upon this should be a shallow bed of sand (speaking of the foundation) for surfacing purposes, upon which brick should be laid and carefully surfaced and grouted into place."

"Shallow bed" is not sufficiently definite. For this bed is one of the vital necessities of a properly constructed vitrified brick road. It must be 2 inches in thickness and the writer should have said so. A great many brick highways have been ruined by this bed simply shallow—that is to say, 1 inch in thickness or less or slightly more, which alone will ruin any brick street, as 1 inch is not sufficient to adjust the wearing surface of the brick to a plane or true surface, neither is it sufficient to take up the vibration formed by the impact of horses' hoofs.

It says also that the road would be good for many years

of service and would require but little repair except in such sections as are subjected to heavy wagons and dray traffic carried on steel tire wheels. The writer has evidently had no practical experience in the use of a properly constructed brick street, because the facts are that heavy wagons and dray traffic carried on steel tire wheels have but little effect upon a properly constructed brick street. None such are in use a sufficient length of time to determine what serious effect, if any, such traffic would have upon such brick streets. Those that are twenty years old in this country are affected but very little indeed, and not sufficient at all to call for repairs.

"Heavy concentrated wheel roads would tend to fracture the hard face of the bricks," says the article. While in truth and in fact a heavy traffic upon a properly constructed brick street does nothing of the kind. The only effect that it has is a grinding wear, as in the case of the wearing of a grinding stone. Of course, immediate repairs should always follow a break or injury in any case with anything.

The writer of this article evidently has no appreciation or understanding of the value and durability of a properly constructed brick street, in that he says that a good combination for a state highway would be to build it of macadam with a tar surface for the vicinities of towns and cities, and build it up with brick through the country districts, whereas the very reverse of this order is the proper thing to do. Macadam with a tarred surface in point of durability can not be compared at all with a properly constructed brick street.

We are indeed very much surprised that a paper like the Scientific American would give utterance to such a statement. In many respects their paper is accepted as authority whenever it speaks, and it does not generally speak ignorantly upon any question, but in this particular case it is clearly demonstrated by what they say that they are not posted at all upon the subject of vitrified brick streets. Of course, we are speaking of the properly constructed brick streets and highways as are found in the many miles in and around Cleveland, Ohio. Doubtless the Scientific American has assumed that the indifferent and improperly constructed brick streets fully represent their possibilities and was thereby led into this great error.

WILL P. BLAIR.

The Chicago Situation.

EDITOR THE CLAY-WORKER:

The building record for the first half of this year promises a year in advance even of 1908, at least in point of money invested. The amount of downtown building is far ahead of what we had in Chicago a year ago, and the construction work in outlying districts has apparently not fallen off.

To be sure there is not quite the activity in apartment house construction that there was twelve months ago, but it must not be forgotten that last year in this respect broke all previous records, and set a new one so far ahead that it may be years before it is reached again. Indeed, it was such a record that it would surprise no one if it were never equalled. Nevertheless, the number of apartments going up this year so far from falling below normal may even exceed it a trifle, and this in the face of the fact that vacant apartments are to be found in every part of the city.

Apartment houses, however, are not the only buildings being erected outside of the loop territory. Residences of all kinds, but most numerous of the more modest type and of the kind built in lots by speculating contractors, for sale on the installment plan, are found in all parts of the city. Warehouses, one-story blocks of stores along the outer thoroughfares and small manufacturing plants, with here and there a large one, make up the tale.

Between now and autumn a number of new schoolhouses will be completed, some of which are only now being started. Last year there was little building of this kind, and the Board of Education has found it necessary to make up for the inactivity of last year. The school population has completely outgrown the schoolhouses.

The Chicago Association of Commerce is planning to put up a business block on Washington street, just east of the Chamber of Commerce, between LaSalle and Clark streets. Two floors will probably be used for the association's offices and

a large assembly hall, and the remaining floors will be devoted to office purposes. It is understood that the tentative plans call for only twelve stories at the outset, but the foundations and walls will be constructed with a view to giving it additional height later on.

The Blackstone Hotel, at Hubbard place and Michigan avenue, is nearing completion. Work is progressing on the Hart, Shaffner & Marx building at Franklin and Monroe streets, and upon the Steger building being erected for the Steger Piano Company at Wabash avenue and Jackson boulevard.

The brick contract for the McCormick building, another downtown skyscraper, work on which has just been started, at Michigan avenue and Van Buren street, has been let to the S. S. Kimbell Company. It calls for the gray speckled Norman brick, and it is estimated that about 300,000 will be required. The same job in brick of the ordinary size would require about 450,000, it is said, but the brick specified are of Roman length and standard thickness.

The new City Hall is beginning to rise from its caisson foundations, and the LaSalle Hotel is practically completed. One of the biggest contemplated jobs outside the business center is the new bakery for the Ward-Corby Company, which is to be erected at Fifty-seventh and LaSalle streets. The brick contract has not yet been let, but it will call for about 500,000 inside and out.

The weather in the early part of the year has been exceedingly favorable to builders, and all in all, labor conditions have been fairly good with one exception. This has done much to encourage business. All of the old material dealers have had more business than ever, and a few lime and cement men have pushed themselves into the brick field, encouraged by the outlook.

Practically all of the members of the Builders' Club are auto enthusiasts, and they expect to take their machines and head for Indiana next week to attend the Crown Point-Lowell races.

SCRIP.

New York and Vicinity.

Editor THE CLAY-WORKER:

Business has developed in and about New York during the month very rapidly, and trade is now brisk in all varieties of brick. Conditions have proved even more favorable than was reported earlier, and the outlook continues quite as good as it has been throughout the preparations for the new season. Building operations are active, though it is said that the large contracts which were expected have not all been given out, even though there have been a good many small and medium ones.

The price has remained about the same. While demand has been liberal there have been a good many old brick to come to market, and these have created easy price conditions and have influenced trade to a considerable extent. Holders have been content to allow them to go at relatively low prices in some instances for the purpose of getting rid of them before the new make was ready for delivery. It is understood that a larger proportion of the old brick has been delivered. Fortunately for those who are anxious to obtain brick for immediate use, first burnings are coming to market from all directions, and sales will be quite as liberal with the new burnings as with the old.

Up the Hudson there is a scene of activity that would do the heart of the most strenuous advocate of activity good. Business at all the plants is booming and demand in some instances exceeds the supply. It is said that conditions are substantially the same all over New York State, and that present demand exceeds almost anything hitherto known in this particular direction.

A franchise has been granted Mr. McAdoo, the builder of the first North River tunnel, to extend his underground system to the Grand Central Station in New York, connecting there with all the other subway systems which underlie New York City. This means a big demand for brick, since much of the construction work is covered with brick underground before it is finished. There will also be a big demand for tiling to decorate the stations.

The John B. Rose Company, at Roseton, N. Y., is doing a larger business than ever before this spring. Orders have

been plentiful and the works are running to their full capacity. Something like 800 men are employed and all are kept busy throughout the season. The company has an excellent floating equipment which is utilized in the transportation of the product down the river, and scarcely a day passes that one does not see a tug with a long tow of the Rose Company's brick bound for New York. It is interesting to go about the city and examine the brick used on the various contracts and see how many of them bear the name "Rose" on the surface. This is a good advertisement of the popularity of this firm's product.

BURTON.

Blue Brickmaking.

Editor THE CLAY-WORKER:

I have an inquiry from an American brickmaker in regard to blue brickmaking, saying that he is in the building trade alone, and that he would like to make a blue-faced building brick and wants to know if it can be done. I say yes: That is, if the clay will stand 2,300 degrees of fire and very easy. The building brick need be but one-eighth deep on the face and that can be put on at a very small cost. All that is needed to get a blue face of first-class quality, equal to any face brick made in America, is to get two-thirds of wheel swarfe and one-third crocus dry and sift as fine as flour, then you dust the brick in the dust when mixed all over, then press the brick. The brick should be made wire-cut and repressed when dry, which should always be the case with builders; set them in gaums four or five deep, flat. Then cross the bench of brick with a row of ordinary brick, then a course five deep flat and so on until the kiln is full. Start setting the blue eight courses from the bottom. The kiln should have but one hole in the center, so that the whole of the fire must pass through bricks, and you will find the benefit of this as you will save fuel. Of course, the kiln has a lot to do with the making of blue brick, as by firing for blue the fire wants confining to the kiln, so that the heat will travel through the goods, thereby giving the goods all the heat from the fuel, and by this process the goods get well condensed, which is the main point in making this class of goods.

Hoping that my American brothers will see by this that which will lead them to give same a trial on a small scale, believe me to remain yours, at any time,

W. H. HARDY.

ELEVATING CLAY.

Many brick manufacturers avoid the elevation of clay by means of bucket elevators for the reason that they have had so much trouble with their operation. The buckets do not dump well, the boot becomes clogged, the buckets are torn off or wedged out of shape, the elevator belt slips or the driving belt is thrown off, or, if a chain elevator is used, the links break, so that altogether so many delays are caused by the elevator that perhaps the manufacturer tears it out, places his machinery all on the ground and uses long inclined belt conveyors or perhaps only short bucket elevators that he can manage more easily. There are others, however, who, after years of such struggles, have learned how to construct bucket elevators that give no trouble and run without causing a minute's delay and with little expense for upkeep.

The faults of the bucket elevators that are made by the millwright and conveying machinery manufacturer, and that have been copied by the manufacturers of brickmaking machinery, are due to the fact that they are not adapted for handling a plastic material like clay.

The Ceramic Supply and Construction Company, of Columbus, Ohio, are giving clayworkers the benefit of twenty years' practical experience in elevating clay. They furnish their customers with detail plans and specifications of clay elevators that are guaranteed not to cause trouble. Their elevator boot is shown in their ad on page 870. Additional information is furnished in a special circular, which they will be pleased to mail to all readers of THE CLAY-WORKER.

The average American may like to be humbugged, but after the dust settles he does not retain any special love for the man that does the humbugging.

Written for THE CLAY-WORKER.

TOLEDO EXPERIENCES A BUILDING BOOM.

HERE IS A decided shortage of building brick in the vicinity of Toledo at the present time, despite a fair output from the various brick plants about the city. The call for building brick has been unusually large, many important commercial buildings and other large structures having well-nigh consumed everything in this line that there was on hand. Last year was a particularly depressing season with the local brickmakers, but four out of the nine plants operating at all, and all of these curtailing their regular output in large measure. The result was that the stocks carried over from last season were far below normal and when the building boom showed up this year brick men found themselves long on orders and short on brick. The result has been very apparent upon the brick price schedules here, and they are selling at much better prices than they did last year. The better grades of building brick are now being quoted at about \$6.00, and dealers as well as manufacturers are wondering somewhat as to just how they will take care of their customers under existing conditions for the balance of the year.

As an evidence of the activity in building circles here,



W. R. Barnhart, Jr., Wooster, Ohio.

it may be said that May broke all previous records with an aggregate valuation of new buildings of \$564,000. The first five months of the year have shown permits totaling \$1,647,531, not including the new \$500,000 Federal building. When it is considered that the corresponding period last year amounted to but \$684,101, it will be seen that there has been more than ordinary activity in Toledo building circles. This unusual call for building brick has brought about a change of condition, the local dealers for the past few years being compelled to turn their attention to out-of-town trade, now finding their hands well filled in an effort to care for their home customers. There is a large amount of building still in sight, and indeed there are no indications that the present pace will be abated or retarded before the close of the regular building season.

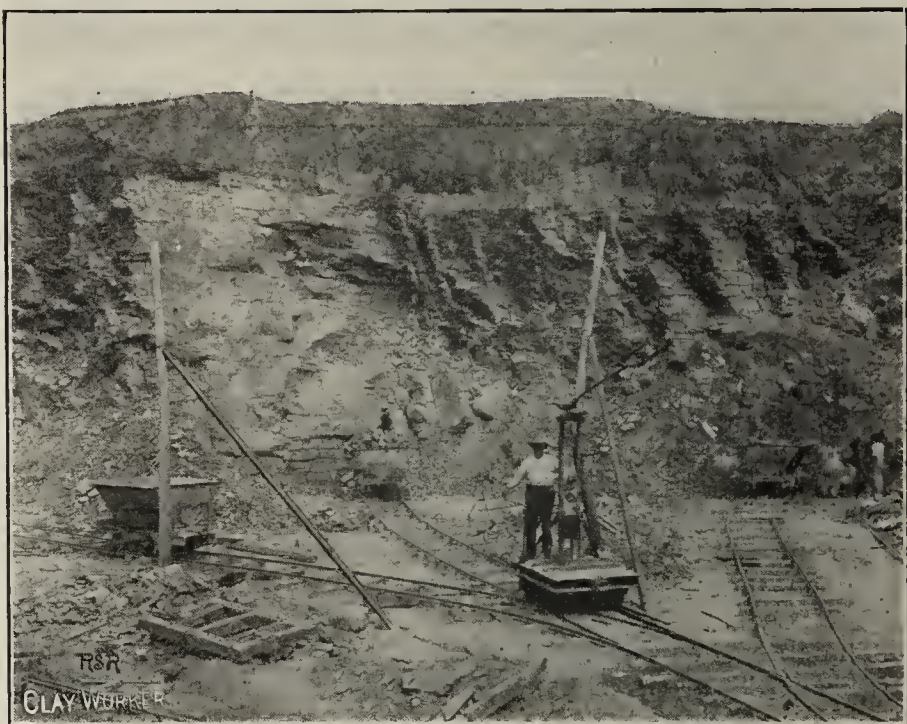
Paving block industries report a lucrative business and a splendid call for their product not only in Toledo but throughout this entire section of the country. Prices are being well maintained and stocks are somewhat limited, owing to the

unusually large amount of public work which has been carried on this far during the season. The easing up of financial conditions generally has made the sale of municipal bonds possible, and with the necessary funds to work with various municipalities are now carrying out projects of months ago, when they found it impossible to raise the funds to complete the work. This condition is also true of sewer manufacturing plants and tile factories, who are finding a ready market for all their output, and are, as a consequence, operating almost, if not quite, at capacity.

The Russell-Jenison Co., of Toledo, is experiencing a hard time in getting the \$10,000 due it from the city for the paving of Harrison street. The city having expended \$1,200 in repairs, the Council held up the ordinance confirming the assessment, although the work has twice been approved and accepted by the Board of Public Service. After the work was done residents on the street complained that the brick was inferior. The contractors put in 65,000 new brick and again the Council has held up payment. It is possible that litigation may result.

The Kramb Brick and Tile Company, of Oak Harbor, Ohio, was recently incorporated under the laws of this state by A. E. Bollin, C. H. Kramb, Ida E. Kramb, Albert J. Kramb, William P. Kramb and H. C. Kramb. The concern is incorporated with an authorized capital stock of \$15,000, and it is understood will do business at Oak Harbor.

John Feller was recently awarded a verdict for \$10,000



Locating Cars Previous to Loading.

damages against J. C. Carland, a prominent Toledo contractor. The verdict was the third in this case. In the first trial Judge Kinkade, of Toledo, directed a verdict for the defendant. The higher court reversed this action and a jury gave Fuller \$10,000. He was injured at Brewster, Ohio, in 1906, by the premature explosion of sixteen pounds of dynamite.

A very pretty compliment was recently paid to Garrigan Bros. by the Toledo Board of Public Service when that concern was awarded a contract to pave lower Summit street, between Michigan and Bay View Park, where the military maneuvers will be held, beginning July 5. Though not the lowest bidders, the board gave the company the job because it felt it would get good work and that it would be done in the time specified. The street will be paved with Nelsonville block at a total cost of \$23,239.70.

This season will be a record-breaker in the little city of Bucyrus, Ohio. Contracts have already been let for paving the streets with brick to the extent of \$90,000, and in addition to this \$30,000 is being spent on pike roads adjacent to the city. A new \$100,000 Court House is also under way, and it is possible that a municipal electric lighting plant will be erected.

BUCKEYE.

AN UP-TO-DATE PAVING AND BUILDING BRICK PLANT.

An Interesting Method of Gathering Shale by an Electric Trolley System.



brick market. Not only are the cities in northern Ohio pav-

HIO RANKS first as a state in the production of building and paving brick, so it may be taken for granted that many of her brick plants are model modern plants. One of these, the Wooster Shale Brick Company; operated by W. R. Barnhart, Jr., is turning out a quality of paving brick that compares favorably with the best made anywhere, hence we take it the readers of THE CLAY-WORKER will be interested in a brief description of the plant. To start with, it is located admirably, having splendid railroad facilities in the heart of a great paving

power for the lighting, and also for the operation of the clay cars used in hauling shale from the bank to the dry pans. These cars are hauled by an electric locomotive, manufactured by the Atlas Car and Manufacturing Company, Cleveland, Ohio, who also furnished the dump cars and complete railway equipment.

To some of our readers this may seem an unnecessary expense, but we understand the manufacturers, the Atlas Car and Manufacturing Company, have installed quite a number of these electrically-equipped cars and locomotives in clay plants throughout the country, where they have given universal satisfaction.

Mr. Barnhart states that the use of this equipment has been a big labor saver. He also states that he has displaced several men and horses, and that he can handle the clay in half the time and with much less trouble.

The track runs from the plant to the shale bank, a distance of about 800 feet. The gauge of the track is 36 inches, laid with 30-pound rail. Suitable trolley poles are used for supporting trolley wire. One man is all that is.



Panoramic View of the Wooster Shale Brick Plant, Wooster, Ohio.



Unloading Shale Above the Crusher.



Motor Cars Used in Hauling from Bank to Works.

ing their streets with brick, but country roads as well are being permanently improved, and Wooster shale pavers are in demand for the latter work. A portion of the Cuyahoga County road was paved with Wooster blocks, and they have also been used in the streets of Cleveland, which, it is claimed, is the best-paved city in the West. The United States Government specified Wooster shale brick for the "Rock of Ages" lighthouse.

This plant is up-to-date in every particular and has a daily capacity of 50,000 pavers, and is also turning out large quantities of building brick. The power equipment consists of one 60 h. p. and one 90 h. p. gas engine and one 150 h. p. steam engine. The plant is lighted throughout with electricity, a 20 k. w. generator of the Westinghouse make furnishing

necessary for operating the locomotive and hauling cars from the plant to the pit. It will be noticed that the car is equipped with an extra long trolley pole. This is necessary in order to have the trolley wire high enough over the highway so that there will be no interference with any high-loaded wagons that may pass under same.

There are four 3-yard Atlas cars in constant use for hauling the shale, which are dumped at the plant by the operator. The accompanying illustrations give an idea of the modus operandi of the work, and of the immense clay bank from which the raw material is taken.

The poorest people on earth are said to be those who make the most of what they have, and the least of what they are.



AVERAGE COST OF TILING PER ACRE.

A CORRESPONDENT makes the following inquiry as to the cost of drainage per acre: "Will you kindly advise me as to the average cost per acre for tiling in the various soils in northern, central and southern Indiana and Illinois?"

Without sufficient data at hand, we can give only the approximate cost as to the average cost. The following conditions have to do with the cost of anything like thorough work: It is well to keep in mind that "thorough work" varies in the judgment of those engaged in the drainage of land, for the reason that conditions effect the result as to cost. In a close retentive clay soil, the lateral drains need to be laid a less width apart than is necessary in an open porous soil. In a subsoil which is rich in fertility, needing the air to make the fertility available in crop production, the depth of the drains to get the best and most lasting results should be greater—3 or 4 feet. Or it may be that a sufficient outlet can not be secured at a reasonable cost, or at all, so the drainage will necessarily be at a less depth.

In soils having an underlying strata of hardpan, the expense of digging the ditch may be greatly increased. The men that do the work may be more or less expert, which also affects the cost.

The cost price of tile and the transportation likewise affect the cost of drainage. The price of tile in our locality may be 25 or even 50 per cent. higher than in other localities. Again, much depends as to cost upon the system of drainage. The cost may be lessened by taking the levels and placing the lines of tile where they will be most efficient, in short a well-planned system is imperative to get the best results at the least possible cost. An important factor, affecting the cost of drainage, is the man who bosses the job.

Northern Indiana.

Dividing the State of Indiana into three parts by running the dividing lines across the state from east to west, the north division embraces sandy muck and clay soils, the cost of drainage ranging from \$10 to \$25 per acre, if the work done approximates sufficient drainage. This division of the state embraces varied conditions, including marshes, sand ridges, light loam soils, clay loams, with small areas of retentive clay soils, with more or less difficulty in securing sufficient outlets.

Central Indiana.

The middle or central division of the state embraces clay loam soils. Much of this area needs to be drained to a depth of from 3 to 4 feet, depending upon other conditions. Free outlets can usually be secured. There are level areas of considerable extent that will involve very careful work to secure sufficient drainage. The drainage of some of the more rolling land is needful to prevent the surface washing, or soil waste, so common to such lands. There is also much land that will require quite an outlay of money, labor and engineering skill to reclaim it. The average cost per acre to drain the middle division of the state so as to give the best results in crop production, including meadow and grazing lands, will range from \$15 to \$25 per acre, or an average of \$20 per acre for thorough work, or sufficient drainage for most satisfactory results. Much of the land

in this division of the state, if well tile-drained, would be almost doubled in value for agricultural uses.

Southern Indiana.

The southern division of the state is a more complex drainage problem. The many streams which have their source in the northern and northeastern portion of the state, as they near their outlet into the Wabash and Ohio rivers, have served in the ages past to make the lands more rolling, even hilly, and the surface drainage washes the soil into the streams, small or large. The low bottomlands are narrow along the small streams, but in many instances they might be greatly improved by underdrainage. In many places the bottomlands widen out and are especially adapted to agricultural uses. Some of the bottomlands in the southern part of the state are level, cold clay soils, that would be greatly benefited by tile drainage, but the system of drainage would not embrace large areas.

There are, however, sections in this division of the state of table uplands that are level and the clay soil close, cold and retentive, giving up the excess of water very slowly by evaporation and slow percolation, that would be especially benefited by tile drainage. So much depends upon the surrounding conditions as to the cost per acre that it is practically out of the question to approximate the cost per acre except in the drainage of the more level areas. It is possibly true that many thousands of acres could be almost doubled in value for crop production by tile drainage. In some instances a very little expense and labor would be required per acre to greatly benefit a small area. A single line of tile may do the work of draining two, three or five acres of land along the running streams where the water from the hill lands make the bottomlands wet and cold, but when tile-drained become very productive.

One who is familiar with the needs of land drainage and the consequent advantages to be derived from this important improvement of soil conditions will see many places on almost every farm where tile drainage would almost, if not fully, double the value of the land for crop production. However, there are thousands of acres of tableland, much of which is in cultivation, that would be equally benefited. In such a detached system of drainage as must necessarily be practical in most parts of the southern part of the state, it is difficult to determine the average cost per acre. We will, however, fix the average cost at \$20 per acre. We do this in order to make a general average for the state.

With the foregoing estimates, we conclude that \$20 per acre will approximate the average cost of draining land sufficient for the best crop production. This cost may deter some from undertaking the work of drainage, but when we take into account the fact that if work is well done it is a permanent improvement, one that will give a most gratifying return each year for generations to come, by which we are benefited in our generation and then our children will reap like benefits, their children, and theirs and so on.

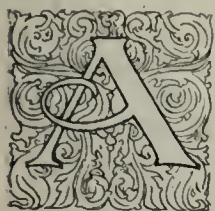
COLORS THAT NEVER FADE.

If it were not that in putting up our permanent structures we desire to make them pleasing to the eye, as well as useful and convenient, we would employ engineers as designers rather than architects. It is the architect's business to combine beauty with utility, and since we employ architects, we have a right to expect that our buildings should look right as long as they stand.

One of the most disappointing changes of appearance that can occur in a structure is that caused by poor or fading colors in the mortar, brick or cement. Where Ricketson's mineral colors are specified, however, you may be assured that as long as the structure stands the tinted portions will look as bright and clear as they did the day they were put up: "Time, the great leveler," has been busy these many years proving that Ricketson's colors absolutely never fade or run. Their great purity makes them go farther, too, so that it is well worth while to specify them from the standpoint of economy alone. Ricketson colors are manufactured by the Ricketson Mineral Paint Works, Milwaukee, Wis.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



LONG THE Hackensack River operations have been in progress for some weeks. Several firms have begun burning and one firm has shipped its first load. M. B. and L. B. Gardner are entitled to the credit for sending out the first new burned brick for this season. The quality was good and there was a disposition among buyers to favor these early makers. Now, everyone along the Hackensack has things in readiness for the first burning. All makers here say that they have respectable orders ahead and they confidently expect an improvement in the situation.

The Merhoff Brick Company, at Little Ferry, N. J., is working a full force of hands and has one burning about ready for delivery. This firm has always been successful in obtaining good contracts, and it is said that it has succeeded quite as well this year as heretofore. The brick made have always given the best of satisfaction and consumers are quite willing to consider any proposition the firm may make. Not much change about the plant has been made this season, the former outfit being ample for present requirements. Some more stripping has been done, disclosing additional clay of an excellent quality.

In considering the source of supply of the clay manufacturers on and near the Hackensack, it is interesting to observe that the quantity available is practically inexhaustible. The meadows which lie along the Hackensack River are underlaid with excellent quality clay beds, and the same observation is true of the meadows along the Passaic River down to Newark Bay. The top covering varies in depth from about 2 feet near the Hackensack to about 200 feet on the Newark meadows, consequently it is comparatively easy to work. The chief difficulty is the presence of water, which flows into the pits the moment they are dug below sea level, and inasmuch as there is only 6 feet fall in the thirteen miles from Hackensack to the ocean, the level is pretty low. It requires pumping all the time to keep the pits clear, which, of course, adds to the expense of operation. But there are compensating advantages in water transportation and similar opportunities for cheapening both production or delivery, which combine to assist materially in balancing up the account. It doesn't matter where one digs, this clay is good and requires the admixture of only a little sand to make good brick. The proximity to big markets like New York, Newark, Paterson, Passaic and the whole suburban territory connected with these centers creates a market such as few manufacturers have. The development of the industry in these localities has been less than might be supposed. Brick-making along the Hackensack began more than 100 years ago. Previous to that all the brick used had been imported from Holland, England or Barbadoes, but an enterprising Dutchman discovered suitable clay and began the manufacture of brick on a small scale and made himself wealthy in a few years. Since then the business has developed until the sheds line the river on one side for miles, and there is a steady growth which has been unimpeded, with the exception of the poor year, when practically no eastern maker did anything beyond filling the few contracts he had at the opening of the season.

The Hanover Brick Company, at Whippany, N. J., after settling up its strike difficulties, has gone on making brick even more rapidly than before. It has many good orders this season and its outlook is bright for a prosperous year. This is an excellently managed company; the McEwan Brothers, who are at its head, are well known and successful business men, and they have made this a profitable concern.

The National Fireproofing Company, at Perth Amboy, N. J., is driven with orders for its products this spring. The erection of a number of large buildings in New York is drawing upon the company's resources heavily. Numerous scow loads of its products are seen in the harbor almost daily

bound for New York. The advantage of water transportation in its own floating equipment reduces the cost, and places the company on a better basis than would otherwise be possible. The use of fireproofing is becoming almost universal in the construction of office buildings and other large structures, and this firm obtains the cream of the contracts about New York. It is employing practically 500 hands, and with orders increasing it looks as though more might be required to carry on the business and keep up with the rush.

The Burroughs & Mountford Pottery, at Trenton, now known as Greenwood No. 3, has resumed operations after being idle several months. The firm believes that the settlement of the tariff controversy will have a stimulating influence upon business, and that it is wise to have stock on hand to fill such orders as may be received.

The Lambertville Pottery, a new concern, has begun manufacturing sanitary ware and other specialties. The factory is now running with orders ahead and the outlook is very bright for the future. Its work is of the best possible type, and duplicate orders are invariably received after the first shipment.

The Mueller Mosaic Company is the most recent organization in Trenton for the manufacture of clay products. Herman C. Mueller, formerly connected with the Robertson Art Tile Company as technical manager, is at the head of the new corporation. The company will manufacture faience pottery and mosaic pieces for mural decoration and general architectural ornamentation for various types of buildings.

Henry C. Kelsey, of Trenton, has given the Trenton Art School \$100,000. This school has done much to advance the work of the pottery trade; perhaps it has done more than any other institution of its kind in existence. Students of this school have been awarded prize after prize for excellence of work in pottery making, including new shapes, new designs and new decorations, both in general dinner lines and in specialties.

American pottery making will receive a strong impetus by the erection at Trenton immediately of a school for industrial arts. The ground upon which the buildings will be erected will cost \$20,000, and the buildings themselves will cost \$100,000. It will be a school which will rank with the best in that line of educational work.

A. L. B.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

AROUND BOSTON and the contiguous territory there is great rejoicing in the brick world. It is understood upon the best of authority that there will be expended in New England this season full \$50,000,000 upon the development and new construction work of different industries. It will be remarked that this sum of money is large for the six states and means that each state will obtain a fair share of the profits accruing from this immense sum. It will be used chiefly in the extension of old enterprises and the erection of new buildings for many firms. This will require many thousands of brick and already dealers everywhere throughout the state are wondering where they can go to obtain that amount of brick without disturbing someone else.

Throughout Massachusetts business is reviving. It is impossible to go over the plants and designate each one by name, but it is understood that the situation confronting all of them alike is startling. It means that they must all get to work on the clay beds immediately, if not there will be established a precedent which is not wholly desirable and which it is hoped no one will follow in the future. The Hampden Brick Company, at Springfield, Mass., is typical of them all, and the manager said that he was too busy to talk. Last year this firm did a good business, considering the general conditions, but this year it is the intention of the management to introduce new features and to sell their product wherever they may find a market. Building operations planned for western Massachusetts will require practically all this firm makes, and the product of many more in addition.

HIRAM.

Written for THE CLAY-WORKER.

SOUTHERN NEWS LETTER.



TRADE CONDITIONS at the various brickmaking plants in Memphis and the southwest are reassuring. Summer building is opening up at a healthy rate. Here in Memphis, before the present year ends, all indications point to the erection of two new skyscrapers, which would make a total of a half-dozen for the city. Those in prospect are a twenty-one-story building at the corner of South Second and Madison avenue for the Central Trust and Bank Company, and an eighteen-story building for the Cotton Exchange on an opposite corner, replacing the present exchange building. Undoubtedly work on the new Union Depot for Memphis will commence before the end of the year.

The Memphis Brick and Supply Company, Southern Express building, who handle the output of the Tennessee Brick Company, have furnished the common and pressed brick for the Scottish Rite Cathedral under erection here. They supplied around 800,000 brick for this structure. The same firm also furnished the brick for the Reichman-Crosby warehouse.

The Cubbins Brick Company, Memphis, reports a satisfactory market with prices holding up very well. They have about 1,000,000 brick on hand. They have just supplied brick for the Hill building, corner of Third and Madison. Also for a business house, corner Main and Pontetoc, and for the Webb & Maury warehouse.

The Dickson Brick Works, at Dickson, Tenn., and the Dickson Planing Mill Company have been united with a capital stock of \$20,000.

C. M. Howells, of Womble, Ark., is interested in the establishment of a brick plant.

The Crush Brick and Tile Company, of Crush, Texas, will erect an additional dry kiln, increasing the burning capacity of the plant.

The McKenzie Pottery, of which C. Sparks is proprietor, at McKenzie, Tenn., has been making some improvements in its plant.

The Johnson City Brick Company, of Johnson City, Tenn., was recently incorporated with \$10,000 capital stock by R. Buffalow, W. C. Buffalow, J. E. Karnes and others.

E. T. Lewis & Co. have the contract at Nashville for paving several blocks on Eighth avenue.

The Tuscaloosa Brick Company, of Tuscaloosa, Ala., have placed the contract for installing brick machinery which will give the plant a capacity of 30,000 brick daily.

R. L. Bushell, of Stanford, Tenn., contemplates the establishment of a brick plant at Paducah, Texas.

C. Swanson, of Kingsland, Ga., will establish a brick plant at that point.

The Seguin Vitrified Paving and Face Brick Company, lately incorporated at Seguin, Texas, with \$75,000 capital stock, will improve its plant by installing new clay machinery, a new dryer, etc. The output will be 40,000 vitrified paving brick.

The Howard Park Brick Company, of Chattanooga, Tenn., is manufacturing a very high-grade article, and, in addition to this, handles a complete line of handsome face brick from the various manufacturers in different parts of the country. One of the largest jobs which this or any other company ever executed in or around Chattanooga, is the plant of the Crystal Springs Bleachery Company, which contains nearly 2,000,000 common brick and includes a floor area of 77,800 square feet. Among other prominent Chattanooga structures in which this company has furnished brick are the following: James office building, Hotel Patten, Carnegie Library, Y. M. C. A. building, New City Hall building, Chamberlain building, Central High School, etc.

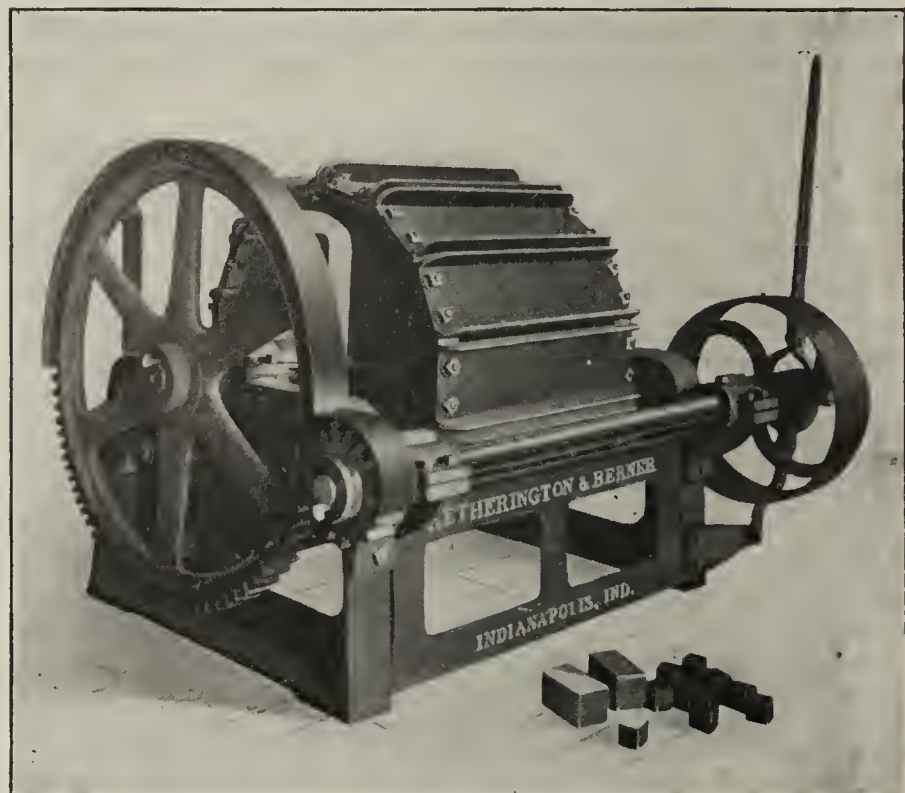
The brick manufacturing business in Knoxville is doing nicely and the probabilities are that if present activity keeps up the six plants located in the Knoxville territory will make about 35,000,000 brick this year, whereas last year they only

made 25,000,000. There was 5 per cent. more business done this spring than a year ago. The year 1907 was a banner one for the brick business in Knoxville. In October brick-making was checked to a certain extent that year. In 1908 the six plants around Knoxville made about 65 per cent. of the number of brick they made during the year previous. One Knoxville plant that made 8,000,000 brick last year will make 15,000,000 this year, and others will increase their manufacturing capacity accordingly. The Knoxville Brick Company is making decided improvements at its Powell's Station plant, remodeling five kilns at a cost of several thousand dollars. This company makes an average of 55,000 brick per day. Brick are now being delivered in Knoxville at \$7.00 per thousand.

DIXIE.

AN IMPROVED STANDARD RATTLER.

THE TESTING of paving brick by the rattler process is now quite common, so much so that every city and town in the country ought to have a standard rattler with which to test brick supplied for streets and roadways. Manufacturers of paving brick and block are finding it advantageous to have a rattler at their plants to enable them to test their brick from time to time, and thus determine for



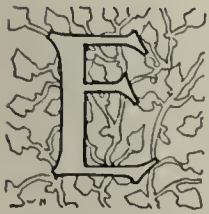
The Hetherington & Berner Standard Rattler.

their own information and satisfaction the grade of brick they are turning out. To meet the demand for a standard rattler, the Hetherington & Berner Co., Indianapolis, manufacturers of machinery and appliances for the use of road builders, have designed the rattler which we illustrate, and offer it to the trade at a low price considering the character of the material used in its construction. Like all the products of the Hetherington & Berner Foundry, it is skillfully designed and so constructed as to meet every requirement of convenience and efficiency in operation. It requires but little power to operate it, and it can be filled and emptied easily and quickly. Circulars giving full particulars will be mailed on request. Messrs. Hetherington & Berner also manufacture steam road rollers, concrete mixers, and all manner of supplies used in the work of road building.

The Canonsburg Pottery Company, Canonsburg, Pa., has been completely reorganized, and has been incorporated under the laws of the state with an authorized capital stock issue of \$150,000. After a large number of repairs are made to the plant, which has been idle for some time, the entire plant will be placed in operation and operated to capacity. The company has much excellent business on hand, and from reports there is no reason whatever, with proper management, that the plant should not be operated steadily and the business placed on a paying basis.

Written for THE CLAY-WORKER.

BRICKYARD NEWS OF PHILADELPHIA AND BALTIMORE.



XTREMES MEET, and this is, in a manner, true of the Philadelphia brickyards. Two of the busiest yards in town are Carroll Brothers, Woodland avenue, Southwest Philadelphia, and F. Seitter's Sons, Nicetown lane and G streets, North Philadelphia section.

The latter have more work than they can well handle. their clay is running out, and they will soon be forced to build a new plant out at Frankford, where they possess some land, or, as they put it, "go out of business"—an easier thing to say than do, when the business comes in as it does to them. They are furnishing brick for the following operations: Fifty-two two-story houses, Lee and Ontario streets; thirty-four two-story houses at Jasper and Ontario streets; thirty two-story houses at Eleventh and Fisher's lane; seventeen two-story houses at Kensington avenue and Tioga street; eleven threestory houses at Kensington and Clearfield streets; nine houses at Tacony; ten two-story houses at Bridge street, Frankford, besides thirty or forty houses in single and double lots. A contract which they have secured for 100 houses at Second and Allegheney avenues is like a white elephant on their hands—a fine job, but they are so rushed with work and so nearly sold out of brick, that they fear they may have to turn the work elsewhere. The ground is being dug today, and if it is possible to get a little time they will be glad to serve the contract. At this yard they have bought 2,000,000 brick in the last two months. Prices are good. Uptown prices, \$6.25 for salmon; \$8.00 for hard, and \$10.00 to \$11.00 for stretchers.

The Carroll Brothers are serving several jobs at Overbrook, West Philadelphia, Haverford, Sixty-third and Landsdeman avenue, Sixty-first and Locust streets, and a large apartment house at Forty-second street and Chester avenue that will require 1,000,000 brick. The Fels building, for Fels-Naptha Soap manufacture, on Woodland avenue, will also require 1,000,000 brick. Carroll Brothers' yard is pretty well cleaned out of brick with the large run made on it, and they feel much satisfied in the present and prospective outlook.

The brick machinery people are having rather slack time just now, but that, perhaps, means a rush later on.

S. B. Dobbs, 1218 Chestnut street, has secured the face brick order for the Curtis Publishing Company building, to be erected on the entire block between Walnut and Sansom streets, Philadelphia. The order calls for 2,250,000 high-grade front brick, manufactured by the Harbison-Walker Refractories Co., Templeton, Pa., of which Mr. Dobbs is sole agent. The order comprises 2,000,000 standard size gray impervious brick; 200,000 2-inch bull nose, and 50,000 arch brick. These brick are of a very light, delicate color and are absolutely impervious to moisture. In preparing the plans, Architect Edgar V. Seeler has eliminated the use of plaster altogether and adopted these impervious brick, which are not only non-absorbent and sanitary in every respect, but assist greatly in lighting the immense building and make a very attractive interior finish. This is the largest contract for high-grade face brick ever awarded to a Philadelphia concern, or for Philadelphia use. The Conkling-Armstrong Terra Cotta Co. has secured the order for the terra cotta trimmings.

Baltimore News.

Mr. S. B. Dobbs has recently opened an office in the Central Savings Bank building, Baltimore, Md. An interview with Mr. Tormey, manager, elicited the information that they have closed several contracts already in the Monumental City, including the new Hub Dry Goods Department Store, which calls for 50,000 or 60,000 fancy brick—red center fire-flash brick, with buff trimmings; a residence for Dr. Boyd, Washington, D. C., calling for 75,000 brick; the Jewish Children's Home, which will take the same number, 75,000, in three shades of tapestry brick, with Indiana limestone trimmings; the new pumping station, which will take 600,000 to 700,000 brick, iron spot, enamel and buff. They have also

recently closed the contract for the new City Hospital, which calls for 300,000 impervious iron spot brick, and 150,000 enamel brick.

One interesting feature of this new hospital will be the hotel adjoining the hospital for the accommodation of those who desire close proximity and daily intercourse with their sick friends or relatives. This will also be used for convalescents who are weary of hospital environment and prefer recuperation and more freedom of hotel life.

The Westport Paving Brick Company has succeeded the Baltimore Vitified Brick Company. Their plant at Westport has been rebuilt, after the demolition by fire, and they are now in condition to fill contracts.

Burns & Russell, 1103-1104 American building, Baltimore, have served brick to the following contracts: Terminal Warehouse, Schlitz Brewery, St. Joseph's House of Industry, Emerson Glass Works, new Medical Library, and a new addition to the Postoffice. These buildings are all buildings that improve Baltimore, contributing their share in forming "The City Beautiful."

We regret to announce the recent demise of Mr. Russell, Sr., of the firm of Burns & Russell. Mr. Russell, Jr., will continue in the firm, thus continuing the well-known firm under its same title.

M. E. LOCKINGTON.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



ARCH WAS the best month in the building line so far this year, and the record of permits for May is hardly as good as that for April, the total being \$2,680,545, in comparison with \$2,827,054. The contracts let, however, amount to \$3,029,609, of which about half was for new brick structures. These figures do not include the large amount of Government and municipal work which is being done in and around San Francisco, and which form a very important item in the brick industry. In a general way, however, it may be said that the outlook for the brick business locally is hardly as bright as it was a month or two ago, when everybody was figuring on a big brick year. So far there is no cause for discouragement, as new plans are being announced all the time, and some increase of work is expected during the summer and early fall, but with the great capacity of the plants in this vicinity, there is always danger of overproduction. There are very few really large buildings going up at the present time, the majority being of medium size, both in height and area, with scarcely any over six stories high. A few good-sized brick warehouses are being built, but aside from that few of the private enterprises are of any great importance. A number of important public buildings are being erected, however, and others are in prospect which will take large quantities of brick. Among those which will be completed this summer are the Hall of Justice, a number of barracks and other buildings for the Army at Presidio, the City and County Hospital, and a number of school buildings. The new wing of the St. Francis Hotel will also in all probability be completed this summer, and a number of large municipal structures are projected in the cities around the bay. The matter of a new City Hall for San Francisco will be brought before the people at a bond election this month. At present there is a great deal of agitation going on over the proposition to establish a "civic center" at the intersection of Van Ness avenue and Market street, providing for a City Hall and several other large buildings, but the idea is strongly opposed by many on the ground that the greatest need of the city is for more schools, sewers and street improvements.

The demand for pressed brick, and in fact all varieties of face brick, is picking up. These lines have been comparatively quiet for many months, and even now few of the kilns are working up to their full capacity, but there is more business on hand than at any time earlier in the season. There is also quite a revival in architectural terra cotta, both in stock and special designs, as this material is specified in a

great number of the better buildings now being erected in this city.

Sewer pipe is still in fair demand, with a prospect of larger requirements later in the season, as several large towns in the state are preparing to finance extensions to their sewer systems, and a considerable quantity is required from time to time in San Francisco. Work will begin on three of the local sewers as soon as the money is provided, the entire cost being estimated at nearly \$200,000.

The plant of N. Clark & Sons at Alameda, Cal., is busier than for some time past, and is working practically at full capacity in all departments, as there are a number of fairly large contracts on hand for pressed brick and terra cotta, as well as sewer pipe.

W. A. Murphy, of the Carnegie Brick and Pottery Company, states that the plant is running about the normal output, and finds a good demand for all lines of pressed brick and terra cotta, though the company is by no means as busy as during the boom times of 1906-1907.

The Patent Brick Company is now operating a large part of its plant, running a continuous kiln on wire-cut brick, though most of the output is being piled in the yards. The company is getting a fair amount of business in the vicinity of the plant, but has shipped no brick to San Francisco for some time.

The Carquinez Brick and Tile Company has completed its dryer and is making good progress on the new kiln. The present equipment is still in full operation, and so far the output is being disposed of as fast as it can be delivered.

Further changes have been made in the Vallejo Brick and Tile Company, Consolidated, F. W. Beardslee resigning the presidency in order to take charge of the San Francisco end of the business. He has made a five-year contract with the company, by which he is to finance the operations and handle the entire output. S. J. Smith, of Oakland, is now president of the company, with headquarters at the plant. This company has control of the finest deposit of vitrifying shale for paving brick that has so far been located in California, and, after a series of experiments covering a period of two years, is producing an exceptionally fine article. A number of large deliveries have been made on the local pier contract, and the engineers in charge of the work pronounce the pavers equal to any produced in the east. The company has taken several new contracts this month, including a shipment to Guam for the Government, and a lot for South America, and with other work in immediate prospect the plant will be kept going at its present capacity for the rest of the year. Mr. Beardslee states that the material for making these pavers was discovered only after a long search and the preliminary work has been more expensive than was anticipated, but the company is now fairly on the road to success. While a market for the product will have to be built up by continual efforts, the demand that has already arisen and the extensive use of paving brick in eastern cities prove beyond a doubt that there will be a large field for this material in the neighborhood of San Francisco. The company has nine kilns practically complete, bringing the capacity to about 1,000,000 a month, and as this is only a quarter of the estimated output of the complete plant as projected, the company will probably be able to take care of all requirements in this market. In addition to pavers, the company has abundant materials for the production of a superior fire brick and several other varieties, but nothing will be done in these lines until the paving business is well under way.

The city of Alameda, Cal., is experimenting with various classes of paving material, and will shortly lay brick on one side of Webster street for a comparison with a composition on the other side. The city of Oakland has contemplated paving a number of streets with brick for some time, and is now testing different samples with a view to beginning the work. So far the authorities in San Francisco have paid little or no attention to paving brick, but its use in nearby cities will no doubt awaken them to its importance. If the material is taken up by the state in the construction of a number of roads for which appropriations have been made, the field will be practically unlimited.

The manufacturers of common brick in this city seem unable to agree on anything for more than six months at

a time. After a long period of depression, during which prices were very unprofitable and material losses were suffered by all concerned, they decided about the first of the year to keep their production down to the needs of the market. At the same time a standard size was adopted for common brick, a move which was received with favor by architects and contractors, and which was of material assistance in bringing the market back to a normal condition. With an amicable understanding between the competitors, fair prices have been realized for several months past, and conditions generally have been far more satisfactory than they were during the spring of 1908. Now, however, dissension has again arisen among the manufacturers, the exact cause of which is being kept very quiet, though the effect has been to demoralize the market completely. Prices are irregular, having declined from \$9 per thousand to \$8, \$7.50, and in some cases lower, while just at the moment purchasers are holding back until things settle down to some sort of a basis. At the same time a number of manufacturers have commenced making the old large-size bricks, and the benefits of the uniform standard will soon be lost completely. Of course, if there is no further decline in prices, some plants will have a small margin of profit, but in view of the large capacity for production, the outlook is rather discouraging to say the least.

A. Von Presentin is organizing a company at Bellingham, Wash., for the manufacture of paving brick. He states that he has a deposit of shale suitable for this purpose covering 160 acres.

The town of Monterey, Cal., has issued bonds for a number of improvements, including \$63,000 for storm waterways, and \$12,000 for sewer outlets.

The city of Oakland is preparing to erect a new City Hall and Hall of Justice, to cost about \$1,000,000.

B. W. Rice, formerly secretary and treasurer of the Pure Clay Brick and Tile Company, of this city, has been arrested on a charge of embezzlement.

J. A. Bauer, of Kentucky, a manufacturer of yellow-glazed earthenware, has purchased a large factory site in Los Angeles and is installing a plant for the manufacture of insulators and all kinds of pottery.

SUNSET.

San Francisco, Cal., June 5.

A WELL-PAVED TOWN.

Few if any towns of its size in the country can boast of as many paved streets and roadways as Bucyrus, Ohio. Some years since Bucyrus began by paving one of her main streets with brick, and the improvement was so satisfactory that each succeeding year additional streets have been paved. During the present year the town will spend \$100,000 in work of this kind. Vitrified brick are used exclusively, so the improvements made have been permanent in character. Crawford County, of which Bucyrus is the county seat, builds ten miles of pike roads every year, and it is thought that in a few years these roads will be resurfaced with brick. Under present laws, the owners of abutting property have to pay 40 per cent. of road improvement, and up to date they have not been willing to sanction the idea of indulging in anything more expensive than gravel roads. In time it is believed they will be convinced that a brick-surfaced roadway is really best and cheapest in the long run. That Bucyrus is prosperous and progressive, too, is evidenced by the building of a new brick court house. Visitors are always made to feel at home there, especially clayworkers, for be it remembered it is the home of the "Built right, run right" clayworking machinery. Bucyrus is easily reached, as it is quite a trolley center, being connected with the lines running east to Cleveland and south to Columbus.

SERIOUS ILLNESS OF A VETERAN BRICKMAKER.

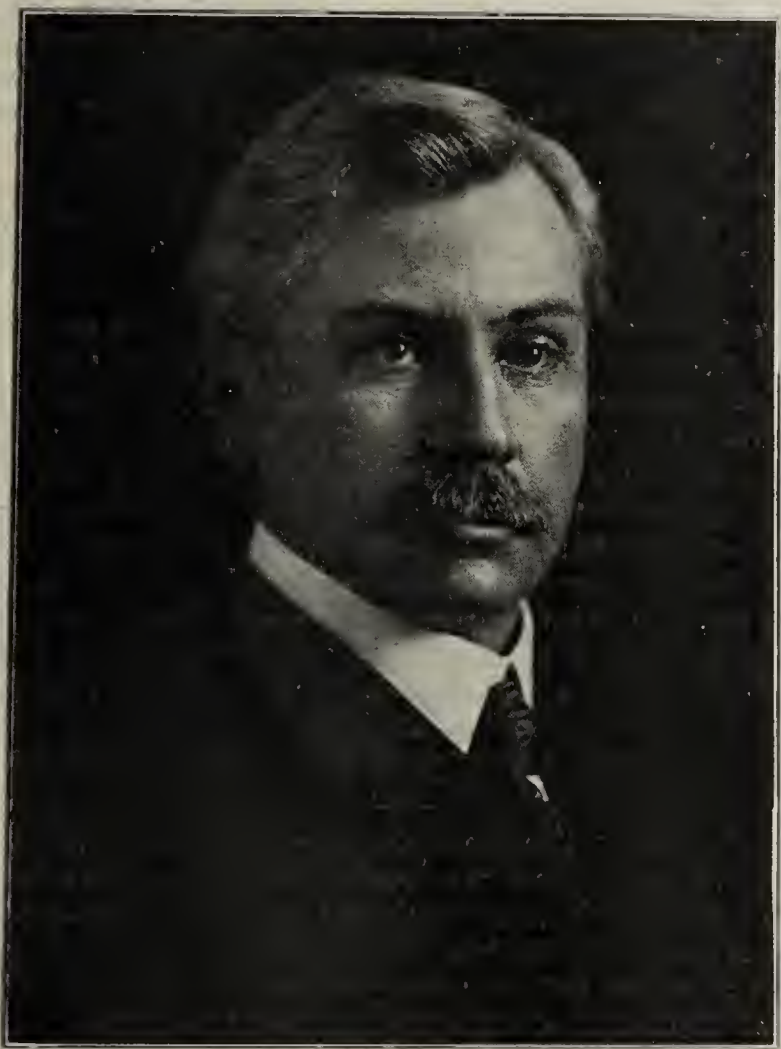
The many friends of I. C. Wheeler, the veteran brick manufacturer of Carthage, Mo., will regret to learn of his serious illness. Mr. Wheeler, who is an old-time member of the N. B. M. A., is suffering from nervous prostration, and because of his advanced age his family entertain grave doubts of his recovery.

OBITUARY.

Death of Frank G. Middlekauff, of St. Louis.

Frank G. Middlekauff, president of the Hydraulic Press Brick Company, died at his home on Vernon avenue, St. Louis, Sunday morning, May 30. He was first taken ill with rheumatism, and his death followed two weeks later from cirrhosis.

Mr. Middlekauff was born at Adeline, Ill., forty-six years ago, and was educated in the schools of that town until his entrance into Northwestern University. After graduation from that school, Mr. Middlekauff was with the Deering Harvester Company at Chicago for about six years. He then joined the Hydraulic Press Brick Company and was stationed at Washington, D. C.; Philadelphia, Pa., and New York for six years. He came to St. Louis in 1899 as third vice-president of the company. About two years later he was made



Frank G. Middlekauff.

second vice-president and general manager of the branch of the company here, and two years ago became president.

His widow, Mrs. Charlotte Middlekauff, who was a Chicagoan, survives, with two children.

The funeral, which was held June 1st, was attended by members of the Hydraulic "family" from different sections of the country, and the pallbearers were H. W. Eliot, Frank Miles, George Bass, of Philadelphia, Pa.; S. J. Hewson, of Minneapolis, Minn.; A. B. Lyons, of Washington, D. C.; Ralph Simpkins, L. N. Burns and Frederick A. Kehl, of St. Louis, Mo., most of whom had been Mr. Middlekauff's business associates for many years.

FIND GOLD ON A BRICKYARD.

Two Portuguese laborers working recently in a clay pit in the Beattie Brickyard at Paterson, N. J., that had not been pumped out in seventeen years, overturned an old stump and found a quantity of gold coins lying among the roots. The coins were black from exposure. There were French and American pieces. The American pieces were of the denomination of \$5, \$10 and \$20. The total value of

the gold pieces is believed to be about \$300. The owner of the brickyard bought one of the old coins for \$20 and the workmen kept the remainder. Nobody knows how the coins came to be secreted in the old stump. None of the residents of Mountain View, where the brickyards are located, can recall any robbery in that section in which French and American gold coins were taken.

GOOD LOCATION FOR PRESS BRICK AND TILE PLANT.

Some interesting facts about the thrifty town of Hope, Ark., are related in A. P. Dyke's ad on page 854 of this issue. Readers of THE CLAY-WORKER looking for a desirable location for a brick and tile plant will do well to investigate the advantages offered at Hope.

FROM WISCONSIN TO WEST VIRGINIA.

After building the kilns and dryer for the Hollandale Brick and Tile Company, Hollandale, Wis., and erecting their fourteenth improved flue system kiln for the Hammond Fire Brick Company, Fairmont, W. Va., Geo. E. Snowden & Co. is now completing improved flue system kilns for the Potomac Brick Company, Washington, D. C. Mr. Snowden reports a business of twenty-four kilns for last season.

MAILING A LETTER DOES NOT RAISE THE PRESUMPTION THAT IT WAS DELIVERED.

For the benefit of our friends who feel that all they need to do to cancel a contract, countermand shipping instructions, etc., is to drop a letter in the post office, we quote the following holding of the Court of Appeals of Kentucky in the case of the Continental Insurance Company of New York vs. Hargrove: "The mailing of a letter duly stamped and properly addressed does not raise a presumption of either law or fact that it was received by the addressee, but it is a relevant circumstance from which, if not rebutted, the inference is fairly deducible that the letter was received in due course."

According to this holding, it would seem that business men, when dealing with those whom they fear will take advantage of them, will do well to send their letter either through the special delivery or registered mail branch of the post office, so a receipt can be secured to show delivery.

ANOTHER SCOOP.

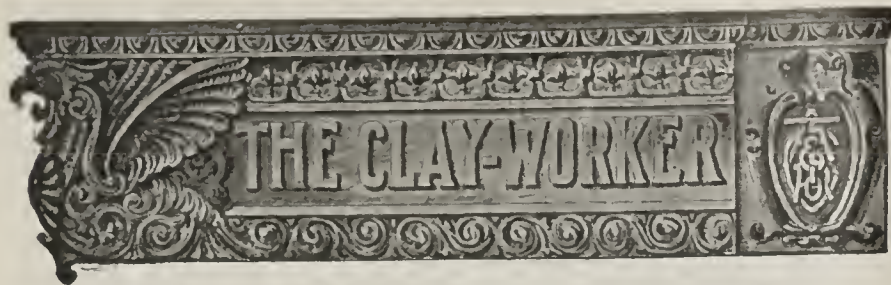
IN NEWSPAPER parlance a scoop means "beating the other fellow to it." This is what the C. W. Raymond Company, of Dayton, Ohio, did when they secured the P. L. Youngren patents, and, better, his knowledge of the continuous producer gas kiln business; but what to call the latest stunt performed by this live company seems to be beyond the limit of language, for they have just contracted with the Hydraulic Press Brick Company, of St. Louis, Mo., to furnish six Youngren producer gas-fired continuous kilns, the first of which will be located in St. Louis.

This order of the Hydraulic Company entails one of the largest investments ever contemplated at one time in the clayworking industry, for it not only means the erection of the six kilns, with a total capacity of a half million a day, but means the abandonment of the ordinary kilns, which have already cost several times more than the continuous kilns they are now building.

The Hydraulic Company figures the saving in fuel consumption will take but a short time to pay them large dividends on their investment.

This is the third big scoop the Raymonds have made in the last eight months, the first being a big Government contract, to which was added the equipment for the United States Ceramic Laboratory at Pittsburg, the second one the securing of the well-known Youngren patents after fierce competition, and this, the third, being the largest continuous kiln order ever placed in the clayworking industry.

We will have to take our hats off to Dayton, Ohio, for with the Raymonds and the Wright Bros., making brick machinery and air ships, we certainly concede that there is a bunch of "live wires" there.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	- - - - -	\$ 2.00
One copy, one year (if not paid in advance)	- - - - -	2.50
Six copies, " " " " " "	- - - - -	10.00
Ten copies, " " " " " "	- - - - -	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LI.

JUNE, 1909.

No. 6.

CURRENT COMMENT.

Hard times teach resourcefulness, but if we would exercise resourcefulness we might avoid hard times.

* * *

The veneered brick dwelling is gaining in popularity. This type of house is cheap in construction and much better than the all-frame structure.

* * *

When times get better and lumber prices soar sky high again, brick will become the whole thing practically in wall construction, even in the building of modest homes.

* * *

The Alaska-Yukon-Pacific Exposition and the low railroad rates which now prevail affords a good excuse for a trip to Pacific Coast points, and is a trip well worth while.

* * *

A customer does not purchase your product simply because he likes your looks or your manners, but still personality does cut more of a figure than some of us give it credit for in the conduct of business.

* * *

If the roofing tile manufacturers would advertise and push the sales of their product as the composition roofing manufacturers do, there would be a much more extended use of this best of all roofing materials.

* * *

The common building brick manufacturers throughout the country should bestir themselves and keep pushing their product. Moral: Support the Clay Products Association of America. They need your financial aid and you need their publicity work.

* * *

One of the blessings of slower industrial conditions has been in that we have had less labor troubles, but it is a pity we can't have the other combination of better indus-

trial conditions and fewer labor troubles. It would not only make everybody happier, but it would probably enable us to better safeguard against the next return of hard times.

* * *

Luck may play a little hand in the matter once in a while, but it is generally a different kind of grease that is used to lubricate the way to obtaining municipal contracts in a city where graft is the order of the day.

* * *

There is need of advertising in all industries, and especially is this true in the building trade, where concrete and brick are coming more and more into competition. We know that a good clay brick is the only reliable building material, but then there are those who need their eyes opened as to the good qualities of brick and bad qualities of concrete.

* * *

The unprejudiced observer who will take the time to study the different pavements in our large cities can not help but be convinced that asphalt, while a smooth pavement, is too short lived to be worth while; that granite, while durable, is too rough and noisy; that wood block is unsanitary and expensive. A good brick street is the only pavement that combines smoothness and durability to an extent that makes it the best and cheapest pavement in the long run.

* * *

Are the manufacturers of clay products going to take an active interest in the county and state fairs this fall? This is a question you should think over carefully, especially if you live in a locality where concrete building material is cutting into your sales. Manufacturers having a better product than concrete are missing a good opportunity for advertising their ware. Keep the fair dates in mind, get in touch with the committees and see if you can't figure something out of it that will be well worth while. Help push clay products as a building material in the country district. The fairs also offer a good opportunity to talk tile drainage.

HURRAH FOR THE GLORIOUS FOURTH.

As our national birthday draws near, there is much discussion in the metropolitan press of ways and means for subduing the spirit of noise which has always characterized the celebration of the Fourth. It is all well enough to argue that it is wrong for our youths to risk life and limb by the useless explosion of firearms and giant crackers, but the fact is that Young America has a natural inborn taste for such things, and there is only one way to prevent their use and that is to prevent their manufacture and sale. To the nerve-racked elders there is one ray of hope—the introduction of noiseless guns, but until they come into general use the day we celebrate will doubtless continue to be the noisiest day on the calendar.

THE PROBLEM OF BUILDING CODES.

To draw a fair building code in a first-class city that will insure an ample measure of protection against fire, and at the same time furnish protection to all interests, is no small job or easy undertaking in itself, and when to all the natural problems are added complications, because of influence being brought to bear by interested parties in this or that line of building material, the problem becomes decidedly trying at times. In New York City they have been having quite a lively tussle over this building code problem, and to judge from the newspaper reports, it looks like old Cinders Concrete is trying to butt in and help make the trouble. We thought the matter of cinder concrete had been given its quietus some time ago, and would not have the temerity to try pushing into a first-class building code for floor work,

even. Out on the sidewalk is close enough for it to get to a first-class fireproof building, and while we feel sorry for the people who are earnestly wrestling with this trouble of a satisfactory code, we naturally do not think there is any favor due old Cinders Concrete. It is bad enough to take any kind of concrete into a fireproof proposition, and when it gets down to the cinders part it is almost the limit. Where real fireproofing is desired there is only one known building material that should be specified, and that is burned clay.

WANTS A CONSULAR TRAINING SCHOOL.

Practically every man who has come in contact with the results realizes the value of special trade or training schools in any line of industry, and far-sighted and public-spirited men have been assisting in the promotion of schools of this kind right along. Now, however, comes a new one. Mason B. Starring, president of the Industrial Club of Chicago, thinks we need a Government school to train young men specifically for consular service, a school supported by the Government in which young men without funds can be trained; of course, the point in view being to eventually improve and add to the efficiency of service, so as to have it in keeping with the needs of our rapidly growing industries, that it might assist in the wider development of the foreign field. The idea is good theoretically, but just how things of this kind work out in practice it is a little hard to say. There is room for good work if it can be kept out of the way of political influence, but how can we have a Government school without some politics entering it?

SIGNS OF PROSPERITY.

There is evidence in contemplation of our export figures of a return to prosperity. Figures, a multitude of them in detail, statistics of export and import in this class or that class, are rather dry reading for warm summer days. So, it might be tiresome to go into them in detail, but it is worth while to call attention to the fact that we are regaining a lot of trade that has been falling off for a couple of years, and everywhere our exports, especially of manufactured goods, have shown a steady increase since the first of the year, which should mean relieving the surplus at home and furnishing employment to our working people again, and getting in return many other things, including a balance in cash. These are things that contribute materially to the return of prosperity, and unless the signs read wrong the next two years should be excellent ones for this country. Meantime, the agricultural districts are already in splendid shape for building, so that we might all rejoice and be happy, if some of the country would but put forth a little more energy.

THE PERMANENT IMPROVEMENT OF PUBLIC HIGHWAYS.

The demand for a condition of country highways that can be maintained without the constant burden of repairs, has grown to be one of the most important economical questions in this country. Agitation and discussion upon this question is interesting to more people today than ever before. Early this month an investigation and inspection of the Cuyahoga County brick-paved highways was carefully made by two delegations, one coming from the black soil district of Illinois. In this party was R. L. Carlock, mayor, Elmer Folsom, engineer, and J. T. Anderson, street commissioner of Bloomington, Ill. With them was E. H. Miner and W. M. Carter, large property owners. From the opposite portion of the country came Samuel Perry Hooker, chairman, Thomas Warren Allen, engineer, and Robert Earl, of the New York Highway Commission. We did not have the pleasure of meeting any of these gentlemen, but we understand that what they saw in the city of Cleveland and the country district surrounding that city was a complete revelation to them, particularly upon two points—the extraordinary skill from the engineering and constructing viewpoint, which has made

the vitrified brick streets and highways so eminently satisfactory and durable, and the extraordinary adaptability of vitrified brick for country highway construction. Nor is this to be wondered at, for in truth and in fact no one who has not made this investigation and inspection can have any appreciation of the great possibilities of brick for highway uses, as is exemplified and demonstrated by the superb streets and roads in and about Ohio's metropolis. One of the visitors, a city official from an adjoining state, said that he was astounded at the perfection of the brick pavements; their smoothness, particularly, was a surprise to him, for he had not previously seen any brick street so perfect in this respect. "I figure," he said, "that I am well paid for my trip by the knowledge gained of the importance of careful construction. I am going home and advocate better construction in our home pavements, for I know from what I have seen here in Cuyahoga County that with proper care in building, brick streets and roadways are by far the best from sanitary and economical viewpoints." Evidently the tour of inspection will bear good fruit. The National Board will do well to invite highway commissioners of every state to visit Cleveland and make a thorough inspection of her brick pavements—they afford an object lesson of vast importance to every municipal officer in the land.

THE DISJOINTED MAIN SPRING.

It is fairly easy to demonstrate in the reverse order by the events of the past year that enthusiasm is the main spring of business. The industrial world has been suffering about as much from apathy as anything else, or rather there is a lack of that enthusiasm which bestirs things and accelerates business. The trouble seems to be that the main spring got disjointed when the financial flurry struck it, and since then we have not managed to hook it up and get it in good running order again. Some who had attained what might be termed "easy street" got turned aside into by-paths and into amusing themselves with automobiling or airshipping, or in whatever way their fancy leads, awaiting the call of active times to get back in strenuous business harness again. Others are waiting on these, and still others waiting on them, until in the end it is a sort of waiting game with a disjointed main spring and loss of that enthusiasm which inspires business energy, and there is no one seemingly competent to hook things up suddenly again and start the industrial works off as they were going once before. We will all gradually work back into the old spirit, but meantime there is evidence that lack of enthusiasm is responsible for about as much of the slow movement of business enterprise as anything else.

BRICKS AND RAISINS.

At first glance the reader may think that brick and raisins are a queer combination, but after a little study at close range, we are prepared to say that while it is unusual, it is a very pleasing combination. Through the courtesy of the Fresno Brick and Tile Company, Fresno, Cal., we were recently permitted to view the brick business from the raisin point of view. To be more specific, we received with the compliments of the above firm, a box containing a dozen or more pound boxes of the best raisins it has ever been our good luck to associate with. The entire CLAY-WORKER force partook of them freely and can testify to their palatableness, and now agree with Mr. E. D. Porter, superintendent of the Fresno Brick and Tile Company, in the statement that raisins ought to become a staple diet in every American household. Their abundant use conduces to good health and long life, and we advise our readers to go forthwith to the nearest grocer and purchase a goodly supply of raisins—get the Fresno brand, if possible—and learn from experience that, taken on the side, they are a valuable aid to those engaged in brickmaking, inasmuch as they will give added strength and energy for the exigencies of the work. In brief, get the raisin habit. Our girls should do this, for raisins, it is claimed, conduce to great beauty when partaken of freely and regularly. At least so say our generous friends, the Fresno Brick and Tile Company.

AMERICAN MACHINERY AND FRANCIS BRICK SETTER IN CORNING, OHIO, PLANT.

Corning, Ohio, is about to celebrate the opening of a fine paving brick plant, installed with a complete line of the American Clay Machinery Company, Bucyrus, Ohio, paving brick machinery, including the famous Francis brick setter, which has proven such a success at Coffeyville, Kans. The Corning plant is to be an up-to-date paving brick plant, and will soon begin operation. The daily capacity will be 50,000 paving block. The board of directors of the company is composed of John Holden, James Jenkins, John Amsberg, Henry Kelso, Dr. E. L. Murphy, Dr. James Miller, Sidney Preest and Miles E. Joyce. The officers are John Holden, president; Henry Kelso, vice-president, and T. M. Potter, secretary-treasurer.

AN EXCELLENT CATALOGUE.

The Columbus Brick and Terra Cotta Company, of Columbus, Ohio, has but recently mailed to the trade an unusually attractive catalogue containing a large number of full-page illustrations showing buildings in many distant cities in the country built of their high-grade plain, molded and ornamental pressed and impervious wire-cut brick. It shows not only a few of the many buildings constructed of the Union Furnace product, but also nineteen pages of drawings illustrating their many different shaped fancy brick for belt courses, cornices, architraves, dentals, moldings, jambs, internal and external angle returns, projections, vertical and horizontal and Roman checker work, round and square columns, arches, etc. This company, whose immense plant is located at Union Furnace, Ohio, is doing an enormous business, shipping brick to nearly every large city in the country.

DESIRABLE CLAY DEPOSITS IN MISSOURI.

The Commercial Club of Vandalia, Mo., is much interested in interesting brick manufacturers in the clay deposits at that place, and have had an analysis made of the clay at the Missouri School of Mines, at Rolla, Mo., with the following result:

Hygroscopic water	1.1%
Loss on ignition.....	12.4%
Silica	46.9%
Iron (berrie) oxide.....	0.3%
Alumina	38.9%
Lime	0.8%
Magnesia trace alkalies (calculated as sod. ox.)	0.6%
Total	101.0%
Water of combination.....	6.78%

F. P. Dye, the secretary of the club, will be pleased to give detailed information in regard to a brick factory to anyone who is interested.

THE CHEMISTRY AND PHYSICS OF BUILDING MATERIALS.

Under the above title, the D. Van Nostrand Company, New York City, have recently published a comprehensive 345-page book by Alan E. Munby, associate of the Royal Institute of British Architects. The subject matter is divided into two parts, the first dealing with elementary science, while the second deals with building materials. There are ten chapters to the first part, comprising interesting treatises on Natural Laws and Scientific Investigation; Measurement and Properties of Matter; Air and Combustion; Heat, Its Nature and Measurement and Its Effects on Materials; Chemical Signs and Calculations; Water and Its Impurities; Sulphur and the Nature of Acids and Bases; Coal and Its Products; and Outlines of Geology. The second part deals with the Constituents of Stones; Clays and Cementing Materials, their Classification, Examination and Testing; the Kiln Reactions and Properties of Burnt Clays, and chapters on plaster and limes, cements, theories upon the setting of plasters and hydraulic materials, artificial stone, the metals, their general properties and occurrence, iron and steel, other metals and alloys, and tests upon and strength of the metals, timber and paints. The net price of this volume is \$2.00. Address D. Van Nostrand Company, 23 Murray and 27 Warren streets, New York.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 864.]

FOR SALE, WANTED, ETC.

WANTED—Eight brickloaders, Bohemians or Polanders; \$1.75 per day; work year around. Will pay 30 cents per thousand for loading wagons, or 35 cents per thousand for loading cars. Only practical brickyard men need answer.
BURKE BRICK CO.,
Ft. Smith, Ark.

WANTED—Situation as superintendent of a clayworking plant. Applicant has practical experience in the manufacture of face and paving brick, stiff mud process; hollow goods, sewer pipe, drain tile and electrical conduits. Also have had technical training in other branches of the clay industry. First-class references. Address
J. L. S. K.,
Care Clay-Worker.

WANTED.
Situation as superintendent. Have a practical knowledge of the manufacture of clayware in all branches, enamel ware, salt ware, glazes, stoneware, flooring and roofing tile. Also all kinds of kilns and the setting and burning of same. Also familiar with the manufacture of paving brick. Address
ENGLAND,
5 tf d
Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 852-855.

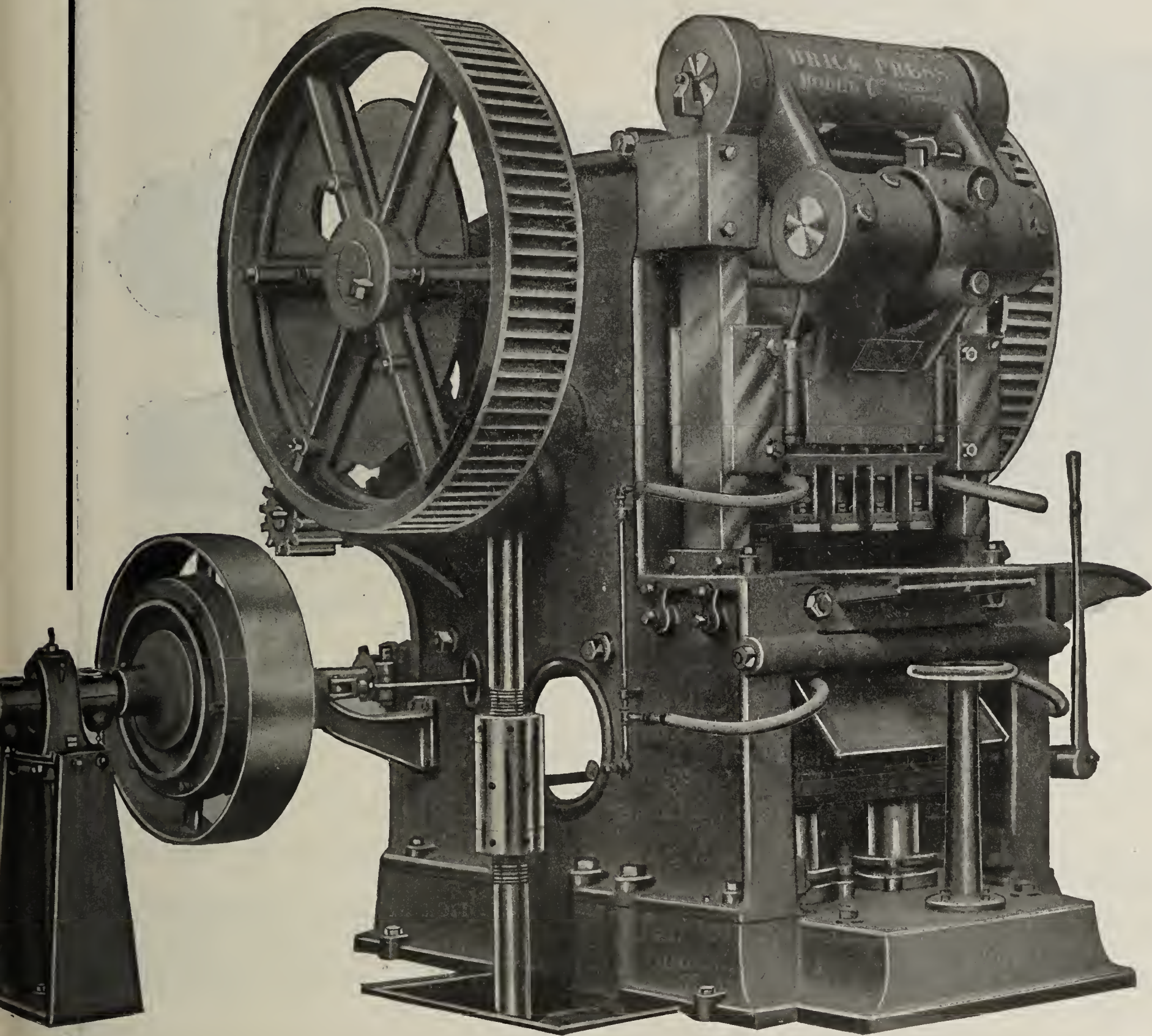
The American Clay Machinery Company

Bucyrus, Ohio, U. S. A.



Simple, Strong, Durable

The Model "C" Press is built in a most substantial manner. In strength and capacity it is without an equal. It is at once simple, strong and durable. Designed for great strength and built as designed. It is worthy of the high praise it has won. Complete description for the asking. We also build a number of other presses, ranging from 6 mold to 1 mol. Correspondence solicited.



Four Mold Model "C" Brick Press.

The American Clay Machinery Company

Bucyrus, Ohio, U. S. A.



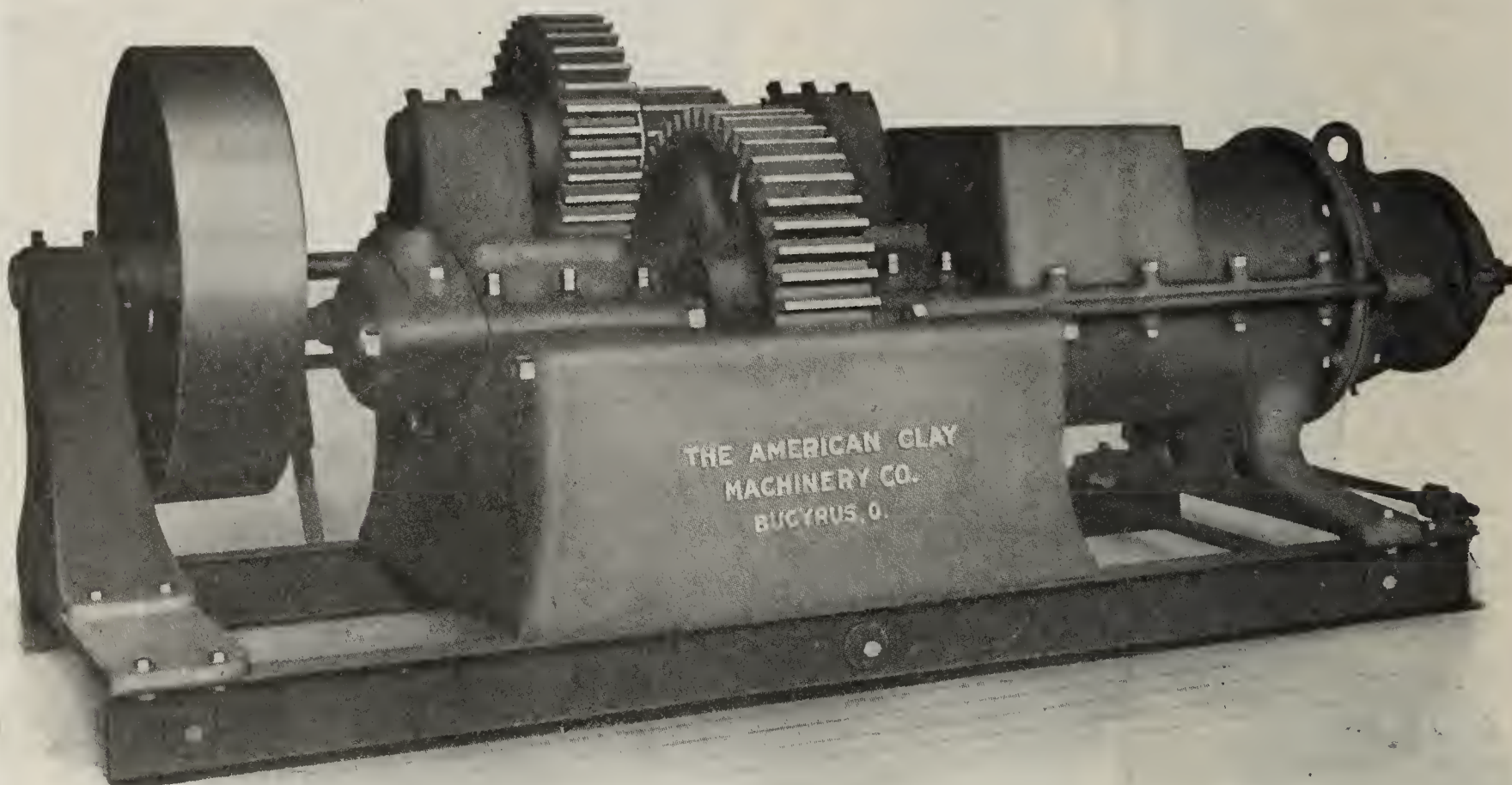
No. 65 Auger Brick Machine



Here is a machine that is "Making Good."

Here are a few of the users of this machine. The following installations of the No. 65 Auger Machines have been made in the past few months:

Denny-Renton Clay and Coal Co., Seattle, Wash.
 Marion Brick Company, Montezuma, Ind.
 Athens Brick Company, Athens, Ohio.
 Lumberman's Portland Cement Co., Carlyle, Kan.
 Puritan Brick Company, Hamden, Ohio.



Coffeyville Vitrified Brick Co., Collinsville, Okla.
 Port Credit Brick Co., Port Credit, Canada.
 Coffeyville Shale Brick Co., Coffeyville, Kan.
 Union Brick Co., Iola, Kan.
 Trimble Brick Manufacturing Co., Trimble, Ohio.

In addition to the above we can give you the names of many others who are using the No. 65 Auger Machine.

This machine is much the largest and best Auger Brick Machine on the market. Every line in its design, every atom in its construction shows strength and capacity.

In this faultlessly designed machine is reflected the general excellence of construction characteristic of the "Built Right, Run Right" line of Clayworking Machinery.

A full description of this or any other of our long line will be sent on request.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

SUPERIOR DRYERS—AND WHY



The success of a Waste Heat Dryer is largely in the Blower. We know that our Blower Dryers are best because our specialists on Dryers design the fan to meet the needs of each case.

Because every fan for every dryer is built in our factory. We know its quality and can guarantee it.

Because we do not have to depend upon the workmanship of some other factory but build ALL OUR OWN FANS.

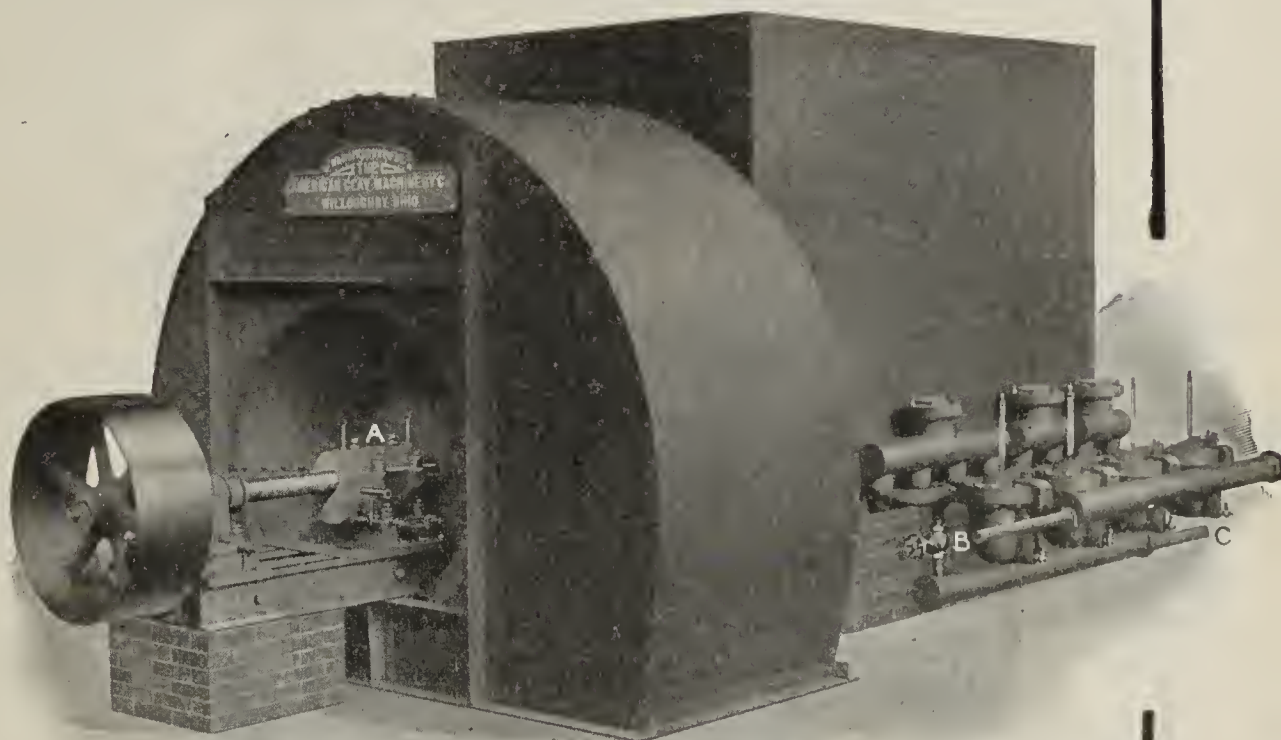
Because these fans are of extra heavy and substantial construction designed especially for handling the hot gases from the cooling brick kiln and are much heavier and more substantial than an ordinary fan intended for heating and ventilating factory or office buildings which are sometimes sold for installing in waste heat dryers and invariably give poor results.

Because the American quality is in our equipment and will maintain it a success.

Because we have the best Waste Heat Dryer men in the country. With the best engineers, the best material and the long experience, we know that we can give you the best service and a better value for the money invested than can others whose equipment is assembled from various factories.

Then again we are Dryer Specialists in every sense of the word. We are not content with making one kind of dryer, but make every kind. We are, therefore, in a position to consider your interests without any bias or prejudice toward any one kind of dryer. This insures your getting a dryer which will most successfully handle your clay, whether the dryer be a Waste Heat, Steam, Hot Air or Furnace Dryer. We build a full equipment for every dryer in our own factory including Fans, Heaters, Car, Transfers, Turn Tables, etc. We also build and equip dryers to be operated by the carless system.

If you are in the market for a dryer let us look over your plant, consider the clay and conditions and design you a system that will be a success. Then if you place the order with us the equipment will be made in our own factory and will be of our standard quality. As it is with dryers so it is with every class of Clayworking Machinery. We build a full line for making Clay Products by every known process.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

The American Clay Machinery Company

Bucyrus, Ohio, U. S. A.



Stock Brick Machine

This Upright Stock Brick Machine is the very best of its class, and should not be confounded with machines of smaller size and cheaper design. The pressing chamber is large and the use of the combined horizontal and vertical plungers

makes it possible to produce six large brick, all uniformly pressed, of correct shape, with perfect edges and corners, and with well-tempered stiff clay they will be stock brick in quality and appearance. Wherever a No. 1 quality of brick is to be made from clay, shale or fire clay, this machine will be found to be without a rival.

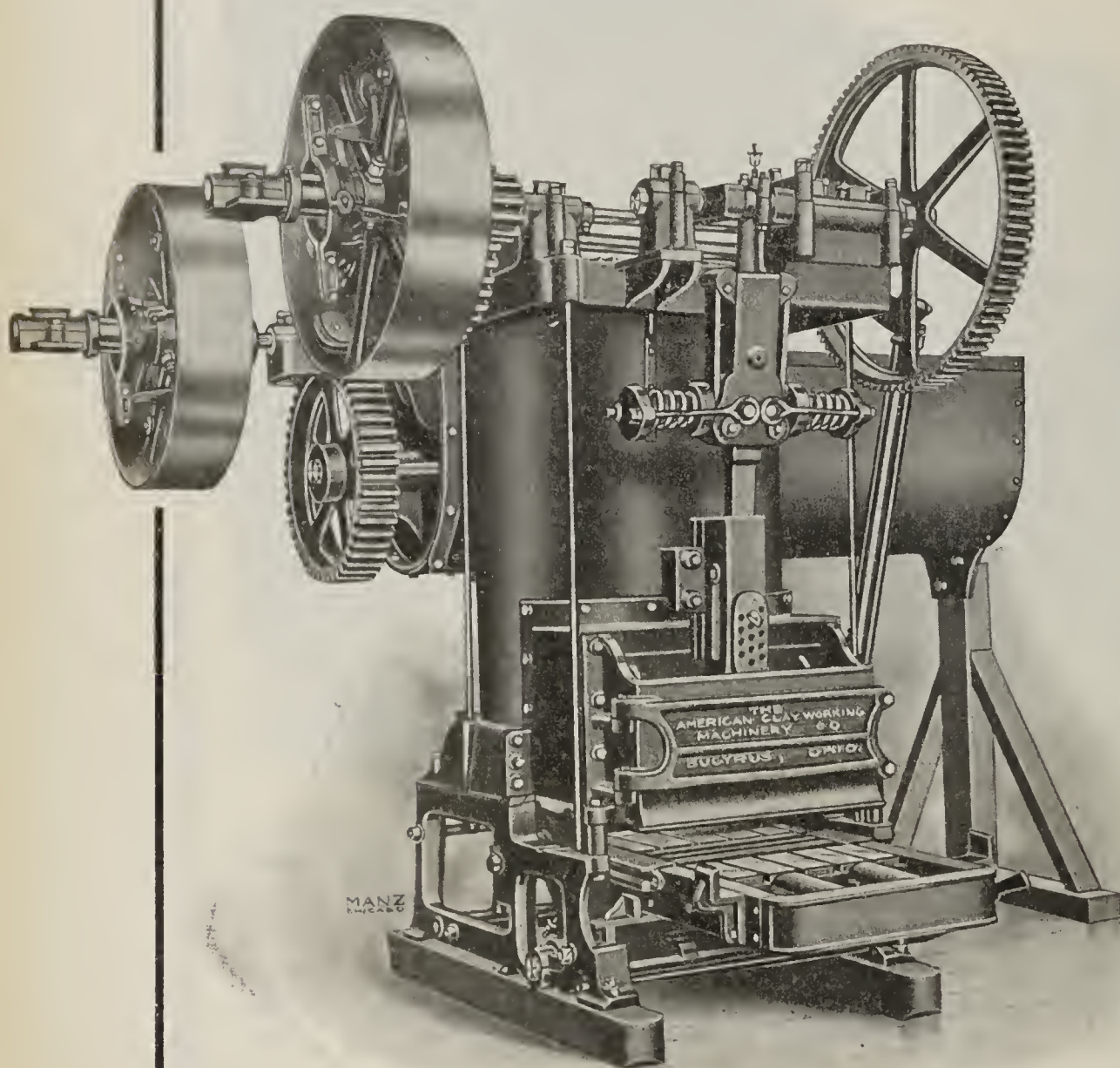
We build other types of Soft Mud Brick machines.

Our line of Plunger machines is complete, with a size range to meet your requirements.

Our Eagle Horse Power and Eagle Steam Power machines are popular favorites in their class.

We build every machine and appliance needed to manufacture Clay

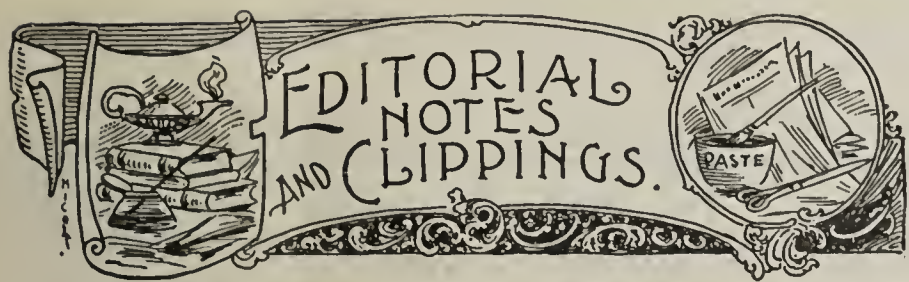
Products by any known process. Every machine built in our own factories, so that we are able to guarantee the quality because we know that quality to be all that material and workmanship can attain. Sand-Lime Brick Machinery a specialty.



The American Clay Machinery Company

Bucyrus, Ohio, U. S. A.





There is agitation for a brickyard at Marion, Iowa.

Ed Mead will operate a brick and tile factory at Enfield, Ill.

Baker & Johnson are establishing a brick plant at Dresbach, Minn.

A small brickyard has been started at Emmett, Idaho, by Frank Graham.

C. W. Clausen and associates will start a tile factory at Lamberton, Minn.

Shoof & Johnson, of Gadsden, Ala., have started a brick-making plant at East Boaz, Ala.

A sewer pipe factory will be established at Ft. Dodge, Iowa, by M. J. Haire and his associates.

M. E. Morey is at the head of a company that will establish a brickmaking plant at Smithville, Texas.

The Sherman Brady Brick Company has been incorporated at Austin, Texas, by S. S. Brady, W. S. Hunt and W. E. Kendall, with \$40,000 capital stock.

The Chaska Brick and Tile Company, with its principal offices in St. Paul, has been incorporated with a capital stock of \$50,000. The company is composed of J. W. L. Corning and F. Greiner.

The Buckeye Brick and Block Company, Zanesville, Ohio, has been incorporated by F. G. Curtis, W. A. Shoemaker, Isaac Humphrey, F. Earle Curtis and J. A. Sauer with \$25,000 capital stock.

The Ferris Paving Brick Company will double the capacity of their plant at Mechanicsville, N. Y., by the installation of new machines. Their present capacity is about 50,000 paving brick per day.

Anthony Ittner, president of the Ittner Brick Company, of St. Louis, is foreman of the June grand jury, the chief duty of which, according to instructions received from the judge of the criminal court, will be to bring tax dodgers to justice.

Andrew Pick, Jr., sold his brickyard and brick manufacturing plant at West Bend, Wis., recently to M. H. Evans, of St. Paul. Mr. Evans will at once have men take charge of the plant and continue without any interruption the manufacture of brick.

The Corning Brick, Terra Cotta and Tile Company is building three new kilns at its plant at Corning, N. Y., which will increase the output 25 per cent. This plant has been running full handed for some time and is hardly able to keep up with its orders.

J. H. Barry and A. O. Simmons, of Atchison, Kans., have purchased a paving brick plant at Leavenworth, Kans., which has been idle for some time, and will at once put it in operation, turning out a million pavers a month. Both men have had many years' practical experience in the manufacture of paving brick.

W. H. Raber, of the Parsons Brick Company, Parsons, Kans., has purchased the Mound Valley Brick Works, at Mound Valley, Kans. The plant has a capacity of 50,000 brick, and was closed down some time since because the company was unable to get gas. Mr. Raber will put the plant in shape for operation again.

The El Dorado (Ark.) Brick Company reduced its capital stock from \$30,000 to \$25,000, and J. R. Randolph, J. J. Hudson and Aylmer Flenniken took up all the stock of the company, becoming sole owners. They elected J. R. Randolph president, J. J. Hudson secretary and treasurer. The new management will conduct the plant along the same lines as heretofore.

One of the most attractive exhibits at the A-Y-P Exposition will be an exhibit of the clays and clay products of Washington by the State College at Pullman. The samples were collected by the State College Department of Geology. All the principal clays of both eastern and western Wash-

ington and the products made therefrom will be included in the exhibit.

H. J. Beumer will establish a brick manufacturing plant at Bowlus, Minn.

Sherman & Ernst have begun operations on their brickyard at Monona, Iowa.

A brick plant at Jamestown, N. Dak., is proposed. J. Shelde, of Litchfield, is interested.

A fire of unknown origin completely destroyed the engine room at the Wickham Brick Company's plant, at Council Bluff, Iowa, recently.

John Shey is putting in an equipment at his brick factory at Ashland, Ill., for the manufacture of drain tile, for which there is a good demand in that part of the state.

The Camden Clay Company, manufacturers of tiling, located at Spillman, W. Va., has made an assignment, with M. G. Tyler as trustee. The assets and liabilities are not given. The plant employs 275 men.

The Sardinia Brick and Tile Company has been organized at Sardinia, S. C., with the following officers: President, J. E. Cousar; secretary and treasurer, L. B. McFaddin; directors, J. E. Cousar, L. B. McFaddin, T. H. McFaddin, W. N. Rush and William Millsap.

W. E. Jackson, of Montpelier, Vt., has purchased a half interest in the brickyard at Waterbury, that state, and has formed a partnership with B. F. Atherton, who has owned and operated the yard for the past five years. They are turning out a fine grade of brick.

The Alabama Fire Brick Company, of Birmingham, Ala., will erect a fire brick plant at Riverside, that state, and work on the plant will be pushed to completion as rapidly as possible. The plant will be located on the Southern Railroad and cost in the neighborhood of \$20,000.

The J. Walter Miller Brick Manufacturing Company, of Trenton, N. J., recently booked an order for 1,000,000 brick for the Y. M. C. A. building at Camden. They are also filling a number of orders in million lots for firms in Philadelphia, and, in fact, are pretty well pleased with the outlook for the season.

Daniel F. Gohn, a brick manufacturer of Columbia, Pa., died at his home in that city June 4. He established his present plant in 1877 and had operated it continuously ever since, although at the time of his death he was in his seventieth year. The brick business will be continued by his son, Charles Gohn.

A deposit of clay which has been tested and found very fine for the manufacture of buff-colored front brick has been discovered at Tucson, Ariz., and a company, of which Q. Monier is the head, has been organized to develop same. A plant of 50,000 daily capacity has been erected and is now in successful operation, and the company now contemplates the establishment of a fire brick plant.

The American Sewer Pipe Company, now operating a large plant at Brazil, Ind., is moving a second plant there from Ohio. They will erect a plant adjoining their present plant, which will contain 48,000 square feet of floor space, and will at once begin the erection of sixteen kilns, which, in addition to the kilns now in operation at the old plant, will give them thirty-one kilns. The new plant will cost in the neighborhood of \$100,000.

The caving in of a large embankment at the Buckeyestown Fire Brick Works, at Frederick, Md., caused the death of one employe and serious injury to another. The men were engaged in loading cars with clay, and instead of loading them from the ground they would undermine the embankment and run the cars underneath and tumble the earth upon the cars. The men had been warned against loading the cars in that manner about fifteen minutes before the accident.

The Northwestern Brick and Tile Company, with a capital of \$15,000, has been organized at Deary, Idaho, and will at once erect a fire and repress brick plant, which, it is expected, will be in operation by September 1. The organizers are: J. A. Harsh, H. D. Warren, H. P. Henry, A. J. King and F. C. McGowan. The company has purchased a twenty-acre tract of clay that has been tested and is of a superior quality for fire brick and pottery purposes. The company contemplates the manufacture of roof tile and coping, a de-

(Continued on page 844.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

mand for which is being increasingly felt in this section. A. J. King, of Palouse, will be superintendent of the plant.

W. H. Patterson is at the head of the Piketon Brick Company, which has recently been incorporated at Piketon, Ohio, with \$125,000 capital stock.

The Kramb Brick and Tile Company, of Oak Harbor, Ohio, has been incorporated by A. E. Bolin and C. H. A. J., Wm. P. and H. C. Kramb.

William T. Osborn has been awarded \$2,500 damages in his suit against the Adams Brick Company, of Veedersburg, Ind., for injuries sustained while working in the shale pit over a year ago.

The Seguin Vitrified Paving and Face Brick Company, of Seguin, Texas, has been incorporated with a capital stock of \$60,000. Incorporators: O. G. Pearson, W. D. Green, H. E. Tips, W. L. Wuppermann and H. M. Wurzbach.

The A. M. Donnell Company has been organized at Lewiston, Me., for the purpose of manufacturing and dealing in brick, tile, etc., with \$50,000 capital stock. A. M. Donnell is president and W. H. Judkins, of Lewiston, is treasurer.

Suit has been brought against the Ohio Clay Products Company, of Salineville, Ohio, for \$2,000 damages which Patrick Mulherne claims he has sustained from smoke, cinders, ashes, etc., from the brickyard which is located near his home.

The Williams Patent Crusher and Pulverizer Company, St. Louis, Mo., advise us that they have opened an office at 423 Monadnock building, San Francisco, for the benefit of their Pacific Coast trade, which has been growing in a very satisfactory manner.

John D. Johnson has sold his brick business at Newfield, Conn., to James Lincoln, of Berlin. The Johnson brickyard is one of the oldest and best-known plants in the state, and Mr. Johnson has been very successful. He is to retire from business. Mr. Lincoln has already taken charge of the plant.

The extensive brick works of Roger Moore's Sons & Co., near Wilmington, N. C., were destroyed by fire which originated from the dry room of the plant the evening of June 8, entailing a loss of between \$20,000 and \$30,000 with small insurance. Fortunately the firm had a million brick on the yards and will not be handicapped until the works are rebuilt.

A verdict for \$1,200 for the death of her husband, Thomas Miller, was awarded Mrs. Katherine Miller against the Sharon Fire Brick Company, of Sharon, Pa., by a jury in the United States Circuit Court before Judge James S. Young, in Pittsburg. The husband was employed in a quarry and was killed by a falling stone when a wire cable alleged to have been defective broke. She sued for \$10,000 damages.

Ground has been broken for two large brickmaking plants at South Coffeyville, Okla. Frank Brown, formerly of Independence, Kans., is interested in one of the plants, which will have a capacity of over 50,000 a day, and Etchen Bros. will install the other one, which will have a capacity of nearly 100,000 a day. Both plants will be equipped throughout with up-to-date machinery and appliances. The brick will be burned with natural gas.

Frank L. Capers, Jr., son of the president and general manager of the Standard Fire Brick Works, Pueblo, Colo., accidentally caught his glove in a press at the plant and his right hand was crushed to a pulp. Capers was employed in the plant as a foreman for the purpose of learning the business. He is twenty-six years old, and was graduated recently from Harvard. The young man was cleaning a piece of machinery when the accident occurred. Before he could jerk his hand free the press had closed upon it, and the hand was afterward amputated at the hospital.

O. H. Nordstrom, a pioneer of Punxsutawney, Pa., and one of the best-known brickmakers in that part of the state, died at his home recently after a short illness. Mr. Nordstrom was eighty-seven years old and had lived in Punxsutawney nearly all his life. He embarked in the brick business in 1864 and had been actively interested in the business all these years, having within the last year formed a partnership for the purpose of reorganizing a brick manufacturing company and remodeling the Rodgers plant. The work on this plant was still in progress, and Mr. Nordstrom was first taken ill while on a visit to the plant. In addition to his manufacturing interest, he was a successful inventor. The brick business will be continued under the name of the

South Side Brick Works, with Mrs. M. J. Nordstrom owner, and S. C. McQuown manager.

A builders' exchange is being organized at Aberdeen, S. Dak. A. A. Laisy will be secretary until the exchange is permanently organized.

The New York Roofing Tile Company, whose plant is located at Saugerties, N. Y., will build a new factory this summer to be operated by electricity.

The plant of the Ladysmith Brick and Tile Company, at Ladysmith, Wis., is being enlarged, and they expect to turn out more than 2,000,000 brick the coming season.

Articles of incorporation have been filed with the county auditor by the Spokane Pressed Brick Company, of Spokane, Wash. The capital stock is \$150,000, and the incorporators are William Hoare, T. L. Trone and V. W. Brasch.

The Bloomsburg Brick and Construction Company is the name of a new concern that will manufacture brick at Bloomsburg, Pa. Wm. Ferguson, who operated a brickmaking plant last season at Mifflinburg, will have charge of the business.

The Wellston Brick and Coal Company has been incorporated at Wellston, Ohio, to manufacture brick and mine coal. The incorporators are: J. H. Sellers, John T., O. H. and J. W. Ogier and A. K. Williams. The company is capitalized at \$75,000.

Ernest Schmatolla, consulting engineer and chemist, and inventor and builder of the Schmatolla gas-fire kiln, formerly of London and Berlin, has established a New York office at 150 Nassau street, New York City, N. Y., of which he will have personal charge.

A fire which started in the boiler room destroyed the plant of the Forest City Brick Company, at Cleveland, Ohio, recently, while the firemen stood helpless on account of inability to make hose connections, the plant being outside the city limits. The loss is estimated at \$10,000.

The plant of the Ohio Valley Clay Company's plant at Steubenville, Ohio, will be greatly enlarged to meet the growing demand for the company's chief product, which is clay pots for the clay trade. They will also install an electric power plant, by which the entire plant will be operated by electricity.

John Myers, of Ridgeway, Pa., was instantly killed recently at the plant of the Elkins Brick Company, Elkins, W. Va., when an iron bar suspended over the feeding table descended and broke his neck. Myers was dragged forward with the table when his hand became caught in the wires on the table, and as the table revolved the bar struck his neck.

Denver, Colo., has outgrown brickyards within its limits, say the mayor and the commission now revising the building code. No more new brick manufactories will be allowed inside the city limits. When the new building ordinance is completed the restricted districts in Denver will be so arranged that even the old brickyards can not be extended to new ground. The idea is to weed out all such plants within Denver.

The brick manufacturing firm of Carr & McClaskey, of South Chester, Pa., has been reorganized and will hereafter do business under the firm name of Cope, Carr & McClaskey. A number of improvements will be made in the plant, including the installation of two brick machines and Martin dryer by the Henry Martin Brick Machine Company, of Lancaster, Pa. The plant, when all improvements have been made, will have a capacity of 40,000 brick per day. The new member of the firm is Mrs. Wm. Cope, who is furnishing the capital for remodeling of the plant, while her two partners will furnish the practical experience.

A. C. Ochs, the manager of the A. C. Ochs Brick and Tile Company, at Springfield, Minn., is a firm believer in labor-saving machinery, and during the slack period in the winter season had the plant equipped with the carrier system, by which the brick are conveyed from the machine to the dryer and thence to the kiln, from which the brick are loaded direct on the cars by means of a gravity conveyer, thus dispensing entirely with handling the brick by hand. He is also increasing the capacity of the plant, which is 45,000 per day at present, by the addition of another down-draft kiln. In addition to the ordinary wire-cut building brick, they also turn out hollow brick and block and drain tile. The exceptionally large demand for drain tile last season necessitated the running of the drain tile department to the fullest capacity last year, and the prospects are good for a still greater demand this year. The company not only takes care of the local trade, but ships to many points through the state and over the border into South Dakota.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BUILDING OPERATIONS in Kansas City continue on the increase, and the month of May showed a very nice increase over the same month of last year. The prospects are exceedingly good for a continuation of the present business activity throughout the year, and brick men are reporting that they are well prepared to take care of the business they are sure to get. Of late the receipts of brick in this city from outside points included everything in the shape of a brick, good, bad and indifferent, and a market was found for all of it, but this condition is probably not going to hold from this time forward, for the brick manufacturers and jobbers feel that from this time forward they will be able to supply all the demand with good quality brick in each particular grade.

Vitrified facing brick are still reported very scarce and will probably continue so, as some plants which turned out a good quality of facing brick have turned their entire attention to the production of common brick since the prices have advanced to a point where a good profit can be realized on everything of that kind.

The price of brick rules about the same as a month ago, \$8.50 delivered on the job, and there is little indication of any further advance; in fact, a lower price is well within the range of possibilities, for the dumping of everything here for a while has caused large enough deliveries to be made to enable contractors to catch up, and the local brick men have the situation well in hand.

Some points in the gas belt where brick plants have been shut down on account of a shortage of gas, the better-paying consumers taking the production, are again offering the brick men sufficient gas to operate with, at old prices, and this is going to have a tendency to increase the Kansas production to a point not expected a little earlier in the year. Of course, this increase is only for the summer season, as the cold weather will again create the demand from the gas consumers who are willing to pay the higher prices.

The estimated cost of buildings for which permits were taken out in this city in the month of May was \$1,306,325, showing a gain over the same month of last year of \$328,730. Of this amount \$549,800 was for brick buildings, forty-one in number, and brick veneered buildings are included with the report of frame structures. There was one less building permit for brick structures last month than in the previous May. This shows that a larger percentage of the building was of residences, and the fact that the front feet improved by these buildings shows a gain of 1,737 feet over the frontage of a year ago also bears out the same fact. The frontage of the property improved last month amounts to nearly a mile and a half.

Red vitrified facing brick are very, very scarce, and are in great demand in this market at the present time.

J. C. Likes is reported to have landed a paving contract in Rolla, Mo., and will make use of 96,000 of the Pittsburg paving blocks.

T. C. Jacoby, formerly a plant manager for the Kansas City Hydraulic Pressed Brick Company, but lately in the building material business up in Iowa, is again connected with the Hydraulic people, having accepted the management of their paving brick department.

V. E. Koch, who has a paving contract in Webb City, Mo., has placed an order with the Pittsburg Brick Company for 105,000 of their paving blocks.

The steel frame of the Leslie-Orear office building has been completed, and the brick work has been begun. The building is eight stories high and is located just south of the Dwight building.

The Roll Brick Company is reporting a considerable success with the sand and lime brick and blocks which it took up some time ago. Several fine residences have been built entirely of them, and the blocks have been used for trimming on other residences.

The Pittsburg Brick Company has just booked an order

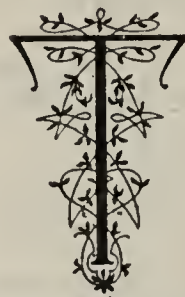
for 270,000 of its paving brick for the streets of Olathe, Kans. J. H. Cosgrove has the paving contract, and the brick was preferred to the blocks because so many other streets in the city have been paved with the Pittsburg brick.

Thad C. Craver, a banker of Pratt, Kans., has ordered enough of the very dark Pittsburg brick to build him a large residence.

K. A. W.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NOTES OF THE TWIN CITIES.



THE BUILDING situation throughout the northwest tributary to St. Paul and Minneapolis is one which is causing a great deal of satisfaction to the various building trades and to the public generally. Everything has been running so smoothly this spring, labor troubles have been so few and the general feeling of the building public of prosperity without the dangerous over-confidence has been so marked, that this section is experiencing one of the very best building seasons in its history. Prices have been fair all spring, without having reached that point where they become a burden, and yet have been ample to afford a good profit to the manufacturers of building materials. The result is that nearly everybody is planning on erecting the most substantial structures possible.

The labor situation has been the most satisfactory that the northwest has had in years, the panic of two years ago and the subsequent dearth of work last season making labor quite tractable, and this, together with the fact that the open shop has become well established, has made but little trouble and few disputes necessary. The employers, to their credit be it said, have not used their advantage unduly and excellent wages are being paid.

In the twin cities a number of large buildings are projected, and while the fever for building residences has in no way subsided, there is a very marked increase in the erection of business edifices.

Minneapolis.

C. H. Johnston, architect to the State Board of Control, is preparing plans for the new engineering building to be erected at the State University, at the corner of State and Union streets. The structure will cost \$200,000.

Thorpe Bros. have retained Long, Lamoreaux & Long, architects, to prepare plans for a nine-story wholesale dry goods store to be erected at Second avenue and Third street, North, for Tibbs, Hutchings & Co. It will be of pressed brick and terra cotta, 132x167 feet in size, and will cost, complete, about \$300,000.

H. F. Simonson will erect a four-story hotel building at Tenth street and Portland avenue, which will be of pressed brick and cut stone and will cost \$60,000. Jager & Straus are the architects.

Minneapolis building permits for April showed a gain of 41 per cent., being for a total of \$1,401,955.

St. Paul.

A new seven-story wholesale building is to be erected for the Strong & Warner Co., on plans by Postle, Mahler & Denson, architects. It will be 140x130 feet in size, fireproof throughout, and will cost approximately \$200,000. The plans have been completed.

A new building for the doctors and nurses at the Soldiers' Home is to be erected on plans by A. F. Gauger, architect. It will be of brick, 44x58, two stories, and will cost about \$80,000.

Postle, Mahler & Denison, architects, are preparing plans for a pressed brick building to be erected by the Knights of Columbus at Smith avenue and Fifth street. It will be 110x140 feet and three stories and basement, and will cost \$100,000.

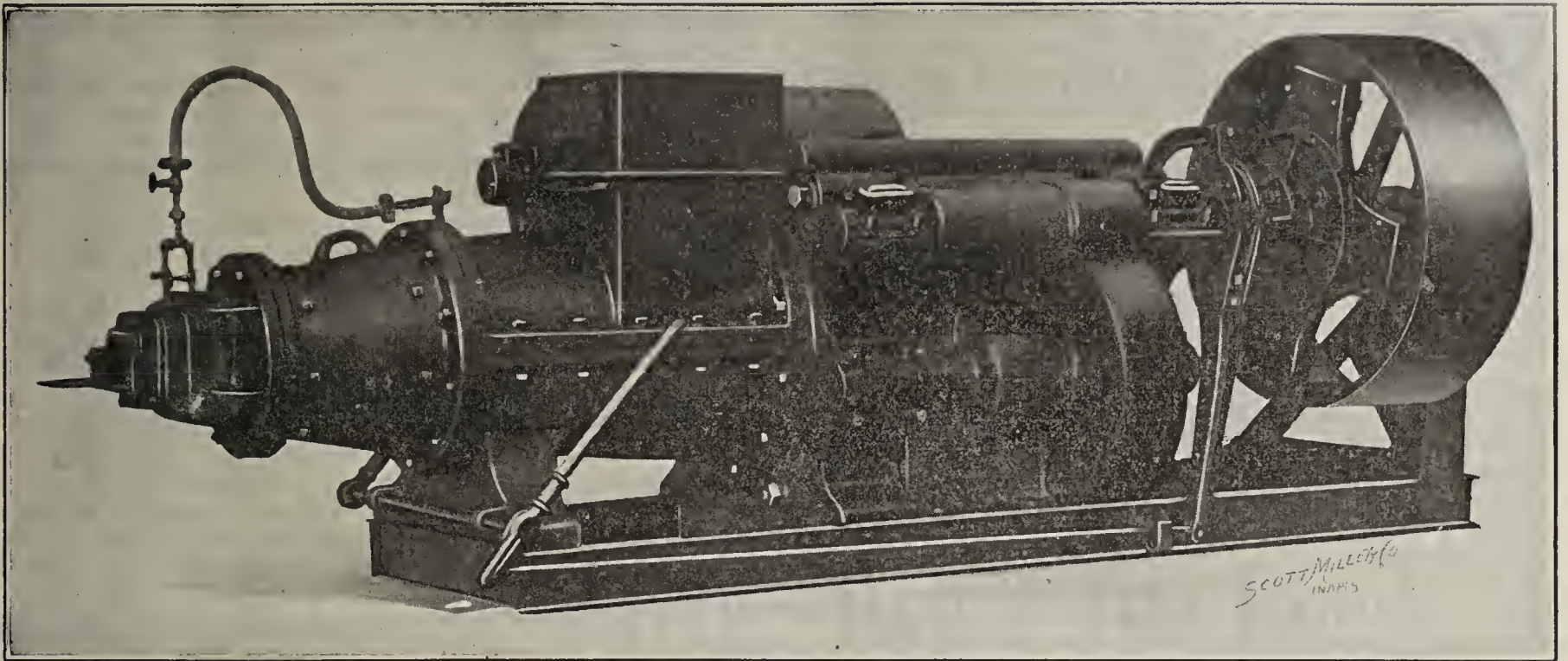
A new German Evangelical church will be erected at Eleventh and Minnesota streets at a cost of about \$40,000. It will be of brick and cut stone.

The Botzet estate has begun work on a four-story brick store building at Seventh and Cedar streets, which will cost \$70,000.

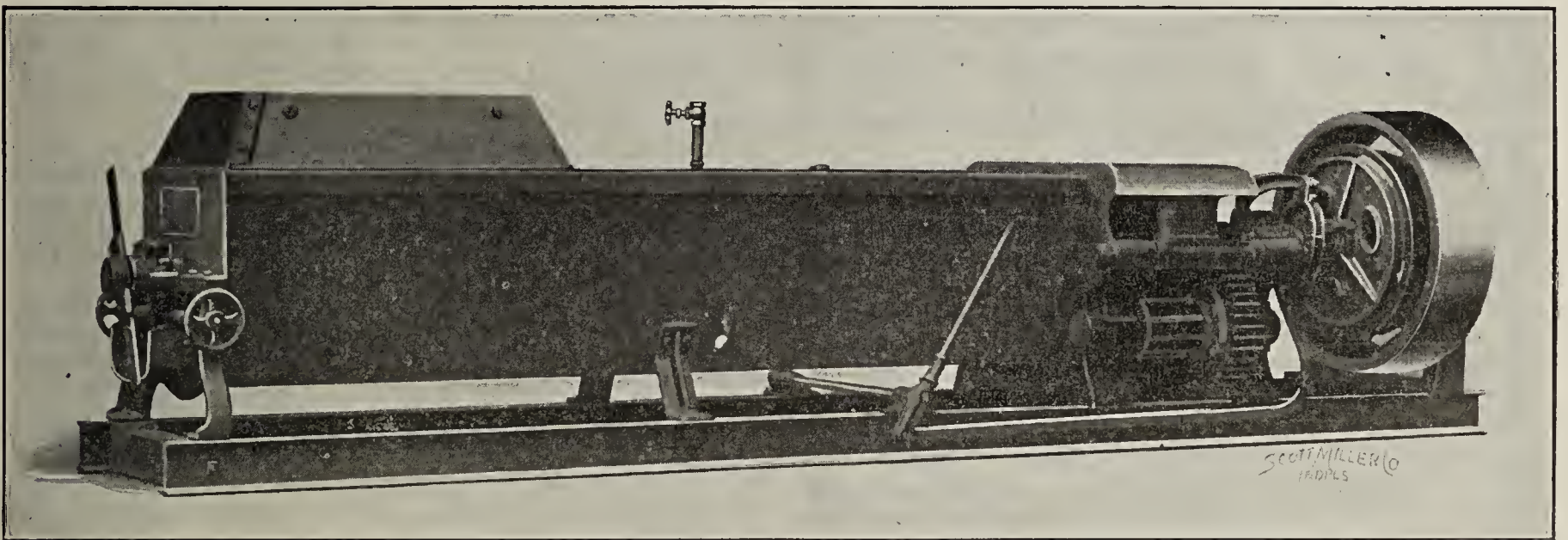
St. Paul building permits for April increased 110 per cent. over the totals for that month in 1908, being \$1,137,616, as against \$447,022.

T. WIN.

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We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

(Mention The Clay-Worker.)

Galion, Ohio.

See ads on pages 886 and 887.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



IN CLEVELAND one of the most interesting features of the month has been the combination of several of the big supply companies which do business in Cleveland. There are located there several concerns which rank among the world's leaders when it comes to the supply business. The Masons' Supply Company, formed by a number of contractors several years ago, combined with the Kelley Island Lime and Transport Company early in the month, and succeeded in merging with them the Cleveland Builders' Supply Company, a company which has seven local depots and which does a large retail business.

The backers of the Kelley Island Company announce that they will go out of the retail business, which is to be continued under the name of the Cleveland Builders' Supply Company, which concern thus secures at one sweep the patronage of three firmly-established supply companies. They represented a number of brick manufacturing concerns in different parts of the country and will retain a number of these agencies.

Believing it an opportune time to form another supply company, W. H. Hunt, for a number of years manager of the Cleveland branch of the Hydraulic Press Brick Company, has withdrawn from that concern and with R. L. Queisser and C. A. Bliss, also with the Hydraulic Company, has formed the Hunt-Queisser-Bliss Co., which is dealing in a general line of builders' supplies, with offices on the twelfth floor of the Schofield building. Mr. Queisser is manager of the concern, C. A. Bliss is secretary-treasurer, while Mr. Hunt is president, but is connected with the business in an advisory way only. Mr. Hunt has recently been elected acting president of the Cleveland Life Insurance Company, and with his other private interests felt it best to relinquish his position as head of the Hydraulic plant here. This new supply company takes over all of the agencies held by the Hydraulic Company in Cleveland, and will continue to represent them in that field. The company is capitalized for \$100,000 and is already enjoying an excellent business.

The change naturally resulted in the appointment of a new manager for the Hydraulic Company in Cleveland. F. H. Chapin, for a number of years with the company at its St. Louis office, has been directed to take charge of the Cleveland office and is busy picking up the threads of the business. It is not known what changes he will make in the personnel of the present office force, but it is likely that considerable new blood will be added.

Apropos the formation of the Hunt-Queisser-Bliss Co., another supply company was launched at the time of the big merger. This is known as the Contractors' Supply Company, and is incorporated for \$25,000. It has offices on the eighth floor of the Rose building, and has already acquired the agencies for a number of good companies. Robert Mitchell, formerly in charge of the brick department of the Cleveland Builders' Supply Company, is manager of the new concern and reports the orders rolling in with persistent regularity.

The promoters of the new companies believe they have chosen a good time for entering the supply field. Within a few days after the merger, sewer pipe advanced and cement took a boost also. While it was not due directly to the merger, the combination, of course, got the blame for it, and the result was that it has driven customers to the new companies.

Conditions in this city continue to boom, especially in the building line. Some good deals have been closed during the past month for new structures which will be gotten under way within the next few weeks. Not only is the building brick line very active, but large amounts of pavers are being required for the numerous jobs which have been started and which are to be finished during the season.

One of the biggest projects to be announced is a new club house for the Cleveland Lodge of Elks. It is to be

erected on Huron road, at a cost of \$125,000. Its exterior will be of pressed brick and terra cotta and will be quite elaborate. The ground floor will be used for stores, the second floor for lodge rooms, and the two top floors for club rooms, ball room and theater. Plans have been completed by Knox & Elliott, with offices in the Rockefeller building. The Elks are at present using rented quarters on Superior avenue. It is hoped that the new club house will be ready for occupancy early next spring.

Wreckers are busy tearing down the old Cross and Battle homesteads on Euclid avenue, opposite East Twelfth street, where Ex-Lieut. Gov. Brown of Pennsylvania has purchased a frontage with the intention of erecting a large building. Foundations will be put in shortly for a fifteen-story building, although only five stories may be built this year. Brown expects to use the ground floor for stores and the upper floors for offices.

Ground has been broken for the new \$150,000 normal school on East boulevard. A pretty, but substantial, building is to be erected. A warm buff brick is to be used with terra cotta trimmings. Besides housing the normal school, one wing will be devoted to eighth-grade pupils. The structure will be ready for occupancy some time next fall.

Henry T. Loomis, vice-president of the Spencerian Business College, is building a store and office building at Euclid avenue and East Eighteenth street, in front of the college. There is to be an arcade through the building to the college front. Red pressed brick will be employed. Mr. Loomis has also leased a valuable site next to the new Pope building, and it is rumored will erect a large office building there within a short time.

The Osborn Engineering Company has been engaged to assist in the remodeling of the Ohio Penitentiary. Architects Massiet & Allen, of Columbus, are in charge of the work, which will involve an expenditure of nearly \$200,000 within the next year. Many new sanitary and fireproof features are to be added to the new building.

Cleveland men and architects are behind a big hotel project at Mt. Clemens, Mich. The hotel has been designed by Architects White & Shupe, of Cleveland, and will cost about \$500,000. It will replace the old Avery Hotel and will be elaborately designed and decorated throughout. The hotel is to be ready for occupancy in one year. A plot of nearly 250 feet will be covered by the structure, which is to be fireproof throughout.

Another big hotel project is planned for the town of Lorain, near Cleveland. A mineral spring which has valuable medicinal qualities has been purchased by a syndicate of Pittsburg capitalists, who contemplate building a hotel and sanitarium along the latest lines. It is expected that a building costing over \$300,000 will be erected.

Over thirty paving jobs have been completed for the city, and work is being rushed on a number of others. President Springborn, of the Board of Public Service, anticipates that nearly all the paving contracts will be completed by the end of September.

Bids will be received shortly for the completion of the 13-foot brick intercepting sewer between Marquette avenue, N. E., and East Seventy-ninth street. The work will be done in three contracts. The engineers estimate that to complete the sewer it will take \$325,000. BUCKEYE.

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Give the boy a
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Four Prominent
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Paving Brick and Block

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located at widely different parts of the country have recently equipped their factories for the end-cut method of manufacture. They were previously side-cut disciples exclusively, and were all moved by a determination to improve their product—make a block that would stand better and test better.

Streator,
Illinois.

Not one of them could be classed as a "Four Year Old."

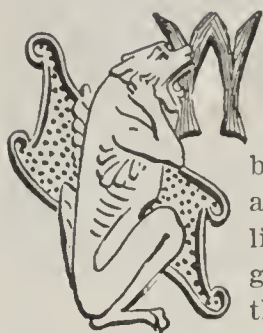
They are men of experience who observed and studied the problems of their business, and each one deliberately placed his order for the

Des Moines,
Iowa.

Chambers End-Cut Auger Brick Machinery

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE KENTUCKY METROPOLIS.



WITH THE APPROACH of summer there has been a more decided demand for building brick, as well as some other clay commodities. However, the demand for brick is just now in excess of other lines, and while the building industry is not as lively as was hoped this spring, it has been gaining to a rather considerable extent, and there has been a steady increase in the brick demand here. Aside from this fact the out-of-town orders are increasing, and the brick manufacturers feel very well pleased with the outlook for a good business for at least several months.

We are entertaining the Shriners here this week and the old town has made ample preparations to do justice to the occasion. The Nobles are receiving a royal welcome and there is a feeling of good cheer in the air. It helps to make the Falls City better known as a live business center, and the brick people and other clay manufacturers are celebrating as well.

There are a very fair number of large structures under way and others are being contemplated, so that it looks rather like a better business ahead. Among the larger buildings can be noted the Walnut Street Theater, the new plant for B. F. Avery & Sons, and the new Tyler Hotel. There are also a very fair number of smaller structures, and there is a satisfaction in feeling that there will be more before the summer months have passed away. There is not very much being done in the way of building new brick streets this summer, and there is a fair demand for fire brick and sewer pipe. Taking the situation as a whole, there is a much more pleasing outlook than has been noted in some time, and there bids fair to be a nice increase in the general business this year.

The West Point Brick and Lumber Company, of West Point, Ky., is quite busy, and they are counting on a very decided increase to the demand with them this season. Last year they made 250,000 brick, but this will be doubled this year, and they are rapidly shipping them out to many points. They have put their plant in a fine condition, and are getting things in such shape that there is every opportunity to meet their demands with promptness. They feel that there will be a steady increase in the business from this time forward.

The Southern Brick and Tile Company are quite actively engaged at their plants, and are shipping out a large number of brick at all times. They say that the demand has been satisfactory to them, and that there is every reason to anticipate a good demand in the future. The drain tile industry is not very brisk at this season, and there will be a lull in this line for at least several months now. However, they are making up for this in having a nice demand for all kinds of building brick.

The P. Bannon Sewer Pipe Company are operating with a full force and have as much as they can look after in the way of orders. There has been enough demand this spring to make the situation interesting to them; they are still counting on a nice demand later in the year. Everything points to a continued good business with them.

The Louisville Brick Company say that there has been no decline in the demand for building brick with them, and that they are still quite busy. There has been no particular increase, but as they have about all that they can attend to, that is enough to satisfy them to the fullest. The general indications for building look good, and there seems to be no reason why there should not continue a fair business all the year.

C. O. Smith says that he has been having a nice demand for brick lately. Among the larger orders he has lately received are those of the Avery buildings, calling for 5,000,000 brick, and the fire brick for the new Belknap warehouse.

He feels very much elated over the indications for a continuance of nice business in brick lines.

The Louisville Fire Brick Works at Highland Park, Ky., is now in a position to do a very nice business, as their plant has been entirely completed. This will place them in a position to meet their orders with promptness, and they are also in shape to do business in a more satisfactory way. They report the outlook for fire brick to be more favorable now, and are selling more brick and accessories than was the case last month.

The Hydraulic Brick Company is still finding the brick situation to be good with them. They are doing a nice business now, and the conditions show a very decided improvement over that of last year. They feel that there will at least be a nice demand this year, and are able to make the brick move lively with the increase in orders.

The Louisville Pottery Company is still operating about as they have been for some time past. They are now looking forward to a favorable fruit crop, which will mean a better demand for jars with them. They are rather between seasons now, and this accounts for the fact that they are not particularly rushed.

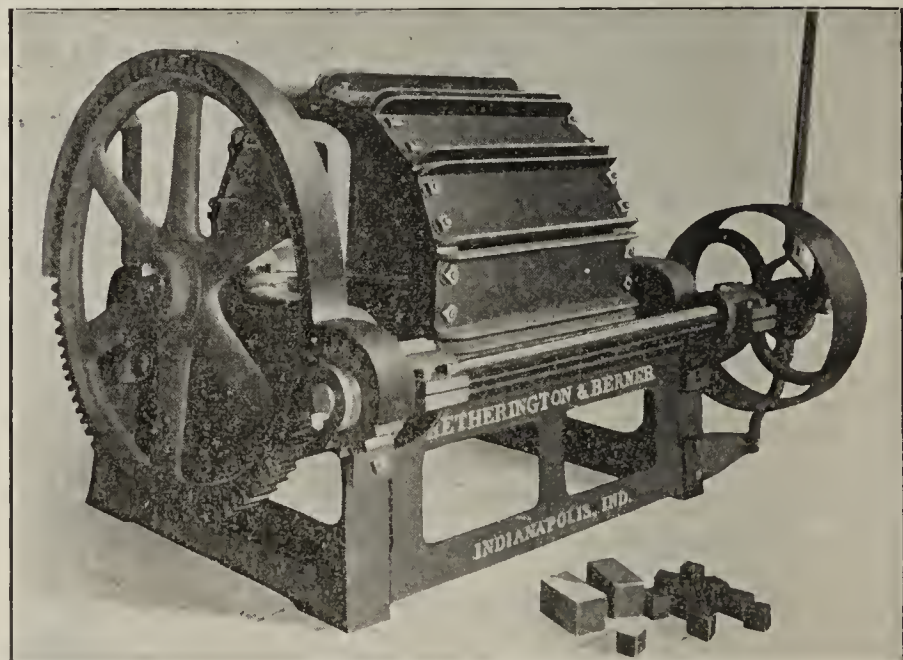
The Burrell & Walker Clay Manufacturing Company are finding a fair demand with them for fire brick, sewer pipe and kindred lines. There has been only a fair increase in the demand, but that is as much as one can count on now. There should be a steady increase in the business, which will very probably make its appearance soon.

The Kentucky Vitriified Brick Company say that the demand for paving brick is not as lively as they could hope for. There has been a general lull in the south for street brick, and they are feeling the effects of this decline. There should be a better demand later, and this is giving them some hope for the coming months.

COLONEL.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



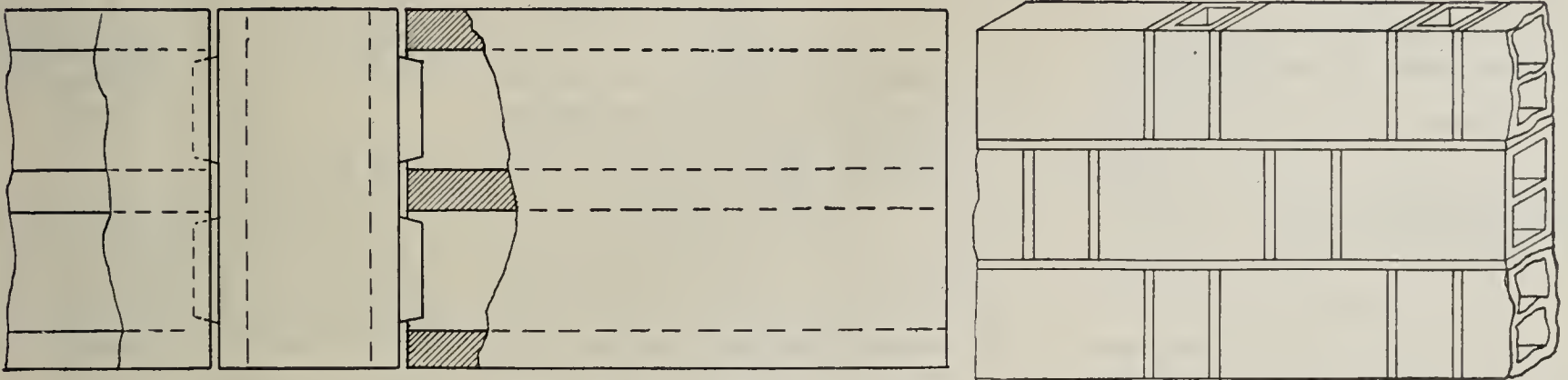
This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

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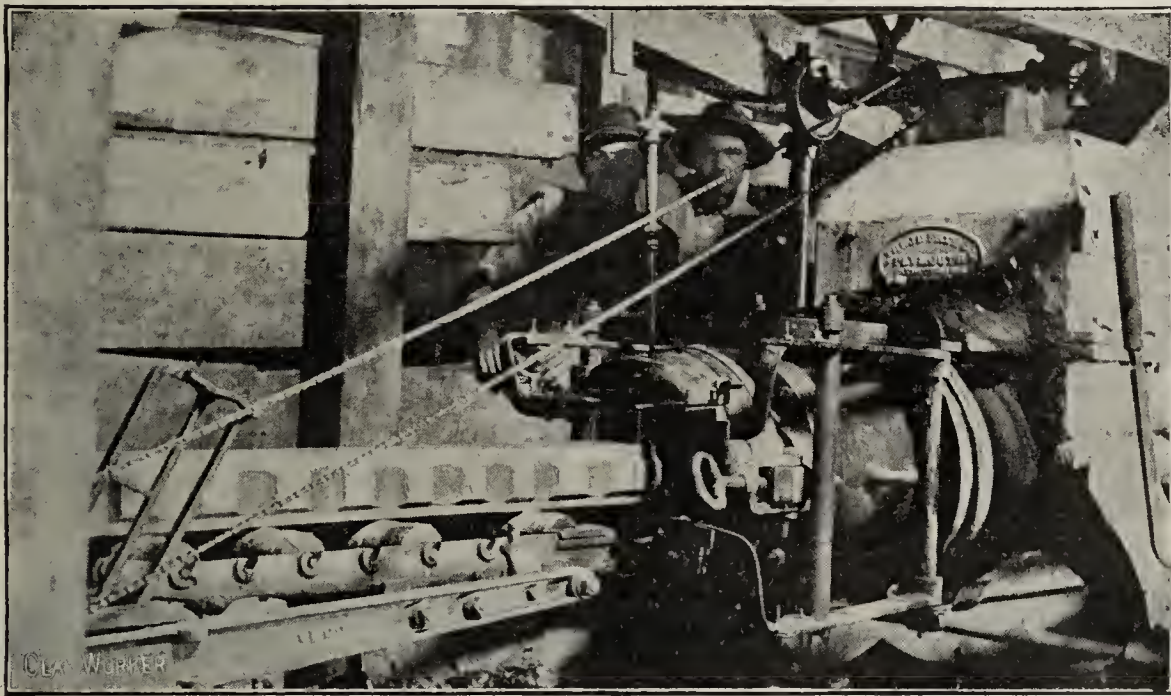
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Interlocking Wall Construction.

Interlocking Building Blocks are made without any additional cost above ordinary blocks, as shown in photograph.



This machine (patent applied for) will be furnished to parties making contract for state rights.

A hollow tile wall laid up of ordinary blocks is never satisfactory because of the poor vertical joints which are never air-tight, and often fall out as experience has shown. This interlocking wall gives a perfect bond and the mortar joint can not fall out. Architects and builders are very enthusiastic about it. The Twin City Brick Company owns the rights in the Northwestern States. They are furnishing 400,000 hollow interlocking facing tile to the new million dollar hotel in St. Paul, and have more orders than they can fill for residences, flats, churches, etc.

**CHEAPER TO MAKE THAN BRICK.
CHEAPER TO LAY THAN BRICK.
BETTER THAN CONCRETE AND
SAVES MONEY OVER FRAME.**

State Rights will be sold only for cash or a combination of cash and royalties. Only manufacturers who have a clay suitable for making facing tile should apply to

FRITZ KOCH,

President of Twin City Brick Company,
ST. PAUL, MINN.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

FOR SALE.

1 Quincey clay gatherer.
1 Quincey clay plow. In good condition.
Address

THE LONSDALE FACE BRICK CO.,
6 1 d Knoxville Tenn.

WANTED—A good, sober combination sorter and burner; wages, \$3.50. Position permanent for the right man.
TONQUE PRESSED BRICK, TILE AND IMPROVEMENT CO.,
6 1 cm Albuquerque, N. Mex.

FOR SALE CHEAP.

A three-brick Andrus steam press complete, in first-class condition, together with a Williams disintegrator, sieve, belts, shafting, pulleys and elevator, ready to run. Will be sold at a sacrifice. Address
THOS J. ROSE BRICK MFG. CO.,
5 3 d Erie ave. and G st.,
Philadelphia, Pa.

SACRIFICE SALE.

Involved and must sell to secure other property which is not now salable, a new plant which cost \$40,000. Fine brick buildings and stacks. Capacity, 20,000 dry pressed, or 30,000 stiff mud. Two railroad tracks into yard. Abundance of clay and shale. In operation and a splendid market. Address
IOWA OPPORTUNITY,
6 1 cm Care Clay-Worker.

WANTED—Second-hand Eagle repress in good condition. State price and length of service rendered. Address K.,
6 1 d Care Clay-Worker.

WANTED—First-class sewer pipe pressman: must be capable of looking after press. Wages, \$2.75 per day to start. Transportation will be advanced if references are satisfactory. Address
CANADA,
6 1 c Care Clay-Worker.

FOR SALE.

Four-mold Boyd press, Grath Special hand-power press with octagon and radius dies. Chandler & Taylor engine, 11x14, 60 h. p., 7-foot pan, pulleys and shafting. All in first-class condition. Inquiries solicited.
DILLONVALE BRICK AND TILE CO.,
5 3 dm Dillonvale, Ohio.

FOR SALE—Four-mold Boyd & Simpson dry press, three-mold Boyd and Andrus press, two-mold Berg, Boyd, Whitaker and U. S. dry press; dry pan, pulverizer, elevator, screen, thirty-five sand-lime brick ears, and 65-foot curing cylinder. Address
5 2 cm BOX 443, Denver, Col.

BRICK PLANT FOR SALE OR LEASE.
A conveniently located brick plant on the James River, ninety miles from Richmond, eighteen miles from Newport News, and forty miles from Norfolk. All having good and steady markets for brick. Has fine clay for millions of brick. Easy transportation for large boats. Want to see plant in operation, therefore would make easy terms. Address
MRS. AGNES L. TURNER,
6 2 d Ferguson Wharf, Va.

WANTED.

Location for drain tile plant. Shale or fire clay preferred, but would consider unusual good surface clay deposit. Would buy established plant if conditions suited.
Address M. J. L.,
6 1 c c Care Clay-Worker.

FOR SALE.

One Adrain No. 4 brick and tile machine. Will make tile up to 18-inch; tile dies from 3½-inch to 8-inch. In good working order. Must be sold at once and will go at a low price. A. FRIES & SONS,
6 2 d Connersville, Ind.

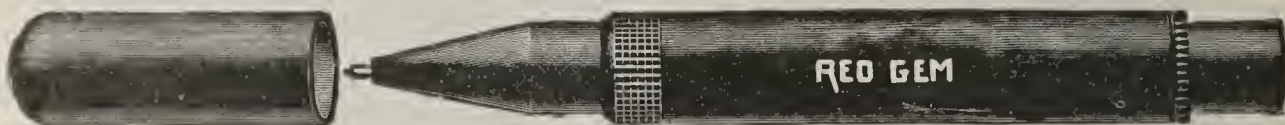
FOR SALE—A SNAP.

Soft mud brick plant; 35 h. p. engine and boiler. Martin "A" machine and sander, dry sheds, racks, pallets for 150,000 brick, kilns for 650,000 brick. All in running order. Clay for brick and tile, ten acres of land, two houses on it; fourteen blocks from center of the city. Will sell machinery, pallets, etc., separate at a bargain
MUSCATINE PRESSED BRICK CO.,
6 1 d Muscatine, Iowa.

FOR SALE.

One hundred and twenty-six-acre factory site, centrally located, containing all the requisites for the manufacture of all kinds of clay products. Tested for sewer pipe, pavers, etc. Good vein fire clay. Two trunk lines on the land; 6-cent freight rate to Chicago. Plentiful supply of operatives. A priceless site to the parties who can make use of it. Plans, surveys and farm crop thrown in. On account of permanent breakdown in health of owner, will sell at a bargain. Address JOHN H.,
6 tf dm Care Clay-Worker.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

WANTED.

Position by a man familiar with the details of glazing brick, terra cotta and pottery ware. Guarantee one burning not to craze or peel off. Twenty years' experience. Address A. B. C., Care Clay-Worker. 6 1 cm

FOR SALE—Brick plant, consisting of sixty acres of land; 20,000 capacity. Machinery in good condition. Both surface and fire clay right at hand and no mining. This plant has paid as high as \$7,000 per year. Big demand for product. Only plant in city of 12,500. Address H. H. BANKS, Columbia, Mo. 6 4 cm

FOR SALE—VERY CHEAP.

Because of poor health and old age, I will dispose of my brick plant. Making brick every day and have lots of clay and up-to-date plant. If you are interested, get into correspondence with P. J. C., Care Clay-Worker. 6 1 d

FOR SALE—Fifty h. p. piston valve engine, 60 h. p. O'Brien boiler, two steam pumps, Hercules, Sr. soft mud machine, disintegrator, Wellington sander, hoister, cable, track, dump cars, belting, shafting, elevator, trucks, steel tank, wheelbarrows and some 35,000 wood pallets. A rare opportunity if sold within sixty days. Address I. C. WHEELER, Carthage, Mo. 6 2 d

BRICK PLANT FOR SALE.

One of the most complete stiff mud brick plants in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address S. C., Care Clay-Worker. 5 1 dm

For Sale at Vandalia, Mo.
1,000 Acres Finest Fire Clay
Land In the World.

We own outright, sites for a large Fire Brick Plant. Also Clay and Coal rights, under 1,000 acres adjoining sites, all in one body.

60 to 65 feet below this surface, you will find a bed of Fire Clay, laying in blanket form, from 20 to 30 feet in thickness. The Commercial Club bought this land, and took these leases, not for profit, but for the sole purpose of further developing our Clay Field.

The Commercial Club of Vandalia, Mo., will lend a helping hand to any concern that means business.

Brick Plant For Sale at Sacrifice.

The Cayuga Brick & Coal Company owns a modern plant located at Cayuga, Ind.; capacity 50,000 per day, with inexhaustible bed of red and buff shale for finest face, building and paving brick; coal mined from premises; on account of death of manager, this property will be sold at a sacrifice. For particulars, address

JOHN B. CORLISS, Detroit, Mich.

WANTED—Man to invest some money, take charge and operate a brick plant already established. Plenty of the best shale in Kansas. Good opening to man who understands the business.

MOLINE BRICK CO.,
Moline, Kans. 6 1 cm

FOR SALE.

One two-mold Simpson dry press machine.
One three-mold Andrus dry press machine.
One E. M. Freese & Co.'s board delivery cutting table.
DUNLAP MFG. CO.,
Bloomington, Ill. 5 tf L

FOR SALE.

One Eagle double-die repress in good working condition, in Kansas. One American double-die repress in good condition, cheap. Seventy double-deck dryer cars, practically new, in Rhode Island. Two American four-mold dry presses, in Kansas. All in fine condition. Address B. G., Care Clay-Worker. 6 1 L

FOR SALE.

An up-to-date tile and brick plant. Oldest and best in southern Iowa. Incorporated in 1884. Reason for selling, death of head of firm and to settle estate. Splendid shipping facilities. Home trade alone will take all tile. No better opportunity for good, live, up-to-date brick and tile man can be found. Address T. J. BROWN, Crawfordsville, Iowa. 6 3 cm

FOR SALE.

One Raymond 777 auger brick machine with side-cut die.
One No. 2 rotary automatic cutting table with extra set of platens and 25-foot carrier belt.
One Victor repress with extra set of molds.
One No. 10 Cyclone disintegrator, all in good condition, used but one year. Will be sold cheap, owing to entire change of system. MOUNTVILLE BRICK CO.,
Mountville, Pa. 6 1 d

FOR SALE CHEAP.

One Chisholm, Boyd & White extra heavy sand-lime brick press. Can be used for soft mud brick.
One Camer 52-inch by 25-foot rotary clay dryer, filled with automatic stoker and elevator.
One No. 30 Sturtevant suction blower.
Four Fairbanks hopper scales.
Six elevators from 20 to 26 feet centers.
One 13x16 Buckeye engine, belted to 50 k. w. General Electric 240-volt dynamo.
One Walker, Elliott & Walker crusher. Lot of chain and sprockets. Everything practically new.
A. W. FRANCE,
Atlantic City, N. J. 4 1 dm

FOR SALE.

Thew Shovel No. 7, 1½ yd., practically new.
Thew shovel No. 3, traction wheels, 1 yd., used about a year.
L. G. Special, std. gge., used six months. Send for fifteen-page list for up-to-date clayworkers. THE MALES CO.,
26 Cortlandt Street, New York City.
1508 First Nat'l Bank Bldg., Cincinnati, O.

TILE FACTORY FOR SALE OR EXCHANGE—Tile factory and ten acres of clay ground in Huron County, Ohio. Price, \$8,500. Will exchange for farm or timber land.

FOR SALE—Controlling interest in complete, modern money-making brick plant located in Pottawatomie County, Kans. Fine opening for practical brickmaker; \$35,000 required.

FOR SALE—Modern brick plant located in Muskingum County, Ohio. Capacity, 40,000 pavers per day. Fine shipping facilities. Price, \$70,000, or will sell half interest to practical brickmaker.

FOR SALE—A small block of 7 per cent. preferred stock in large Ohio brick company. Fine investment. Write for particulars.

If you want to buy, sell or exchange any kind of business or real estate, anywhere, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
Chicago, Ill. 6 2 d

REBUILT ENGINES AND BOILERS.

The cleanest and most thoroughly rebuilt. All our own and in stock. Not scattered everywhere and merely listed.

ENGINES—

Corliss: 20x48 Wheelock, 20x42 Allis 18x42 Hamilton, 16x42 Lane & Bodley, 14x36 Lane & Bodley, 14x24 Wright, 12x30 Allis, etc.

Automatic: 16x32 Buckeye, 15x14 Erie, 14¼x16 Buckeye, 14½x14 Ball & Wood, 13½x15 Taylor, 13x16 Erie, 12x14 Green, 12x12 N. Y. Safety, 10x10 Fisher, 9½x12 Leffel, 8x10 Allfree, etc.

Throttling: 18x24 Erie, 16x20 Chandler & Taylor, 16x18 Erie, 14x24 Atlas, 13x16 Chandler & Taylor, 14x14 Lewis Vertical, 10x16 Owens, Lane & Dyer, 10x12 Industrial, 9x12 Ajax, 8x12 Climax, 7x12 H., S. & G., 6x8 Clark, etc.

BOILERS—

Stationary: 72x19 High Pressure, 72x18 Standard, 72x16, 66x16, 60x20, 60x16, 54x16, 54x14, 54x12, 48x16, 48x14, 44x14, 40x12, 40x9, 36x16, 36x10, etc.

Fire Box: 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h. p., etc.

Vertical: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 h. p., etc.

HEATERS—

All sizes, Open and Closed.

PUMPS—

All sizes, Single and Duplex.

SAW MILLS, LATH MILLS, EDGERS, CUT-OFF SAWS, TANKS, ETC. Write for list.

Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS and JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers st., Cincinnati, Ohio.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
4 tf d Zanesville, Ohio.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want
to buy, sell or exchange any kind of real
estate or business anywhere, at any price,
address FRANK P. CLEVELAND,
965 Adams Express bldg.,
5 tf d Chicago, Ill.

FOR SALE OR LEASE.

Tile and brick plant in Southern Minne-
sota. Reason for selling, owner not a
practical brick man and has other business
to look after. Address JOHN GEIB,
Bingham Lake or Gaylord, Minn.
4 3 cm

DRYER CARS.

We have on hand a lot of second-hand
single and double-deck dryer cars. These
cars are almost new, having been used but
a short time, and are in A1 condition. We
offer them at a very low price for quick
sale. THE ATLAS CAR MFG. CO.,
2 tf L Cleveland, Ohio.

WANTED—POSITION.

As superintendent or foreman of a dry
press or stiff mud brick plant. Am a first-
class machinist and am thoroughly familiar
with all kinds of brick machinery. Can
handle either up or down-draft kilns, burn-
ing wood, coal or oil. Am strictly temper-
ate and can give the best of references.
Address BOX 220,
4 2 d Care Clay-Worker.

FOR SALE.

Two No. 43 Auger brick machines; two
No. 20 automatic slide-cut cutters; 35-foot
offbearing belt with each; two No. 51 pug
mills; 342 double-deck cars. Cause of sell-
ing, changing from stiff mud brick to soft
mud. All the above made by the American
Clay Machinery Co. Also one side-cut
Bensing cutter.

THE KING ENGINEERING CO.,
2 tf L Richmond, Va.

FOR SALE—Brick and tile plant, consist-
ing of fifteen acres of land; 30,000 ca-
pacity stiff mud machine with tile attach-
ment for making from 4 to 30-inch tile;
60 h. p. boiler; 45 h. p. engine; three-story
drying house, brick drying sheds and 250,-
000 brick kiln and tile kiln. Machinery
securely housed and been run but little.
Clay suitable for manufacture of tile and
brick. Address W. P. ECKLES,
Odd Fellows' bldg.,
4 3 cm Memphis, Tenn.

FOR SALE.

One 30 h. p. boiler and 25 h. p. engine;
makers, Leffel Water Wheel Co.; one extra
heavy Quaker brick machine, belts, shaft-
ings and conveyors for same; one Quaker
sander; one Quaker or Wellington 5 leaf
dump table; three Wellington mule trucks
used 5 days; three Raymond single deck,
ten pallet trucks, nine brick trucks; 20,000
five-eighths, three board top and three cleat
white pine pallets; 15,000 33½-inch by 10-
inch, 5,000 32½ by 10-inch pallets, made
by Mershon, Parker, Eddy Co., Sagl-
naw, Mich., and racks for same, consist-
ing of white pine posts and cleats. These
racks are double posts. Rooves and dashes
for same and enough grate bars and kiln
doors for 36 arches. The plant has been
used five years and is in A No. 1 condi-
tion. Anyone buying this plant living
within a radius of 800 miles will be paid
his fare both ways. A. GRUBE & SON,
4 3 cm Springfield, Ohio.

INVEST IN PRESSED BRICK AND
TILE PLANT

In HOPE, Arkansas, where we have four lines of railway in daily operation, fifth building and sixth lately surveyed.

HOPE is the highest point on the Main Line Iron Mountain railroad in Arkansas; is 93 feet higher than the location of Little Rock, has a population of 5,303 and is steadily growing. We have the best of water, mild and healthful climate.

A plant making Pressed Brick and Tiling is very much needed here, as now all our first-class building brick and all Tiling are shipped here at \$15.00 to \$30.00 per thousand for pressed brick and 5 cents for cheapest 4 inch farm drain tile.

Large territory to be supplied from here. One mud brick plant here, but no other clayworking plant of any nature. Wood, \$2.00 per cord. Coal, mine run, \$3.15 per ton.

Excellent shale here for this business right on prominent railroad just outside the corporation. This 40 acres of shale land can be had at the low price of \$40.00 per acre; this land is so close to town that it is worth the price without consideration of the valuable shale and clays.

Good practical brickmakers have tested this shale and one or two will invest \$2,000 if you wish.

Come and go over the proposition, when I feel confident that you will be more than pleased with the outlook, and wills no doubt, wonder why such plant has not long since been located here.

I have samples of pressed brick to show the above tests of this shale, and you are invited to personally examine and test it yourself. Address

A. P. DYKE,
Factory Locations and Land Broker, Hope, Ark.

BRICK and MORTAR COLORING

For thirty years "COLORIFIC COLORS" have steadily
grown in favor of Brick Manufacturers and Builders.

FREE SAMPLES ON APPLICATION.

JAMES M. WELLS CO., Ogdensburg, N. Y.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PRE-
PARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

**NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.**

MINERS AND GRINDERS.



Our Special
Brick Yard Shovel

Our Scientific
Round Point

Two of Our Special Makes

Of the Mikola Patent Shovels

... 70 STYLES AND SIZES ...

Especially designed for handling shale, crushed stone,
iron ore, clay, etc. Save time, labor and money by
using shovels made just for your line of work. Write
us about your needs and for Catalog Department A.

Shovel Specialists

CONNEAUT SHOVEL CO. = = = Conneaut, Ohio

\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR (IN ADVANCE)

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use

Cutting Wires For Brick Machines

CHAMBERS BROS.' CO., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER

Send us your specifications for our quotations

Brickmakers Having Trouble

with old kilns, and those contemplating new ones, will do well to ask for particulars relative to the

IMPROVED FLUE SYSTEM KILN.

Absolute Draft Control. Fuel and Time Economy.

This kiln has **PROVED** its worth with all kinds and grades of material, and **IT IS MAKING MONEY** for all those operating it—**IT WILL DO THE SAME FOR YOU.**

You Owe it to Yourself to Investigate.

We invite correspondence and will cheerfully mail booklet and full information.

Kiln and Yard Rights, with working plans, license, etc., sold at very reasonable rates. Address

GEO. E. SNOWDEN & CO., New Cumberland, W. Va.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

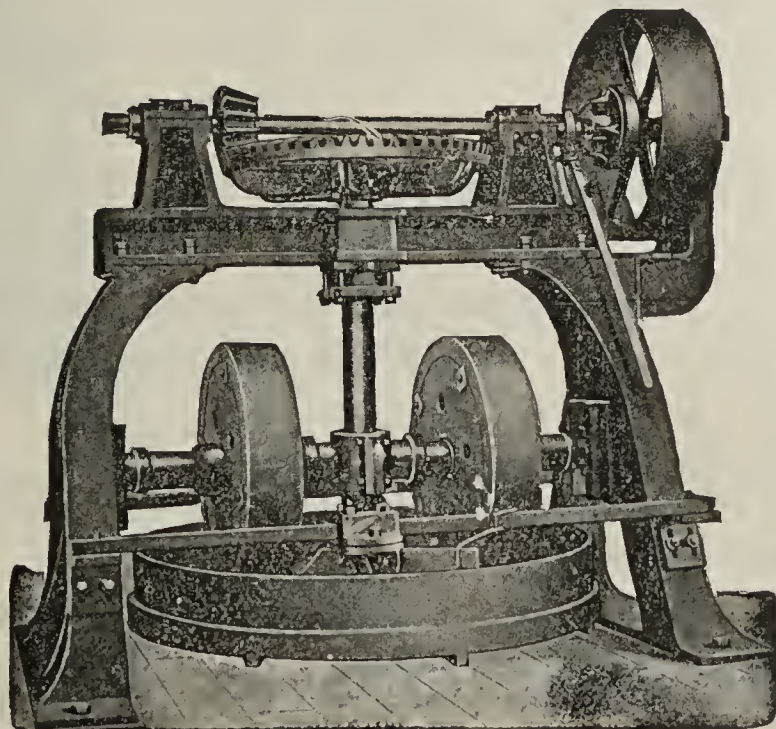
Mershon, Eddy, Parker Co.,

Saginaw, Mich.

PHILLIPS & McLAREN CO.

PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.
Also
Rock and Ore Crushers.



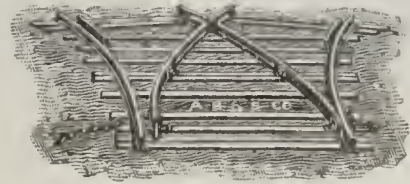
When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.

FOR SALE.

One 4-mold Ross-Keller brick press in good working condition. Has been used only one year.

CHISHOLM, BOYD & WHITE,
5 tf d 57th and Wallace, Chicago, Ill.



SWITCHES FOR SALE.

Right and left-hand one, two and three way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

See additional ads under Table of Contents.

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Established by the Legislature
in 1902 at the

New Jersey State College,

RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for practical and theoretical instruction in the clayworking industries. Two courses have been provided: the regular course of four years; a short course of two years, designed for the young man who has had practical experience in clayworking.

C. W. PARMELEE, B. Sc., Director.
W. H. S. DEMAREST, D.D.

Department of Ceramic Engineering Ohio State University.

THE OHIO STATE UNIVERSITY offers complete courses in all of the usual engineering branches. It is prepared to offer especially fine facilities for the study of the clay industry in its department of Ceramic Engineering.

This department, located in a large new building, is entering upon its 15th year. Substantial additions to its equipment are now in process. Its laboratories and equipment are the most complete in the country. It offers regular courses in the technology of clayworking, glass and cement manufacture, and an opportunity for a limited amount of special study in these and similar fields.

Tuition is free. Laboratory fees are low. Living expenses moderate. The corps of instructors is composed of specialists who have had good practical experience.

For information or catalog address
PROFESSOR EDWARD ORTON, JR.,
Director of Department of Ceramic Engineering.
Columbus, Ohio.

Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery
or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

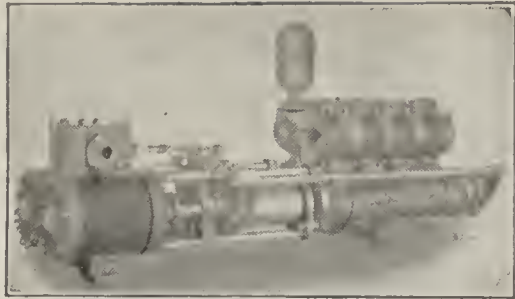
Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press processes and down-draft kilns.

Contracts made contingent upon success.



This is the most important improvement that has been made in the valve gear of duplex pumps for twenty-five years. Rock shafts are abandoned and one-piece levers substituted. The levers swing on steel studs having extra long bearings. Both levers are alike and they can be removed and replaced in five minutes. The stroke is long.

SINGLE AND DUPLEX PUMPS

JET AND SURFACE CONDENSERS

DEAN BROS. STEAM PUMP WORKS

INDIANAPOLIS, IND.

The Anton Vogt Down Draft Kiln

and the

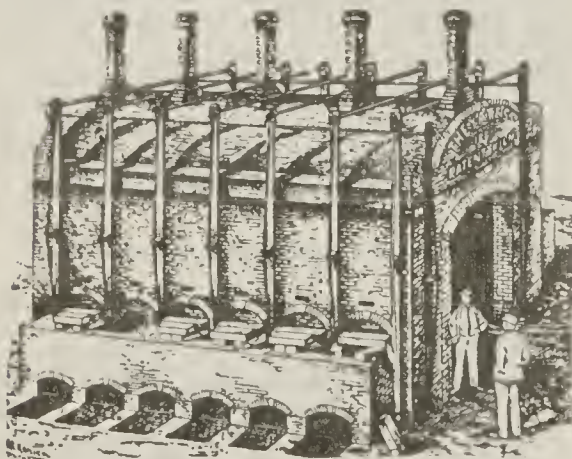
QUESTION OF THE HOUR.

Built Round or Square.

Can a man with many years practical experience in burning all kinds of kilns design a better kiln than a man who never handled any kilns? You are the judge. To purchasers of plans with explicit instructions for building, setting and burning the Vogt Kiln, my bureau of practical information is FREE.

Anton Vogt,

Elgin, Texas.

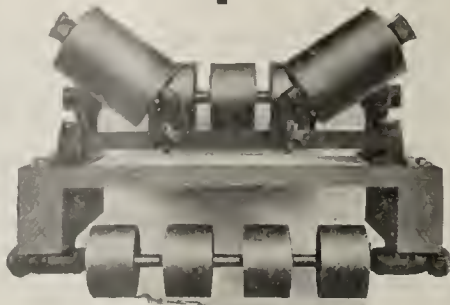


The Yates Patent Down-draft Kiln.
Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.; Shawnee Brick Co., Shawnee, Ohio.

ALFRED YATES,
SHAWMUT, PA.

Improved Belt Conveyors



For carrying all kinds of material, gritty and otherwise. Gradual, uniform curve of belt secured without complicated parts.

Bearings thoroughly lubricated and *dust-proof*. Economy and satisfaction—nothing to get out of order.

We manufacture Complete Handling Equipments.

H. W. Caldwell & Son Co.

Western Ave., 17th-18th Sts., CHICAGO.

Full on Bldg. Hudson Terminal, No. 50 Church St., New York.

CHICAGO RETORT AND FIRE BRICK CO.

Fire Brick for Building Kilns.

Factories:
CHICAGO, ILL.
Brickton No. 1 }
Brickton No. 2 } Ottawa, Ill.

General Office:

45th St., Clark to LaSalle Sts.

CHICAGO, ILL.

Phone Yards 525.

Evans & Howard Fire Brick Co.

ST. LOUIS, U. S. A.

Sewer and Culvert Pipe. Locomotive Tile.
Furnace and Boiler Tile. Fire Brick and Cupola Blocks.
Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

— Made by —

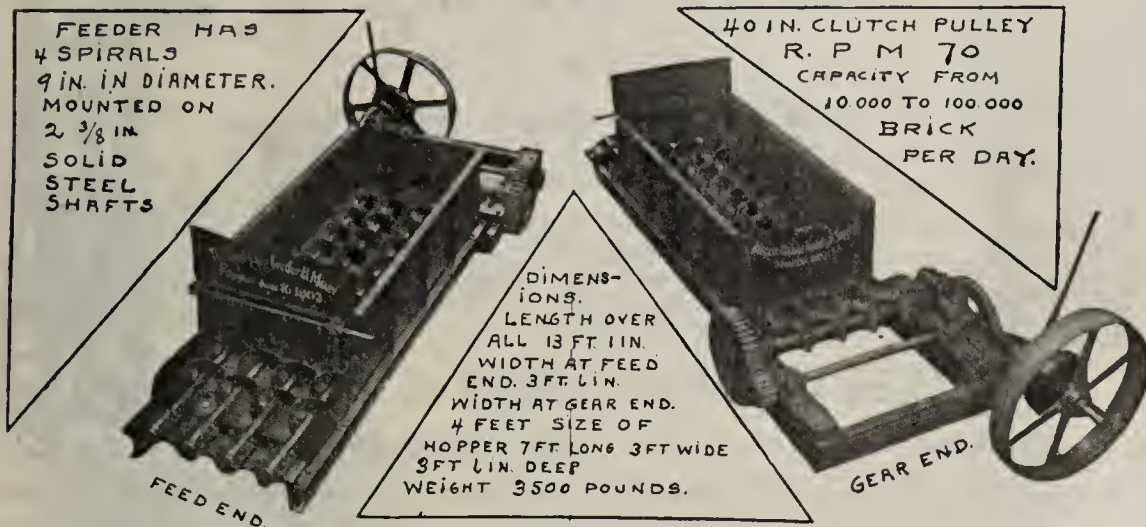
MITCHELL CLAY MFG. CO.,

5627 Manchester Avenue.

ST. LOUIS, MO.

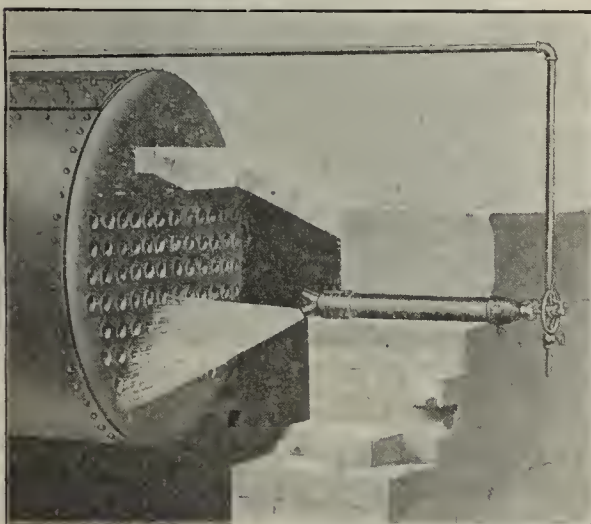
\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)

"FRONT AND REAR VIEW OF TYPE 'B' RUST CLAY FEEDER & MIXER"



The Rust Clay Feeder.

Don't let your profits run away. We can save you from \$500 to \$1000 per year through the use of this model Clay Feeder. Write today for our latest catalog fully describing this new Clay Feeder and Mixer.



The Marion Flue Blower

Patented Feb. 23, 1909.

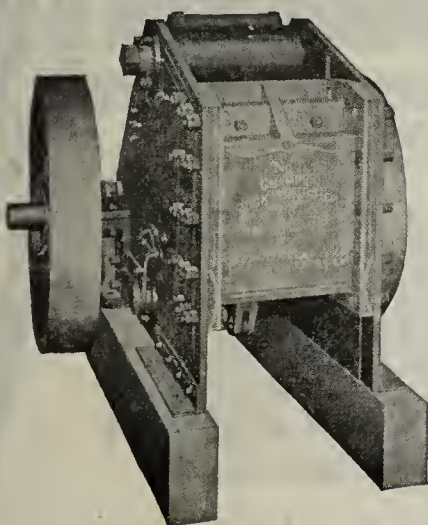
Will save 10 % of your fuel—Will insure you clean tubes—Will prolong the life of the boiler—Will prevent the accumulation of soot—Will save the cost of steam hose—Will enable you to clean your boiler while in commission.

The accompanying cut shows how the Flue Blower is installed in the rear wall of your boiler. Each Blower is fitted with a nozzle which rotates, and each opening in the nozzle blows a section of the boiler tubes at a time. We furnish different size nozzles as required, and positively guarantee to blow each flue clean.

Please send for our latest catalog fully describing this useful invention.

Marion Machine, Foundry & Supply Co.
MARION, IND.

The Champion Crusher



NO. 5, 11x26 CHAMPION CRUSHER

In crushing Shale, Fire Clay, Rock and Other Hard Materials

HAS NO EQUAL

This Steel Rock Crusher is a prime favorite. Efficient and Economical in Operation. Convenient to Handle.

BUILT FOR SERVICE

American Road Machine Co.,

Write for Catalog.

Kennett Square, Pa.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address

T. A. RANDALL & CO.,
Indianapolis, Ind.

MANGANESE

FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

METALLIC ALLOYS Co.

99 JOHN ST. NEW YORK, N.Y.

SUCCESSORS TO KENDALL & FLICK.



They Never Fade

Twenty-Five Long Years

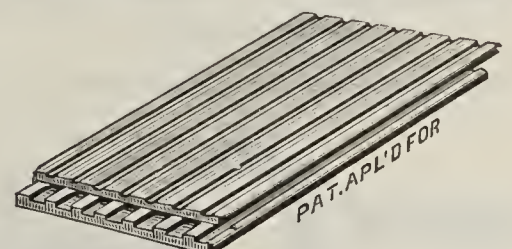
of time and weather have tried out Ricketson's famous **Red Brick brand**

COLOR

For Mortar, Brick, Cement, Stone, etc. Proved to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson's Mineral Paint Works
Milwaukee, Wis.

Roofing Tile Machinery.



Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

MUELLER BROS.,
2935 Clark Avenue. St. Louis, Mo.

C. K. WILLIAMS & CO.,
EASTON, PA.

Largest Manufacturers in
United States of

Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
on application.

Chattanooga Paint Co.,
Chattanooga, Tenn.

Manufacturers of

**Red Oxides for Brick-
makers' Use.**

**Eclipse
Mortar Colors,**

Red, Brown, Buff, Black.

Clinton Metallic Paint Co.,
CLINTON, N. Y.

Largest and Oldest Manufacturers
of
Brick and Mortar

COLORING

Be sure you get the genuine with the
"Little Yellow Side-Label"
on each package.

Let us tell you about Side-Walk Black.

GABRIEL & SCHALL
P. O. Box 1712. 205 Pearl Street.
NEW YORK.

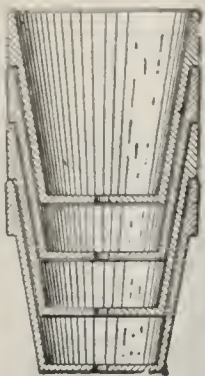
Sole Importers in the United States of the

Precipitated  Carbonate
of Barytes

The only preventative for scum and discolor-
ation on Facing Brick and Terra Cotta, neu-
tralizing the Sulphate of Lime in the Clay and
Water.

Circulars and Particulars on Application.

Mention The Clay-Worker
When Writing to Advertisers.



Make Money

WITH THE ONLY SUCCESSFUL

Flower Pot Machine (PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.

The Rockwood Mfg. Co.,

1801 English Ave.

INDIANAPOLIS, IND.



Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE
CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

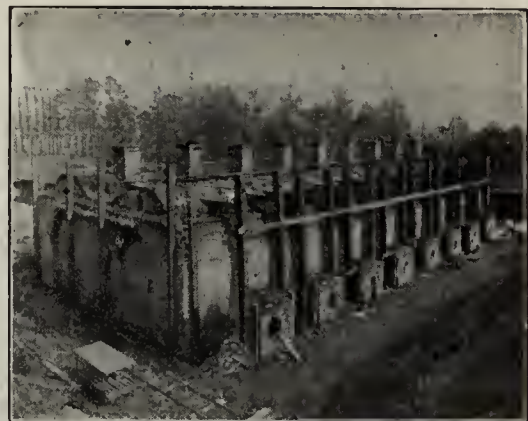
Some Claims Made for the Dennis Double Cham-
ber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.



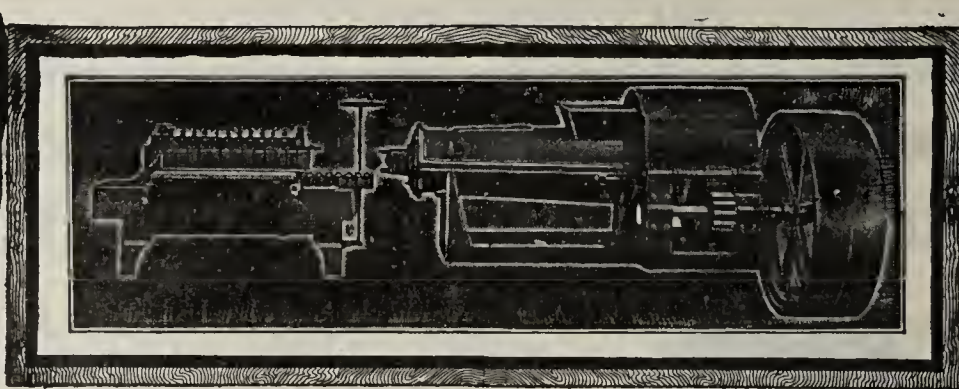
Double Up and Down Draft Kiln.

ADDRESS

F. W. Dennis

136 Main St.,

NORFOLK, VA.



THE PIONEER. Kells Brick and Tile Machine

has been the synonym of excellence in the Brick and Clay-
working industry for the past thirty years.

It has had few rivals and no superiors. Improved from
year to year to gain increased

Strength, Simplicity, Durability, Efficiency and Quality
of finished product, until it has reached the highest state of
the Mechanical Arts in Brickmaking.

Our new handbook will give you the detailed informa-
tion desired.

The Kells Foundry and Machine Co.
ADRIAN, MICH.

CHOOSE WISELY . . .

when you buy a SEWING MACHINE. You'll find all sorts and kinds at corresponding prices. But if you want a reputable serviceable Machine, then take

the **. WHITE .**



27 years experience has enabled us to bring out a HANDSOME, SYMMETRICAL and WELL-BUILT PRODUCT, combining in its make-up all the good points found on high grade machines and others that are exclusively WHITE—for instance, our *TENSION INDICATOR*, a device that shows the tension at a glance, and we have others that appeal to careful buyers. All Drop Heads have Automatic Lift and beautiful Swell Front, Golden Oak Workwork, Vibrator and Rotary Shuttle Styles.

OUR ELEGANT H. T. CATALOGUES GIVE FULL PARTICULARS, FREE.

WHITE SEWING MACHINE CO. . . . Cleveland, Ohio

INDIANAPOLIS OFFICE:

138 E. New York Street, Cor. New York, Delaware and Massachusetts Avenue

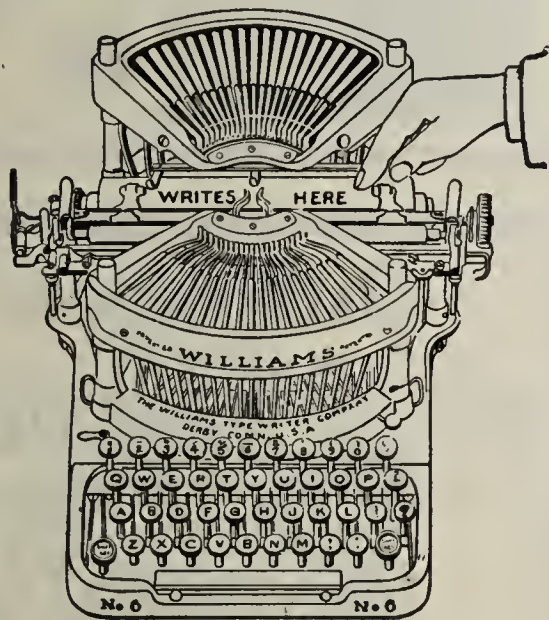
WHEN WRITING TO ADVERTISERS
Mention the CLAY-WORKER.

SEEING

Saves the beginner time when learning.

Saves the learned time when beginning.

New
Number
Six
Visible
Writer



Saves time, energy, worry and money.

Gives speed, simplicity and beautiful work. Single shift. Strictly visible writing.

Old machines of any make taken in trade.

The Williams is sold under a positive guarantee and on easy terms.

If you want the best value in a typewriter ever offered, write us.

Williams Typewriter Agency,

Indiana Agency, 221 East Ohio Street, Indianapolis, Ind.

Home Office and Factory,
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Old Machines Taken in Trade.



If...

You Want
to Sell
or Buy...

Second-hand Clayworking Machinery, Tile Mills, or anything pertaining thereto.

If...
You Want
a Man

for any position or a position in any connection with the Clayworking Trades use the

For Sale
and Want
Columns
of...

The...
Clay=Worker.

RATES

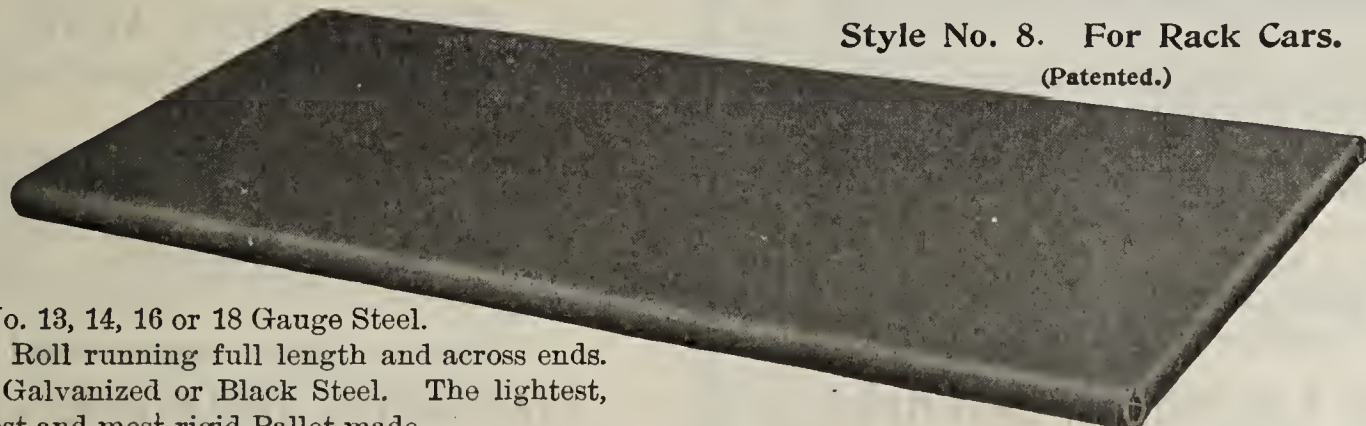
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The Best, Quickest, Cheapest Method of Securing Results.

"OHIO" ROLLED EDGE STEEL BRICK PALLET.

Style No. 8. For Rack Cars.

(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.

5/8-inch Roll running full length and across ends.

Either Galvanized or Black Steel. The lightest, strongest and most rigid Pallet made.

THE OHIO GALVANIZING AND MANUFACTURING COMPANY, Niles, Ohio.



A large number of concerns have been buying of us ten to twenty-five years. Could we hold their trade if lower priced belts were really as guaranteed—"equal to LEVIATHAN?"

There is just one true thing about that "guarantee," it acknowledges LEVIATHAN as the standard of belting excellence, in power transmitting, conveying and elevating, be the conditions wet, dry or hot.

There is only one LEVIATHAN belting. We are its sole manufacturers, and its excellence is a live quality relying on no mere reputation and *needing* no "guaranteeing" to the man who knows it in actual use.

May we send you an illustrated catalogue, short but to the point?

Main Belting Company

1224 Carpenter Street,
59 Market Street,
118 Pearl Street,
305 Broadway
908 Ellicott Square,
33 Terminal Way,

PHILADELPHIA
CHICAGO
BOSTON
NEW YORK
BUFFALO
PITTSBURGH

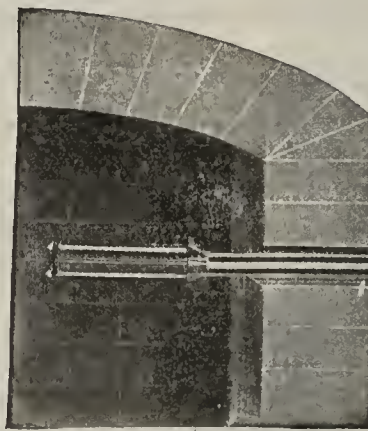
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
618 Fourteenth St., N. E., Washington, D. C.

PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

EDWARD BROWN & SON,
311 Walnut St.,
Philadelphia, Pa.

CLAY HAULAGE

Reduce cost of transportation
by using a

Davenport Industrial Locomotive.



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

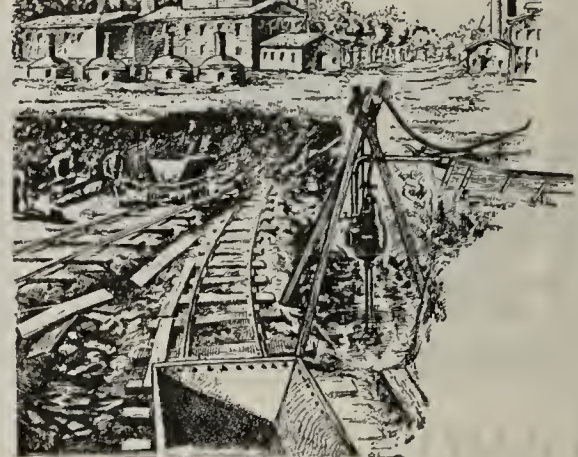
and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars.

Davenport Locomotive Works,
Davenport, Iowa.

Pulsometer Steam Pump



THE EASIEST WAY

to drain clay pits, sewer trenches, excavations, coffer-dams, etc., is to install a

Pulsometer Steam Pump.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Works as well suspended as stationary. May be raised and lowered and swung about without interrupting its work.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.
Chicago Office, 61-69 No. Jefferson St.

Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade Missouri semi-flint fire clay.
A large stock of Number One brick and shapes always on hand.
Let us quote you prices and we will save you money.
Samples sent upon request. Address

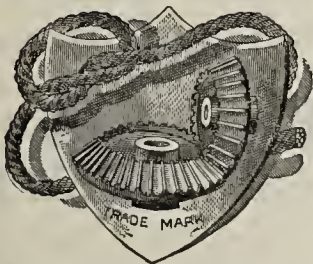
Mexico Brick & Fire Clay Co.

MEXICO, MISSOURI.

Let Us Tell You About Our

GEAR SHIELD

An Adhesive Compound Lubricant that will accomplish WONDERFUL saving in LUBRICATION and PRESERVE the wear of GEARS and PINIONS by preventing NOISE and METALLIC CONTACT between the gear teeth.



THE OHIO FILLER & SHIELD CO.,
Columbus, Ohio.

The New Champion

Brick Mould Sanding Machine

The ORIGINAL, Light Running, Always Running.

CHAIN DRIVEN and BELT DRIVEN.

Patented Spring Feed Rack.

Hundreds in Use.

ONE COMPANY HAS FORTY.

FOR PALLET OR GROUND YARD.

ADDRESS US

FOR INFORMATION and PRICES.

**The Cohoes Iron Foundry
& Machine Co.,**

COHOES, N. Y.

When You Travel EAST OR WEST

Bear in Mind Always that The



"AMERICA'S GREATEST
RAILWAY SYSTEM"

New York Central Lines

Affords the most comfortable service, the fastest and best equipped trains between New York, Boston, Chicago, St. Louis and all connecting Points.

"KNICKERBOCKER SPECIAL"

An Electric-Lighted vestibuled Train, with Stenographer, Maid, Barber, Valet and Bath Service for the benefit ... of its Patrons between ...

ST. LOUIS, INDIANAPOLIS AND
NEW YORK CITY

THE SOUTHWESTERN LIMITED

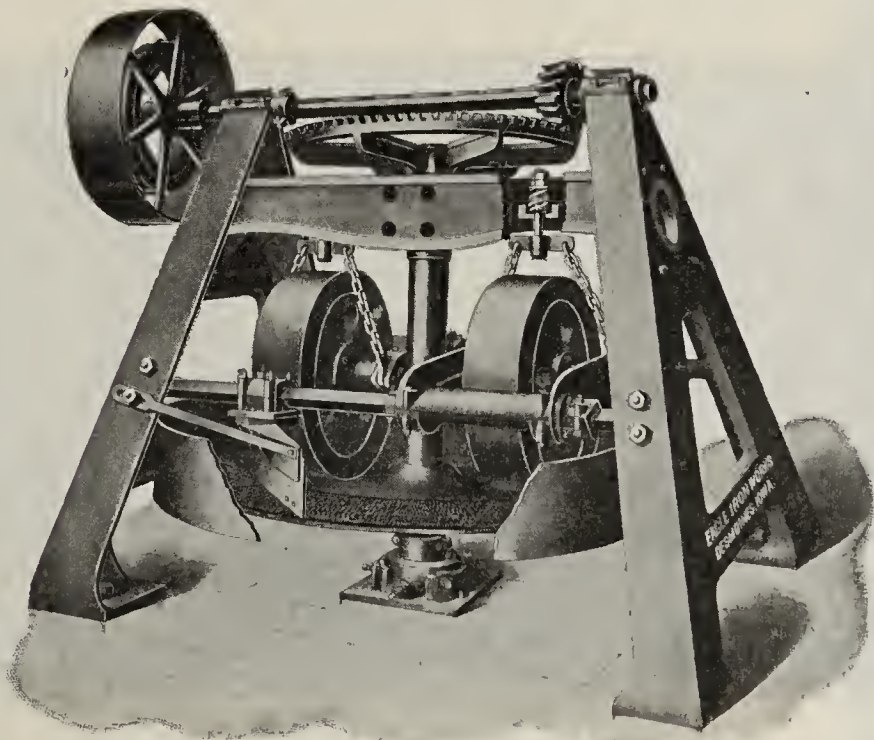
Leaving New York daily at 10:30 a. m. and arriving St. Louis 1:45 p. m. next day, has the same equipment and service. Ask your local ticket agent for full information, or write to

WARREN J. LYNCH

Passenger Traffic Manager : : : Chicago

Independent and Suspended Mullers

the distinguishing
feature of our **DRY PANS.**



Other valuable features which our catalogue fully describes.

EAGLE IRON WORKS,
Des Moines, Iowa.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

Eastwick Plaster Co.,

Works:
East Falls,
Philadelphia, Pa.

New York City.

City Office:

Builders' Exchange,
Philadelphia, Pa.

Washington, D. C.

Trenton, N. J.

Triple Pressure BRICK PRESS

The strongest and most efficient Brick Machine made, and the only Press that gives three distinct pressures to the brick.

We Build and Equip
Complete
SAND-LIME BRICK PLANTS,
SHALE AND CLAY
BRICK PLANTS.

Ross-Keller Triple Pressure
Brick Machine Co.

Offices
Fullerton Bldg., ST. LOUIS, MO.

Handle Your Clay With One Man and The Thew Steam Shovel.



Type No. 2—For Shales and Fire Clays.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN,
OHIO.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.



These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Square Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

Mention The Clay-Worker.

THE BOSS SYSTEM Of Burning Brick.

We Are the Originators of the
Modern Way

Applying

AIR UNDER PRESSURE,
THE PRINCIPLE of which is
CORRECT.

BURNS WITH ALL SLACK OR LIGNITE
NO CLINKERS
NO BROKEN ARCH BRICK
LESS TIME AND LESS LABOR
APPLIES TO ANY STYLE OF KILN
BURNS ANY KIND OF CLAY WARE.

Write for Catalogue.

JOHN C. BOSS,
Monger Bldg. ELKHART, IND.

Madden Tile and Brick Machinery

Built for the heaviest service, of the best material, by the best workmen, in a modern shop—That's the **MADDEN MACHINERY.**

All the shafting in our new mills is of the best hammered steel—The main gears, cut steel—Everything about the machine of the very best.

In buying a **MADDEN** machine you can feel that you will have a mill that will be ready for work every day in the year. No break downs—Small repair bills—Large output in any clay. Don't that interest you?

Write us for our catalogue of horizontal machines to make Brick, Hollow Ware or Tile up to 12 in. Our Vertical machines to make Tile up to 24 in. Disintegrators, Pug Mills, Granulators, Dry Pans, Cutting Tables, etc. for any capacity plant.

MADDEN & CO., RUSHVILLE, IND.

The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
 100 William Street,
 NEW YORK.

As a Preventative of Scums Use
CARBONATE OF BARYTES
 R. & H. PRECIPITATED.

Oxide Tin,
 Oxide Cobalt,
 Red Oxide Iron,
 Green Oxide Chrome,
 White Oxide Antimony,
 Black Oxide Manganese and
 all Chemicals used by the Clay Trades.

The Richardson-Lovejoy Engineering Company

Manufacturing Propositions Investigated. Clayworking Plants Designed and Construction Superintended.
 Dryers and Kilns of every type, adapted to the special conditions and purposes.

Pamphlets, "Ceramic Engineering" and "Brick Kilns," free.

SCHULTZ BUILDING, 232½ North High Street, COLUMBUS, OHIO.

REMARKABLE OFFER.

We will send this famous Gold Pointed pen, post paid, and The CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

Gen. Lew. Wallace: The author of "Ben Hur" writes, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

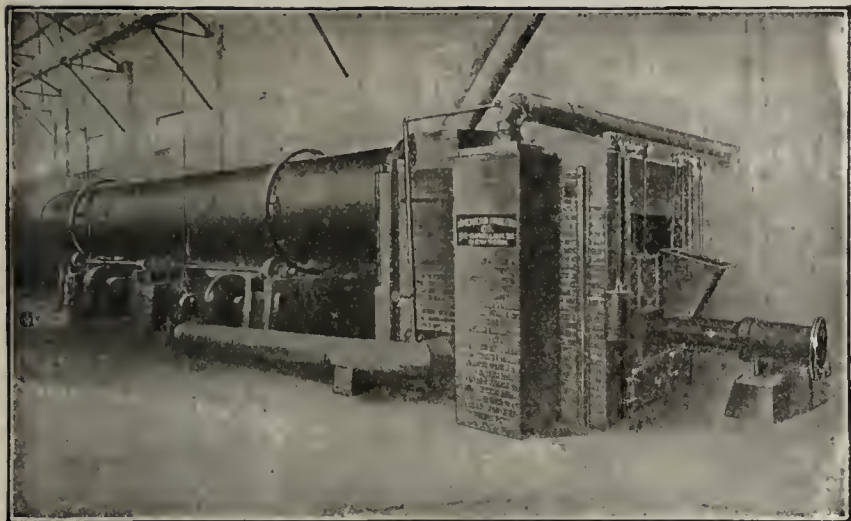
Judge Luther L. Mills, Chicago: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

Dr. Josiah Strong: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the "Post" leaves nothing to be desired."

The CLAY-WORKER, INDIANAPOLIS, INDIANA.



The New Way.



Automatic Improved DRYERS

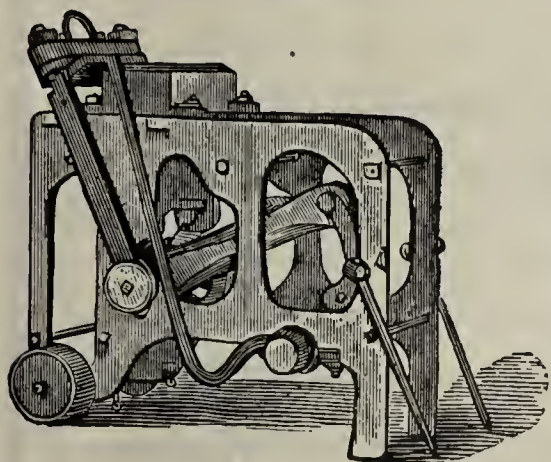
ECONOMICAL, EFFICIENT, GREAT CAPACITY.

For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

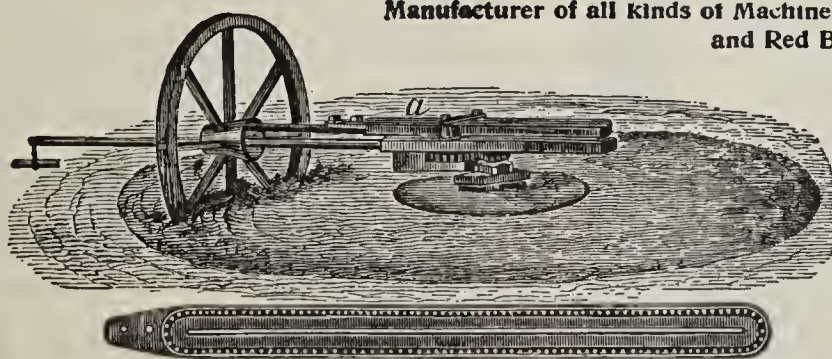


RED BRICK PRESS.

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

GEORGE CARNELL. 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Some Interesting Facts Relating to Drying Clay Products.

Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.



ESTABLISHED IN 1860.

JACOB BUHRER'S TECHNICAL BUREAU, CONSTANCE, GERMANY.

Constructor of Brick, Tile and Lime Works for Coal or Gas Firing, and of Kilns with or without Dryer.

Buhrer's Shortened Kilns are the most suitable for burning ordinary and enamelled goods, lime and cement.

Bricks and Tiles made by the plastic process from clays of normal character may be dried in a Buhrer Dryer in 1½ to 4 days.

The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

References and letters of introduction for visiting works are given on application.

Clay Testing is done in a thorough way.

Write for Illustrated Pamphlet.

About 1,000 Kilns have been constructed already.

BUHRER BRICK AND TILE WORKS WITH BUHRER FANS.

NOVEMBER 1908	Num- ber of Kilns	Num- ber of Fans	Single Fan Wings	Dryers	Length in feet of the fire canals worked with fan draught	Total annual out- put of these works in bricks of 10" x 5" x 2½"
Recently erected Works	132	133	170	95	41,980	732,500,000
Works in Con- struction, 1908	16	14	15	13	4,790	79,000,000
Total Amounts	148	147	185	108	46,770	811,500,000

The Original ^{EXHAUST STEAM} Dryer is the National.

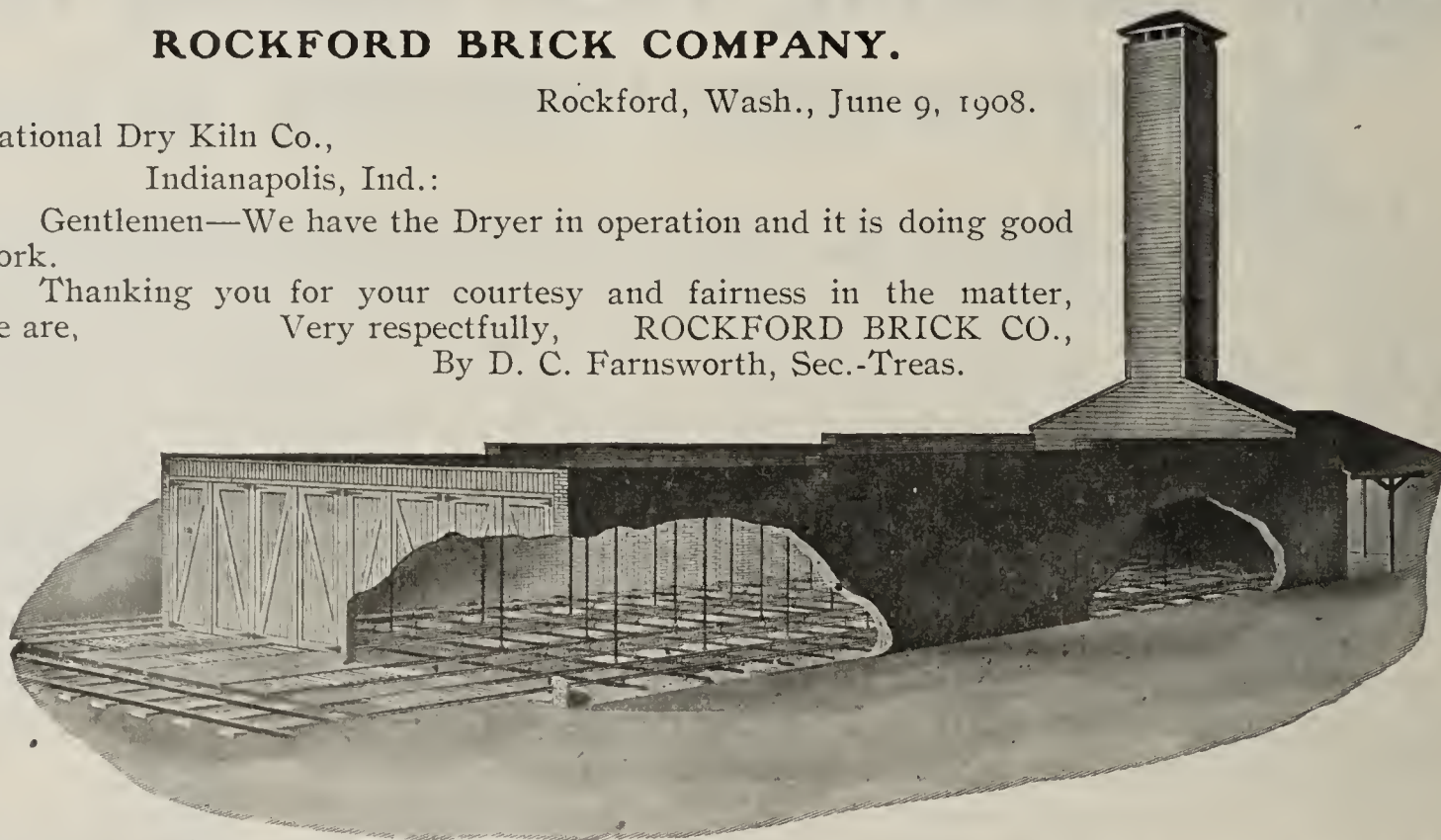
ROCKFORD BRICK COMPANY.

Rockford, Wash., June 9, 1908.

National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—We have the Dryer in operation and it is doing good work.

Thanking you for your courtesy and fairness in the matter,
we are,
Very respectfully, ROCKFORD BRICK CO.,
By D. C. Farnsworth, Sec.-Treas.



No Fan.
Steel Roof Supports.

No Engine.
Steel Roller Bearing Cars, etc.

No Fire Danger.
Steel Foundations.
Ask for Cat. 200

C. H. BEALE, Southern Manager,
Montgomery, Ala.

The National Dry Kiln Co., Indianapolis, Ind.

HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
 Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
 Paving and Common Building Brick,
 AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

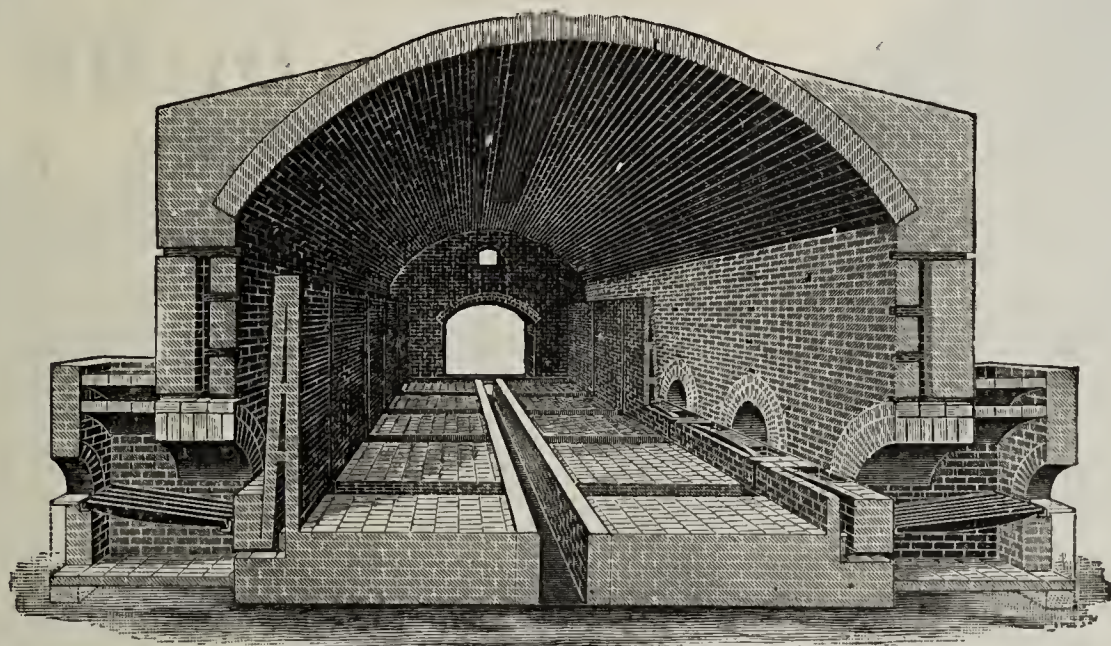
Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
 particulars
 address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.



Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

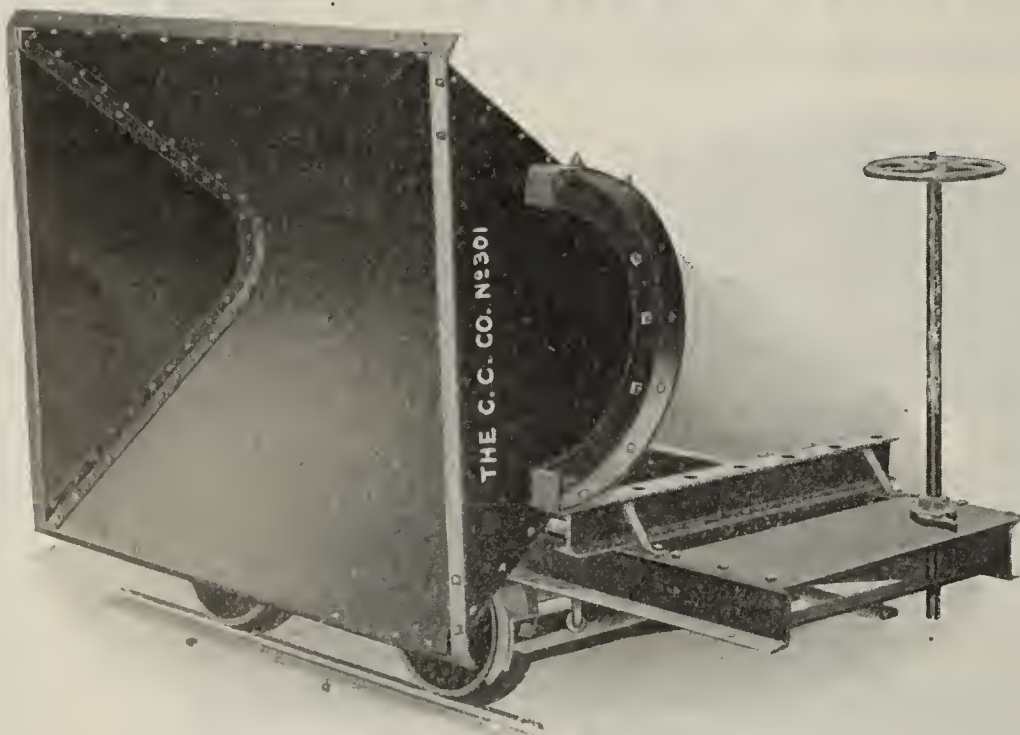
Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.



NO. 301 ROCKER DUMP CAR.

CLEVELAND DUMP CARS ARE RIGHT.

We can convince you of that
fact without difficulty through
a trial order.

Many satisfied users will also
corroborate this statement.

These cars are properly bal-
anced, strongly constructed,
run easily and clear the load
thoroughly.

Note these features carefully
in purchasing your equipment.

The Cleveland Car Co.

WEST PARK, OHIO.

Manufacturers of Industrial Railway Equipment for all Classes of Service.

We Manufacture a Complete Line of BRICK MACHINERY

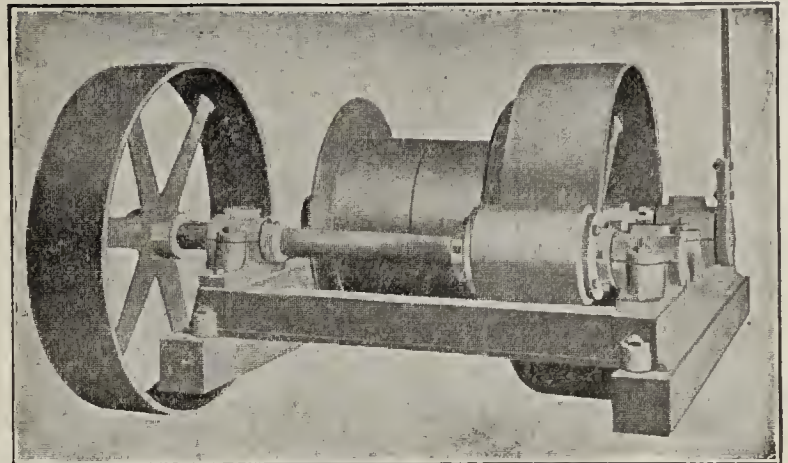
And Make a Specialty of Equipping Yards.

REGULAR BRICK BARROWS.

The best built. Price \$6.50 each.
Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)



There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.



Our Direct Driven Self-Contained Winding
Drum is a Labor-Saver.

For catalogue and any further information address

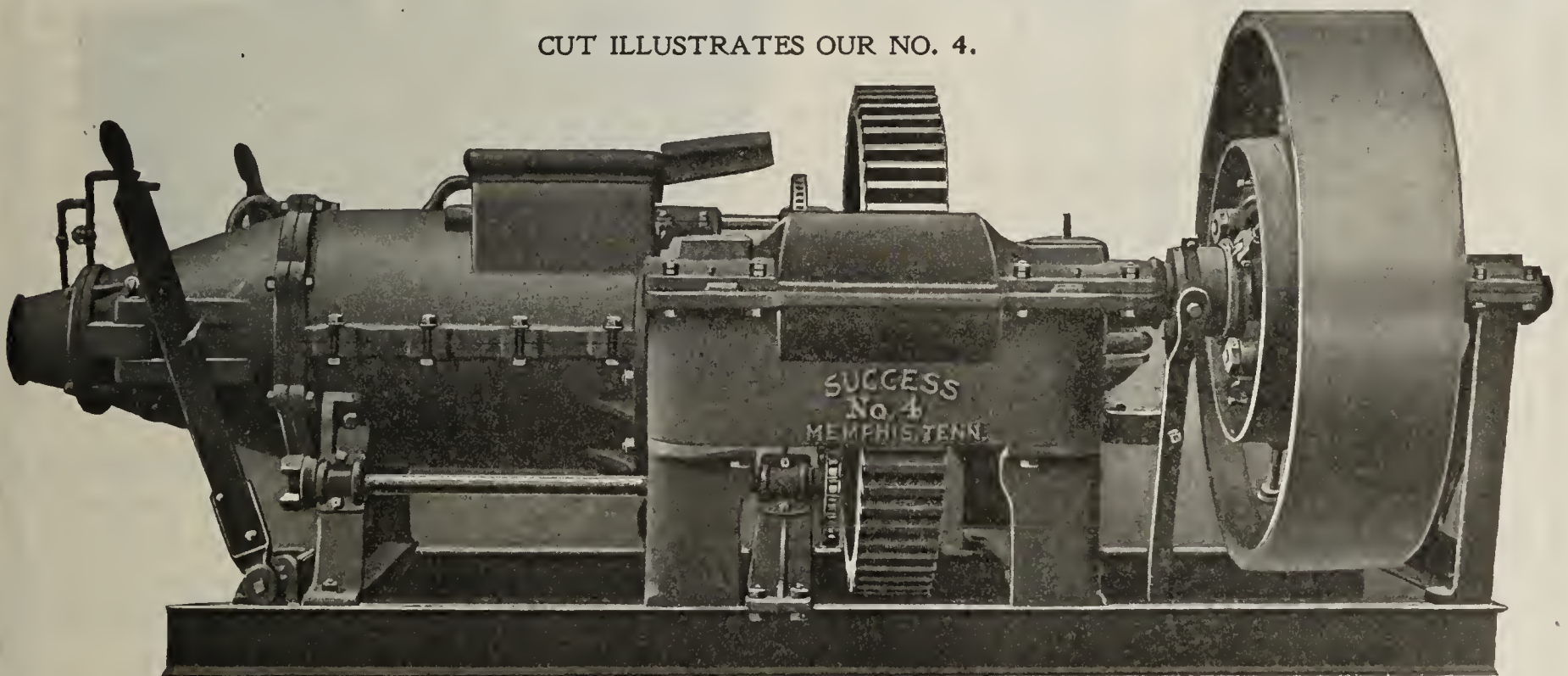
JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

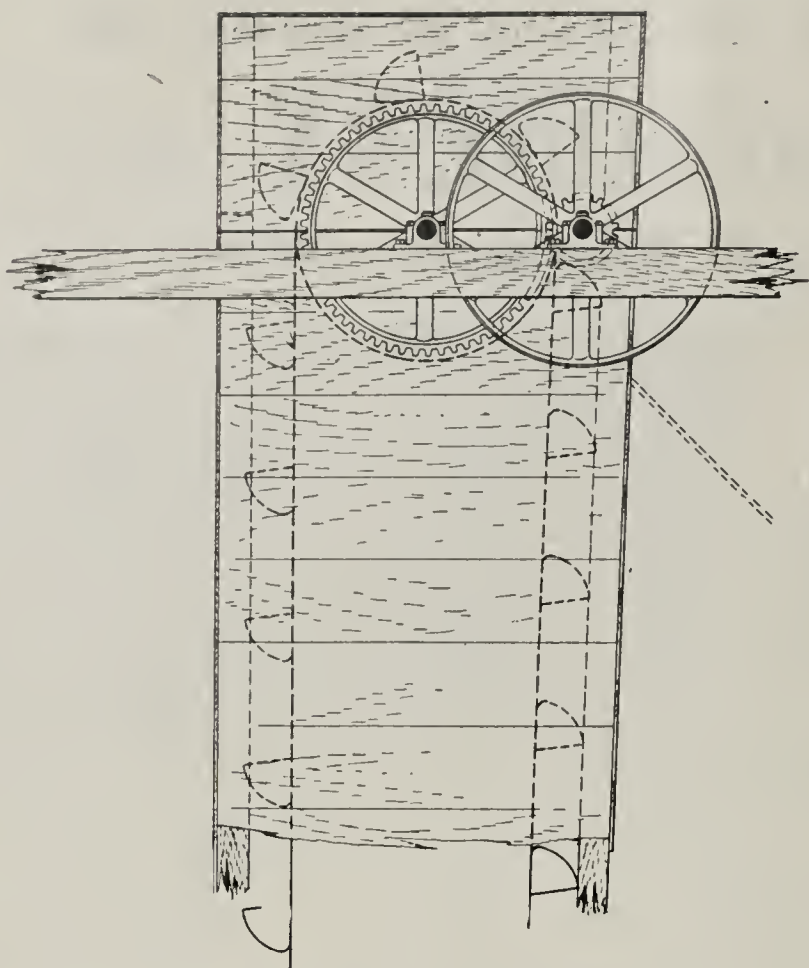
FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.



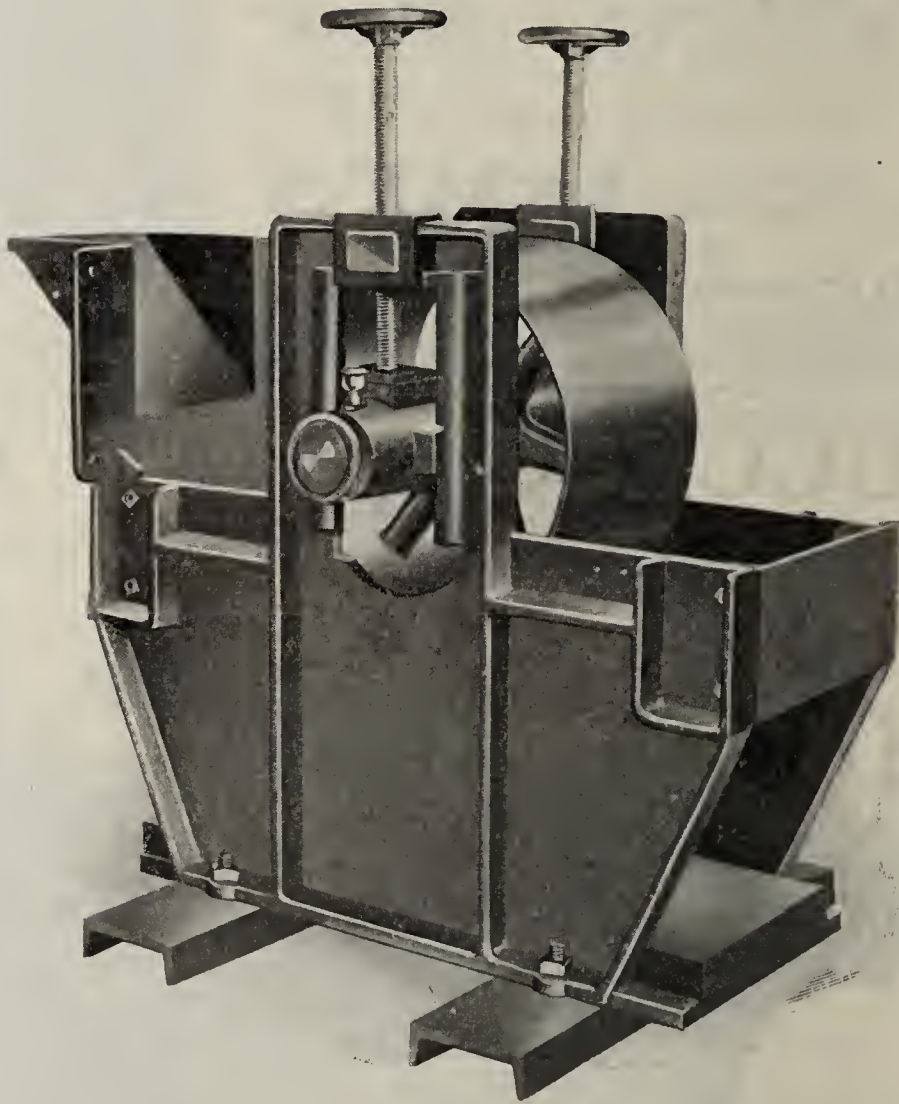
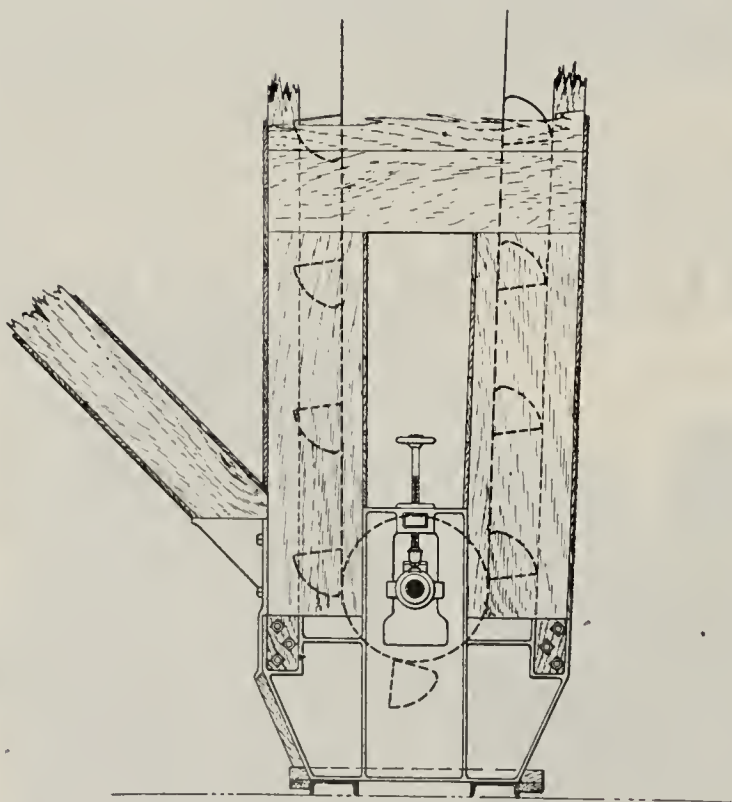
LEARN HOW

to avoid trouble in elevating clay.

READ

our circular "Bucket Elevators for Clay." Send for it NOW.

This advertisement will not be repeated. Something new every month.



The Best of Everything for Clayworkers

The Ceramic Supply & Construction Company

280 North Front St., Columbus, Ohio.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

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This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Tile Underdrainage. By J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

WHY?



THE HYDRAULIC PRESS BRICK COMPANY
Of ST. LOUIS, MO.

Have Contracted with

THE C. W. RAYMOND CO.

... FOR ...

Six Youngren Producer Gas Fired
Continuous Kilns!

Why?

Why?

Why?

Because the Youngren Producer Gas Continuous Kiln will save 60% of the fuel consumption, give even burns with the minimum per centage of kiln losses. IS THAT A REASON?

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Exclusive Licensees P. L. Youngren Patents

DAYTON, OHIO. U. S. A.

DEMONSTRATED FIRST



The numerous novel features expressed in the construction of the "888" Brick Machine make it an ideal one. Not only the latest, but nearer perfection than has ever yet been attained in auger machine construction. Special features, such as the reduction of lamination, ease of operation, everlasting strength, minimum of horse power, and many other conveniences appear in it.

Claims made in its design have been thoroughly tried out under actual working conditions, in five widely divergent plants, manufacturing various products and operating entirely different materials.

Merely the request will bring you a copy of our Exhibit No. 2101, which will explain these thoroughly demonstrated claims.

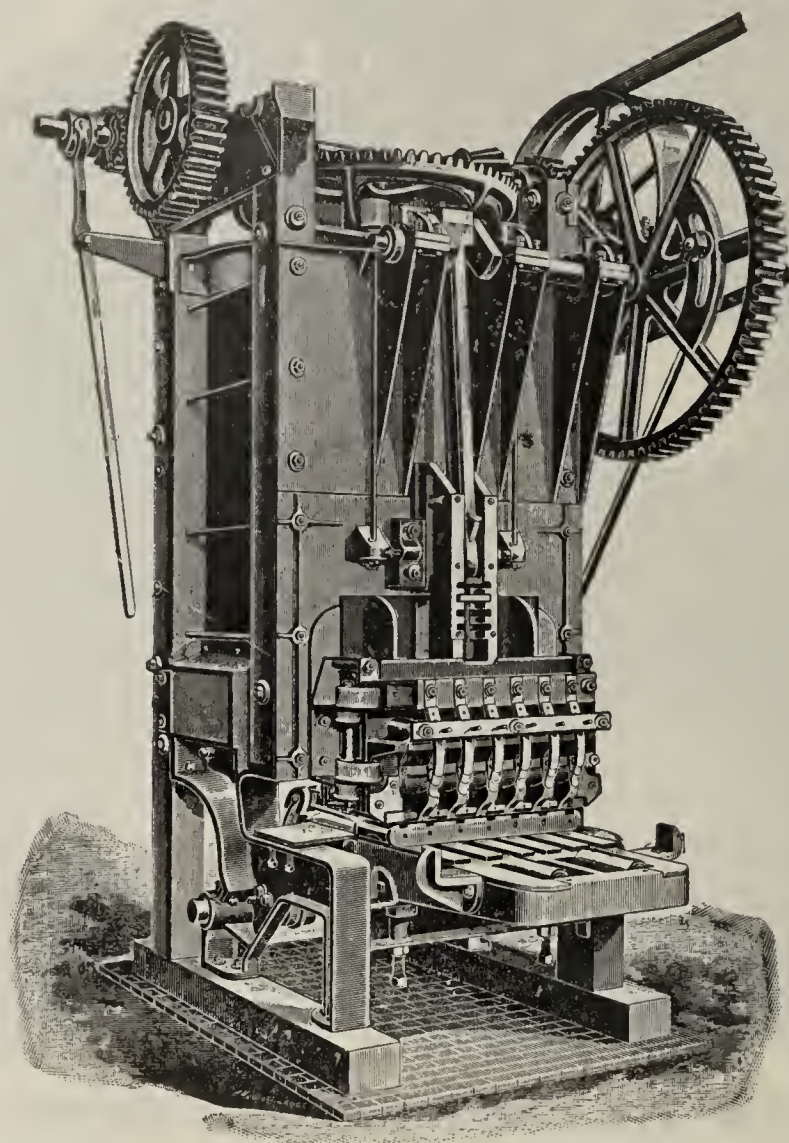
THE C. W. RAYMOND COMPANY

The Strongest Single Power in the World of Clay Working Machinery

DAYTON, OHIO, U. S. A.

GET YOUR MONEY'S WORTH.

NEW HAVEN BRICK MACHINES are by actual weight and measurement the heaviest soft clay brick machines on the market. They are thoroughly reliable and all right.



Write for
Descriptive
Catalog and
Commendatory
Letters from
Satisfied
Users.

We also
Make a
Horizontal
"New Haven."
Let us
Tell you
About it.

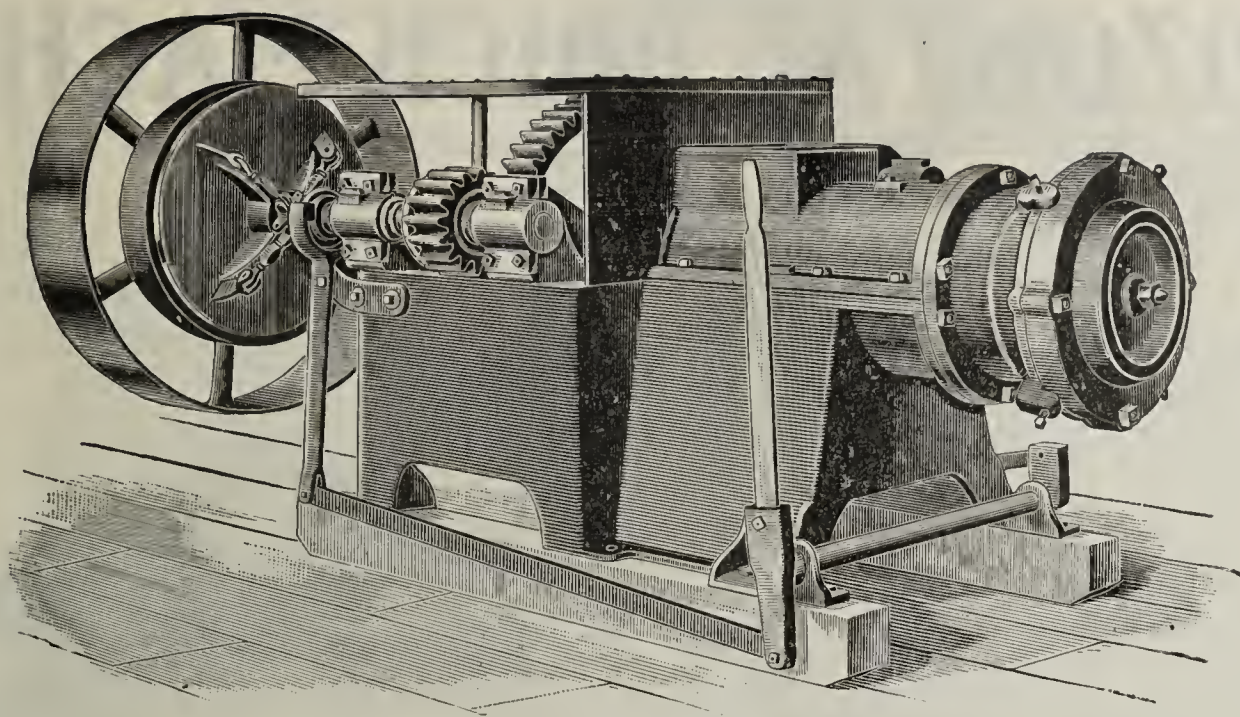
"NEW HAVEN" VERTICAL BRICK MACHINE.

No one gives more for the money invested than we do.
If you want first-class machines that will not break down,
BUY OF US AND GET YOUR MONEY'S WORTH.

If you want a machine that will cost little for repairs,
BUY OF US AND GET YOUR MONEY'S WORTH.

If you want a machine that will turn out first-class brick every day in
the week, every week in the month, every month in the year,
BUY OF US AND GET YOUR MONEY'S WORTH.

The EASTERN MACHINERY CO.,
NEW HAVEN, CONN.



NO. 25 LEADER BRICK AND TILE MACHINE.

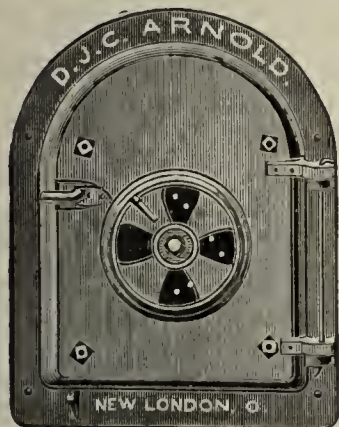
THE TARIFF

Will not be changed enough so you'll notice it. Therefore, you need not hesitate longer to prepare for increased business. Farmers are going to spend some of their wheat money for tile. The "infant industries" are going to spend some of their protection profits for buildings to increase their capacity. And the rest of us will HAVE to hustle. You have heard about the early bird. Better get busy. And don't forget that we are prepared to supply your wants.

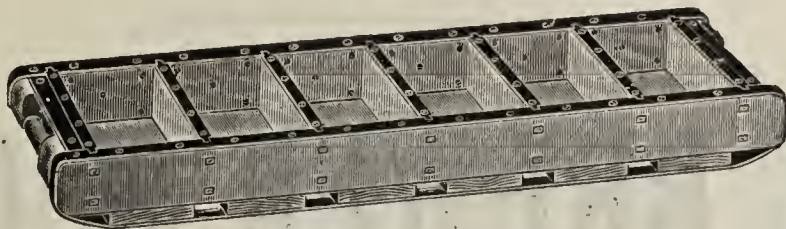
THE ARNOLD-CREAGER CO.,

Shops and General Office:

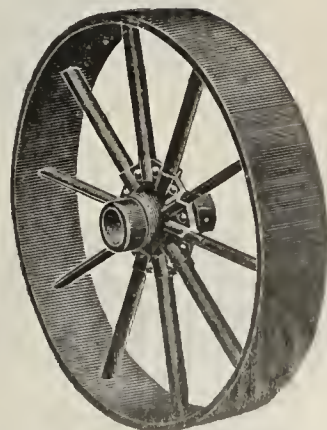
NEW LONDON, OHIO.



KILN DOOR



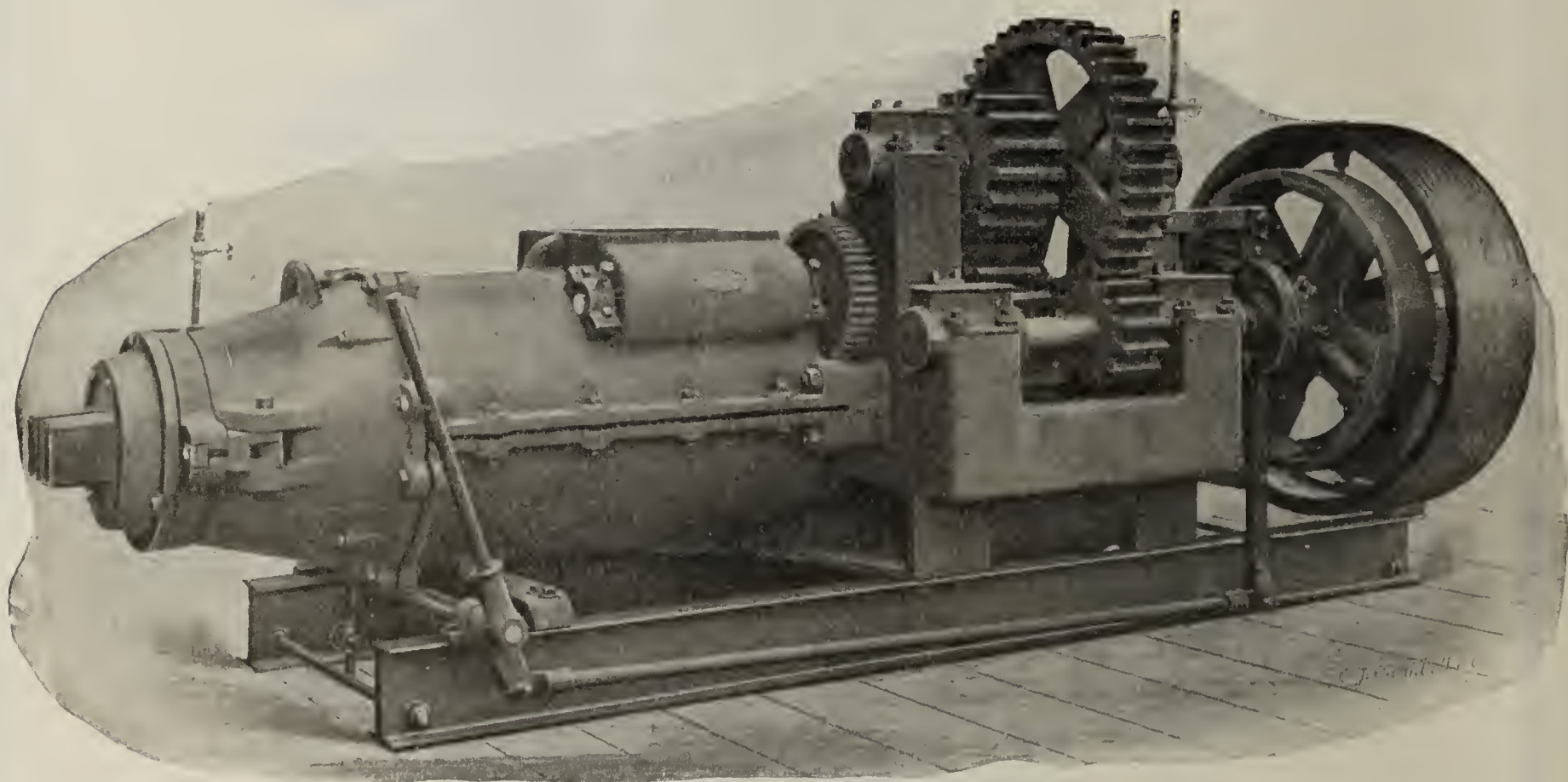
MACHINE MOULD
STEEL LINED FULL DEPTH AT ENDS
OF BRICK.



TRUCK WHEEL

HORIZONTAL BRICK MACHINES.

Brewer Horizontal Brick Machines are built in three sizes, ranging in capacity from 2,000 to 5,000 bricks per hour; in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 bricks per hour is making 3,500, and the machine rated at 5,000 is making 7,500.



Some Features of Construction.

The knives are forged from hard, high-carbon steel, each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The back-thrust bearing is self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

Our catalog contains full specifications. Ask for it.

If Marked



It's Good.

H. BREWER & CO.,

Tecumseh, Michigan.

If Marked

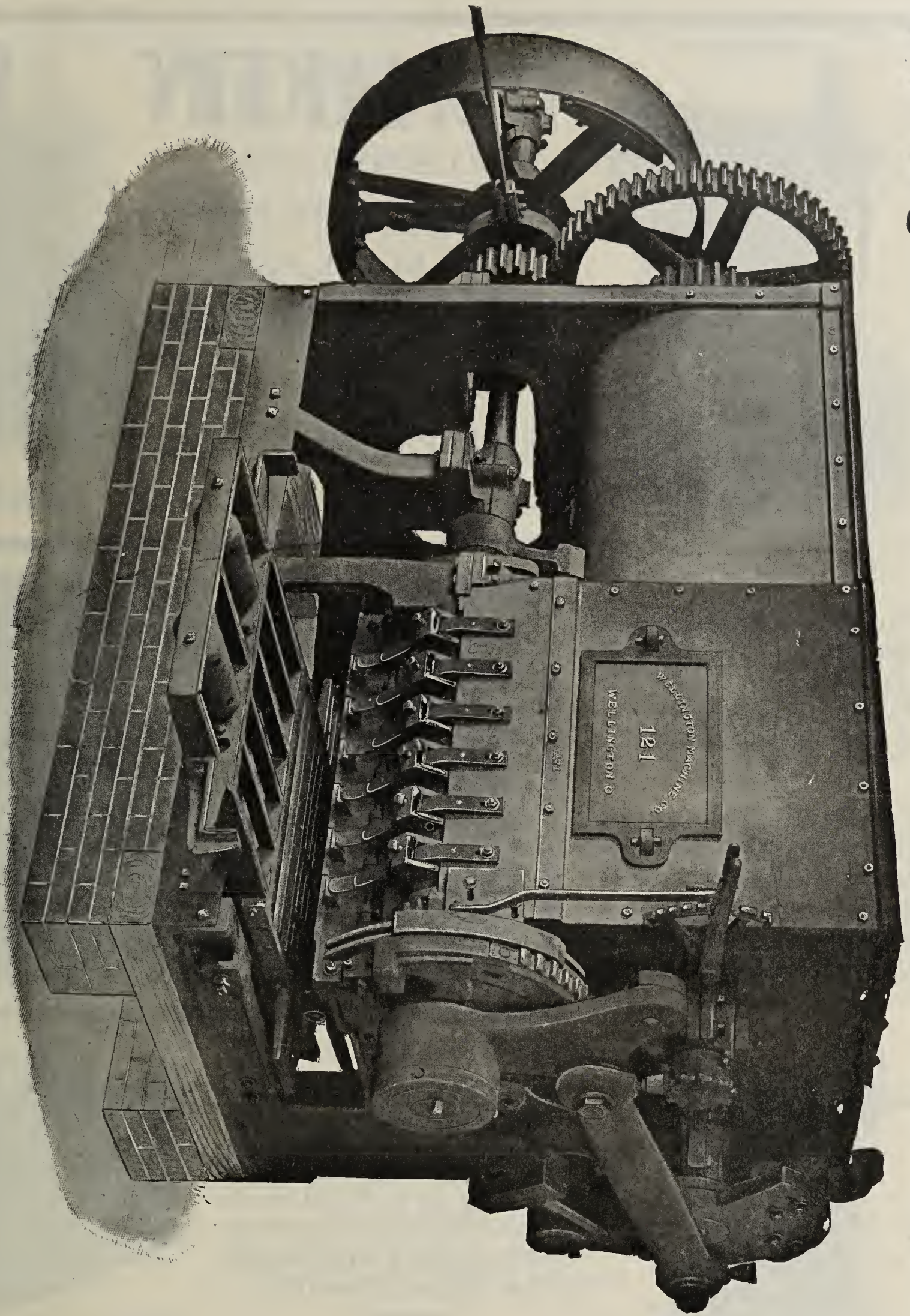


It's Good.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

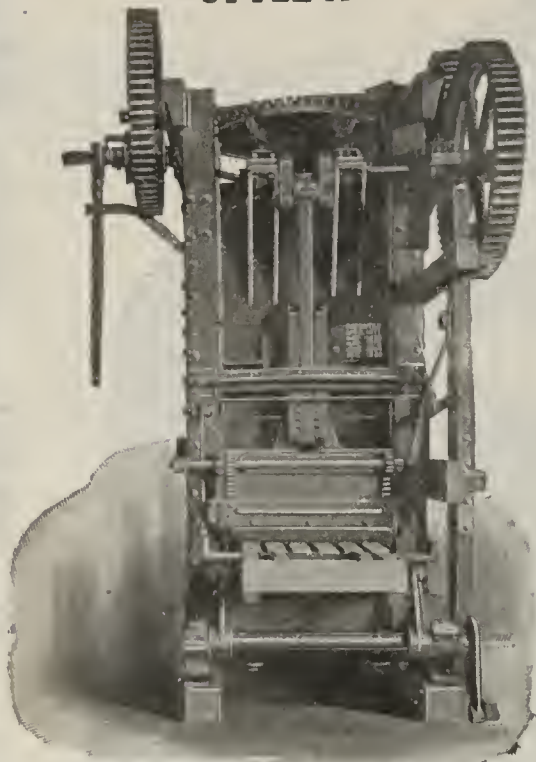
WELLINGTON,

OHIO.

Send for Catalogue.

Mention the Clay-Worker.

—SYTLE A—



STEAM POWER BRICK MACHINE

This View Shows the Handling of the Raw Materials to the "MARTIN" Patent Crusher--also to the Brick Machinery.

The "MARTIN" Company Have the Most Complete Line of Yard Supplies, Brick Moulds, Barrows, Trucks, Elevators, Cars, Conveyors, Dry or Wet Pans

THE "MARTIN"

UP-TO-DATE
Clay Working Machinery
IS BUILT FOR
WORK AND WEAR

WE ARE BUILDERS OF
BRICK PLANTS FOR THE
MANUFACTURE
OF HIGH GRADE BUILDING BRICK

MARTIN
SAND DRYER

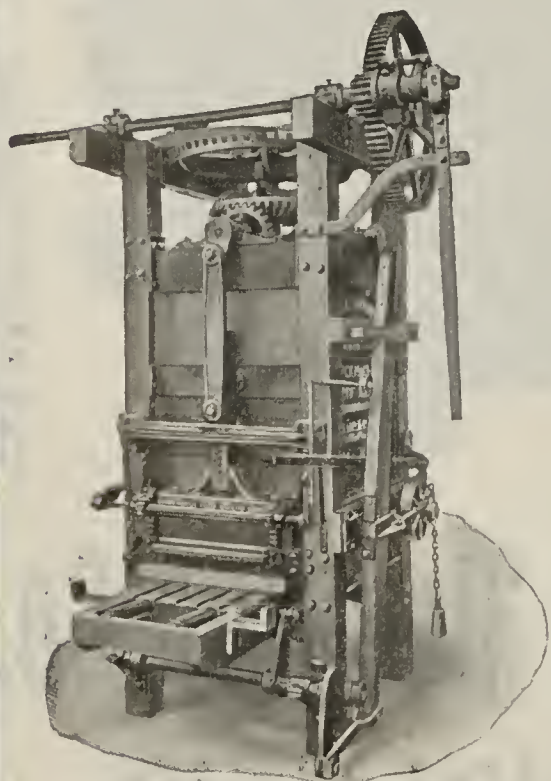
— THAT'S US —

"WE FURNISH EVERYTHING
THE BRICKMAKER NEEDS"

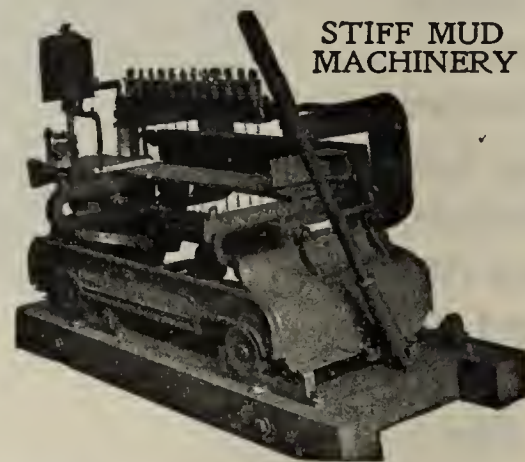
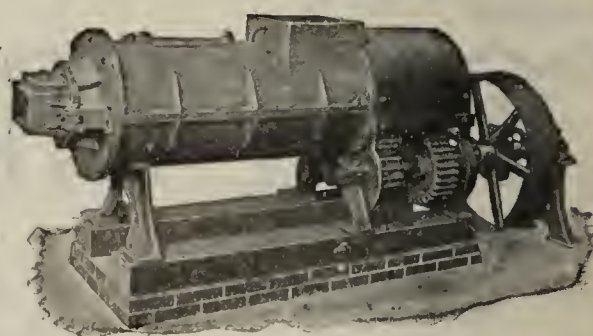
Let Us Talk it Over?
We Are in a Position to
Handle Your Order Most
Satisfactory and Guar-
antee Good Results.

DROP US A LINE

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "B" BRICK MACHINE

STIFF MUD
MACHINERY



ANIMAL POWER
BRICK MACHINERY

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

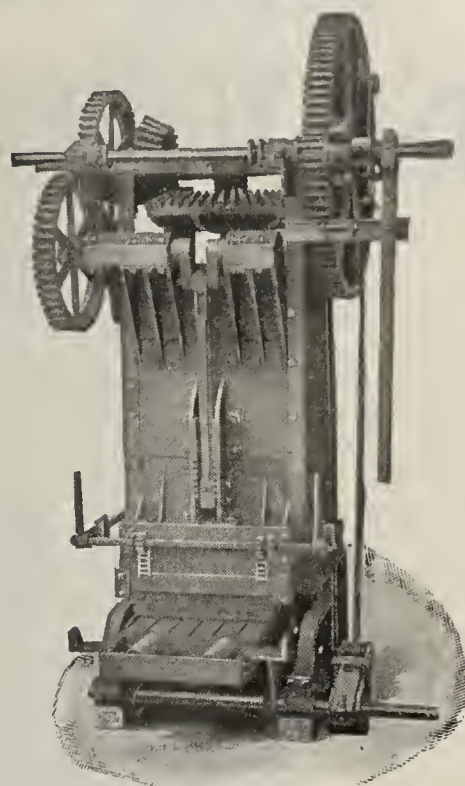
FULLY COVERED BY PATENTS

PATENTED

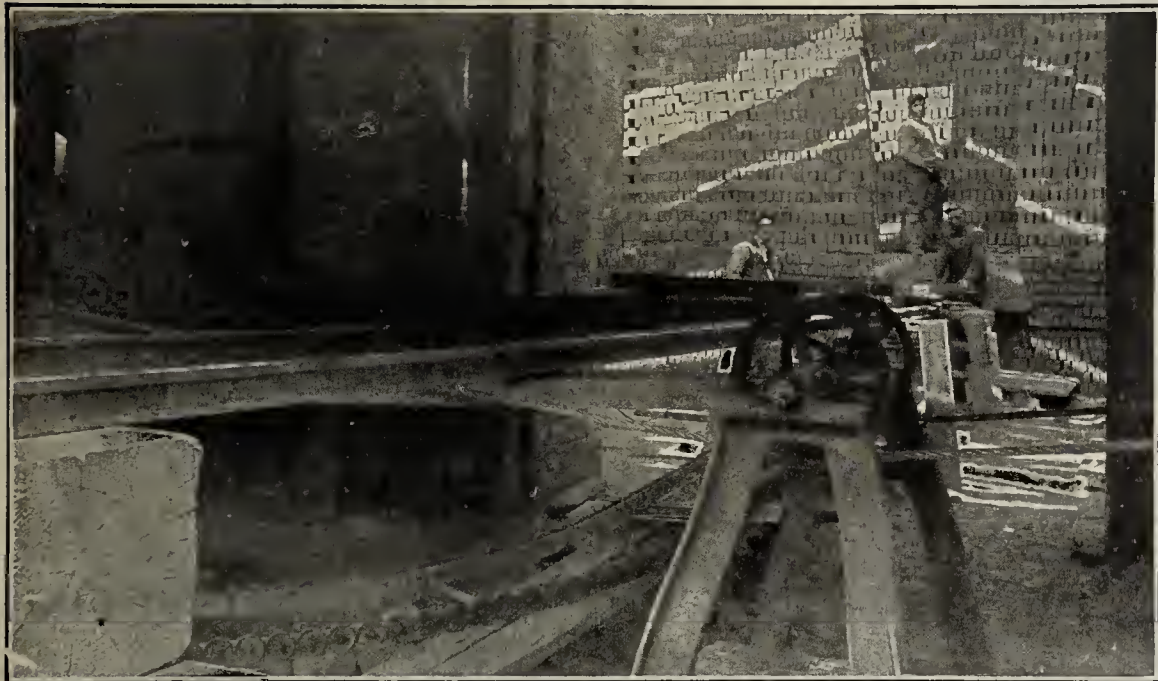
Feb. 22, 1898 -- 599509
Oct. 10, 1905 -- 95520
Nov. 14, 1905 -- 804489
May 26, 1908 -- 888831

UNITED STATES & CANADA

—STYLE "P"—

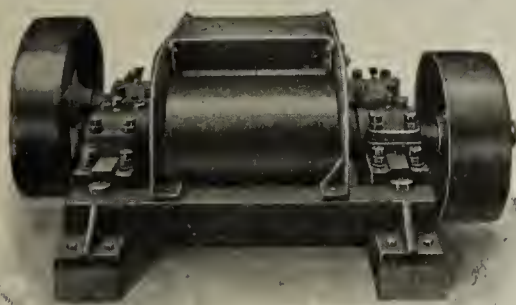


STEAM POWER BRICK MACHINE



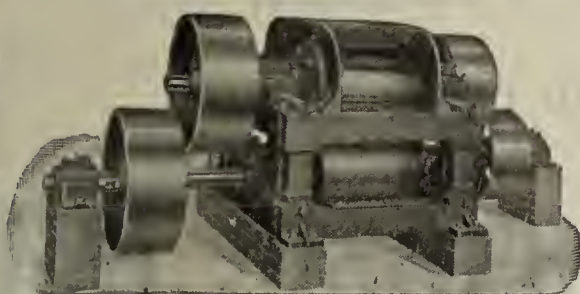
—
This View Shows the
Dried Brick Coming From
A "Martin Patent System"
Steam Brick Dryer to
the Kilns -- Labor Saving

—
The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem -- Quick to Install and
Low in Price -- Investigate



TWO-ROLL DISINTEGRATOR
—PATENTED—

FOUR-ROLL DISINTEGRATOR



THE "MARTIN" COMPANY
AT LANCASTER, PA.

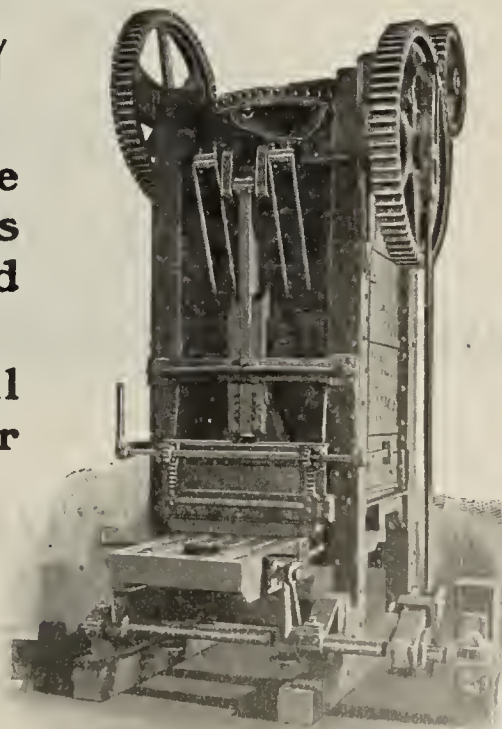
Own and Control These
Important Dryer Patents
and Have Authorized

—NO ONE—

To Manufacture or Sell
This Type of Brick Dryer

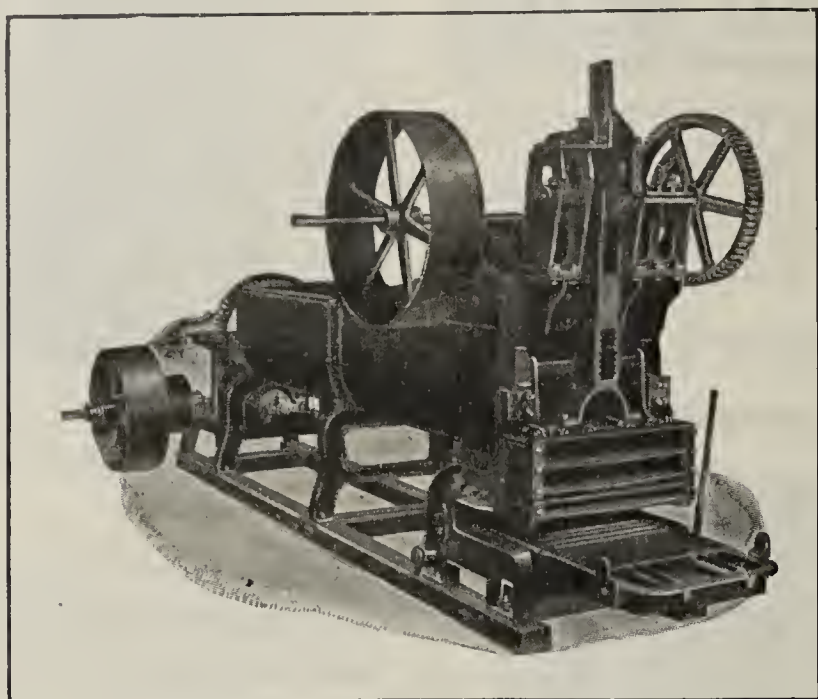
ALL CONTRACTS MADE BY

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.

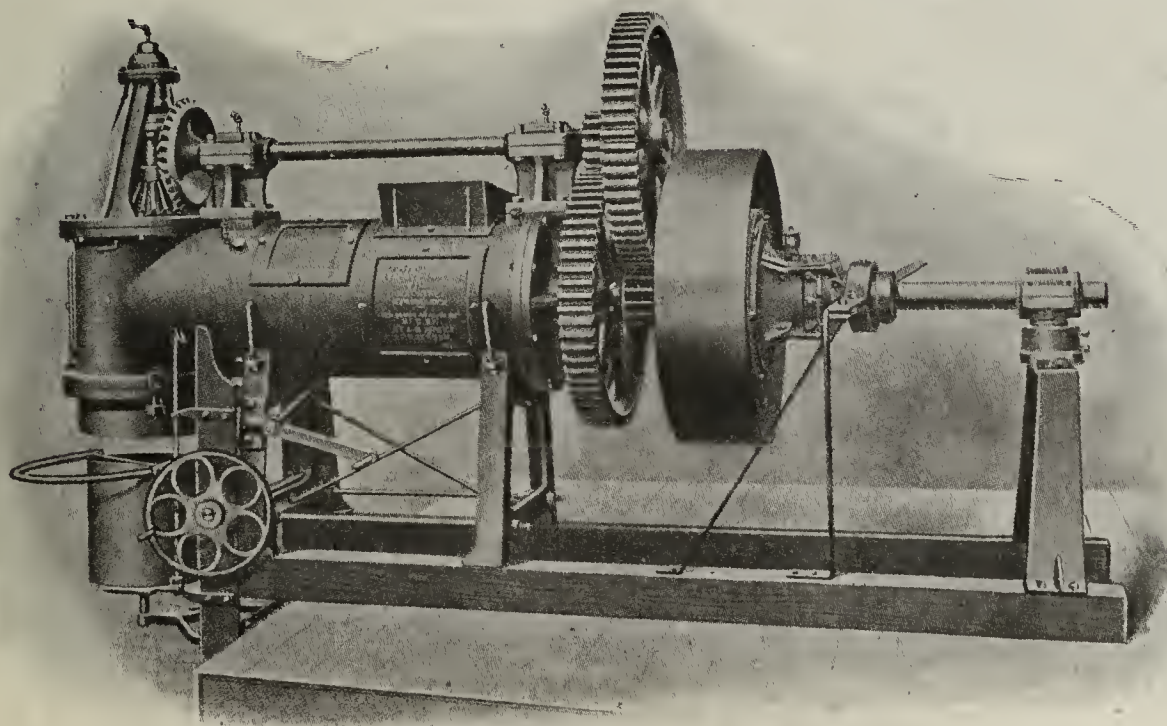
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

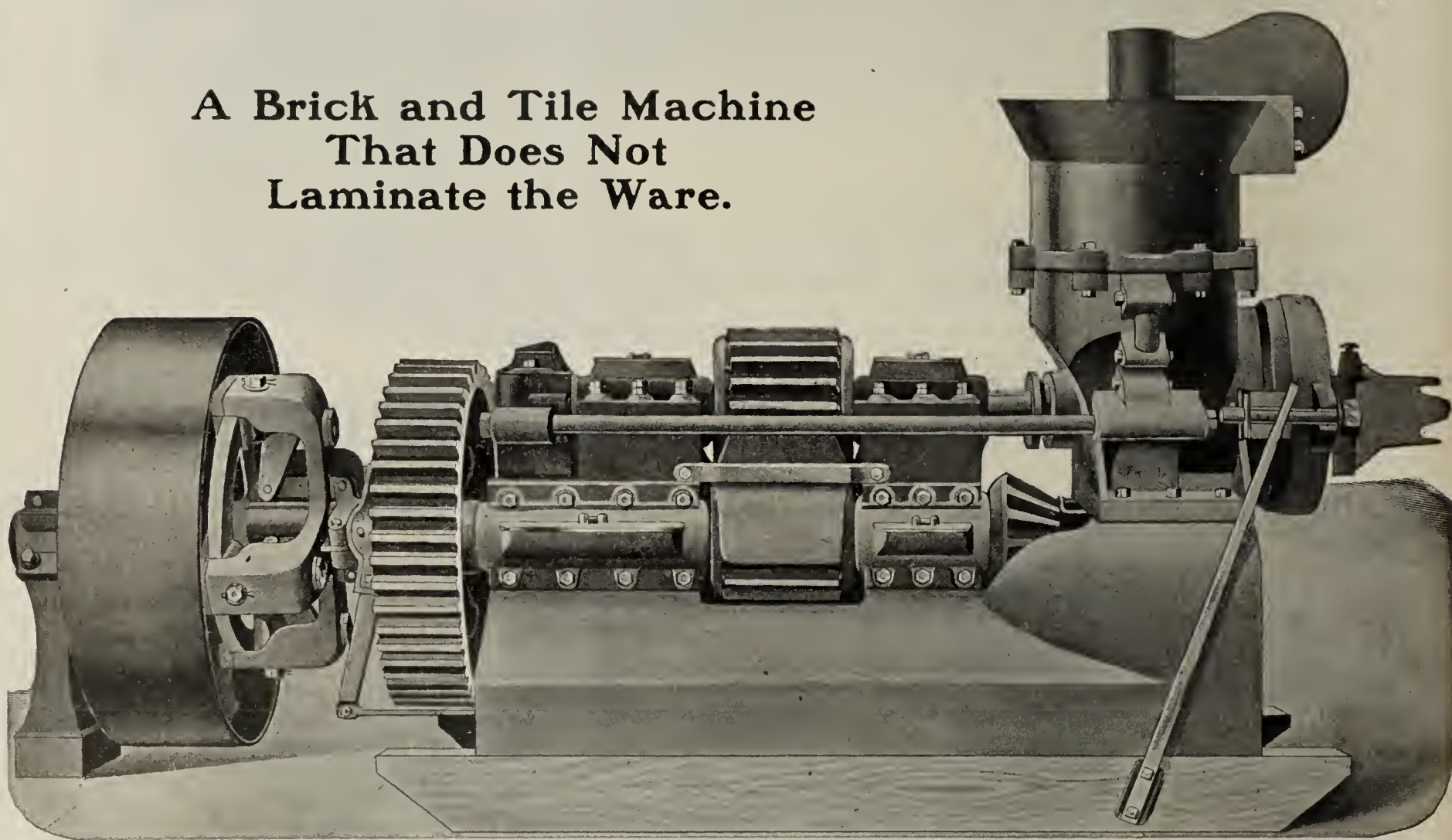
See ad on page 793.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



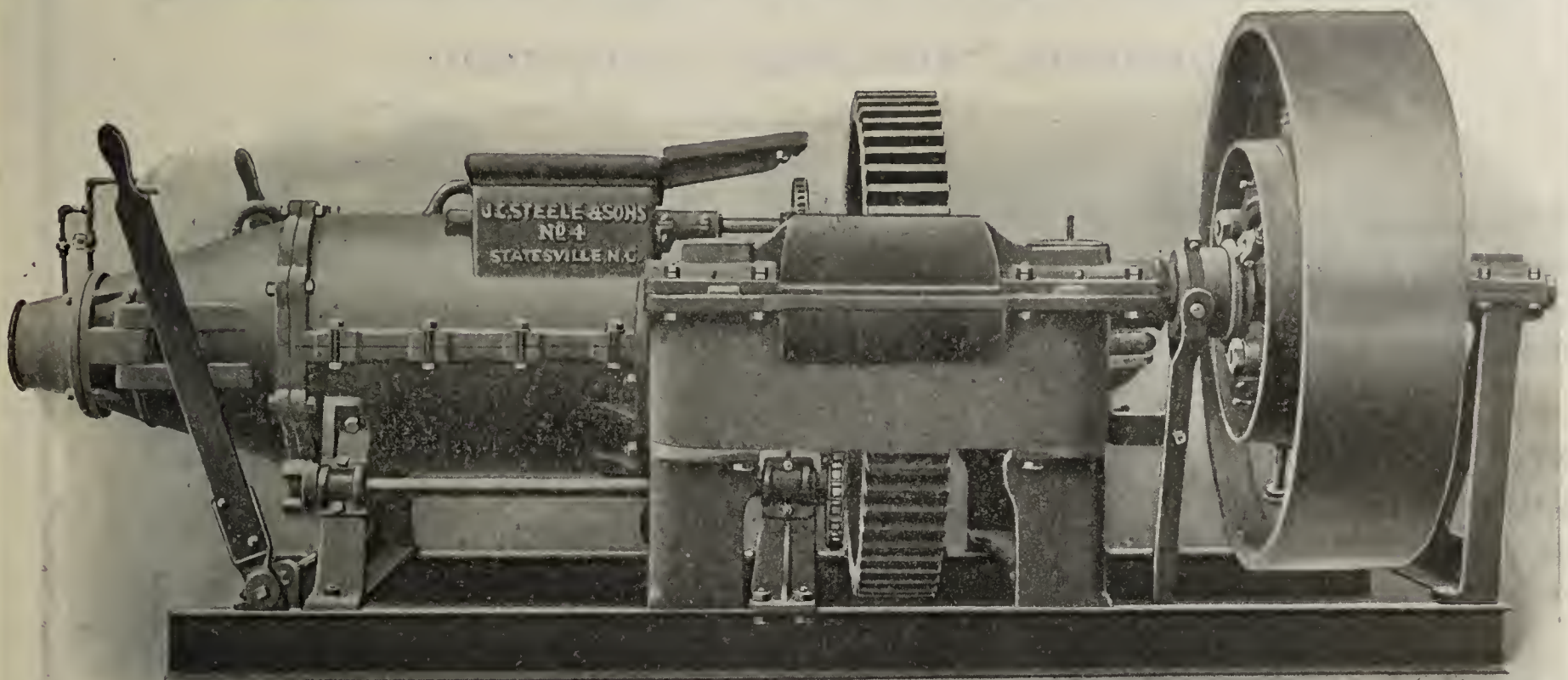
The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

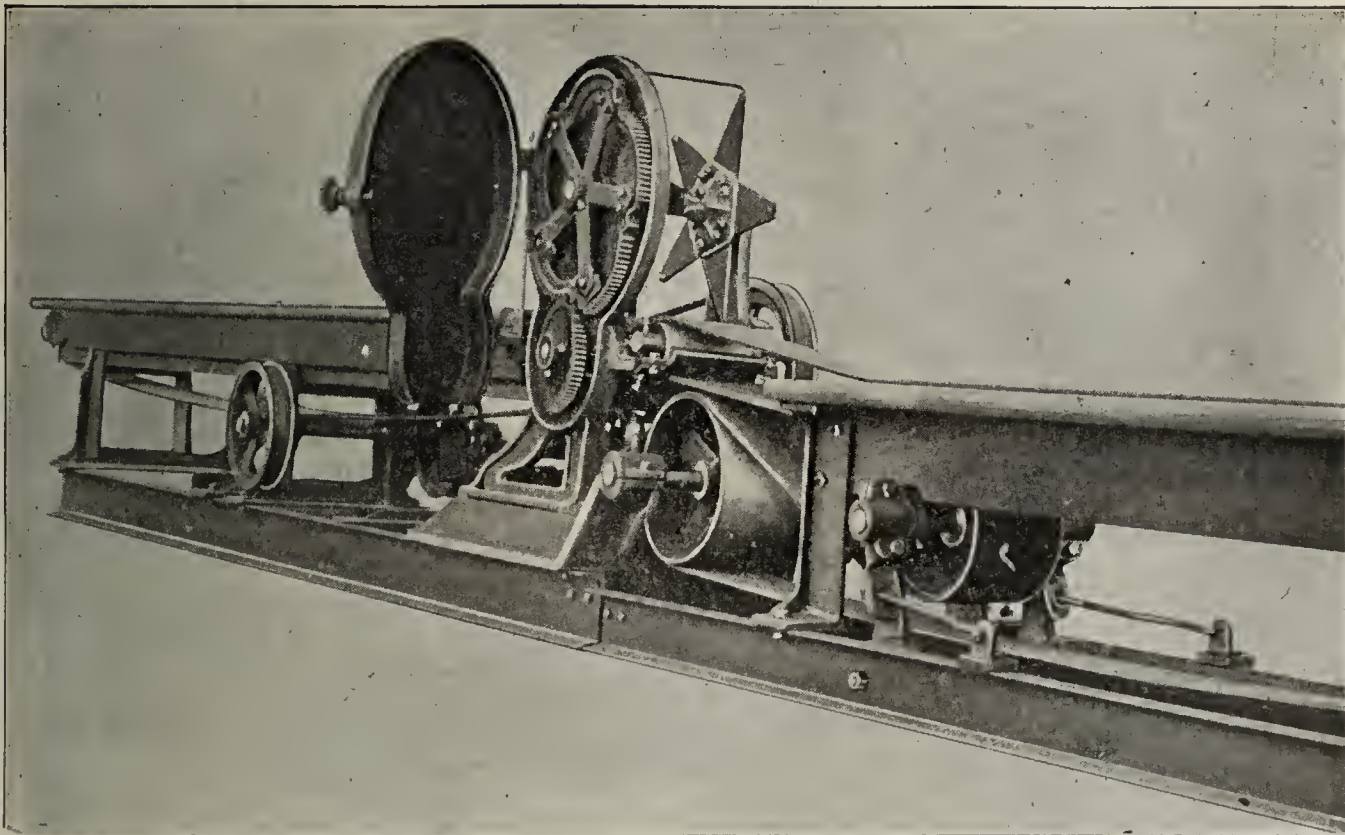
Ask the Man Who Owns One.



FRANKLIN CO. 1911

No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

J. C. STEELE & SONS

STATESVILLE, N. C.

Success Brick Machinery Co., Memphis, Tenn., Western Agents.

Mention The Clay-Worker.

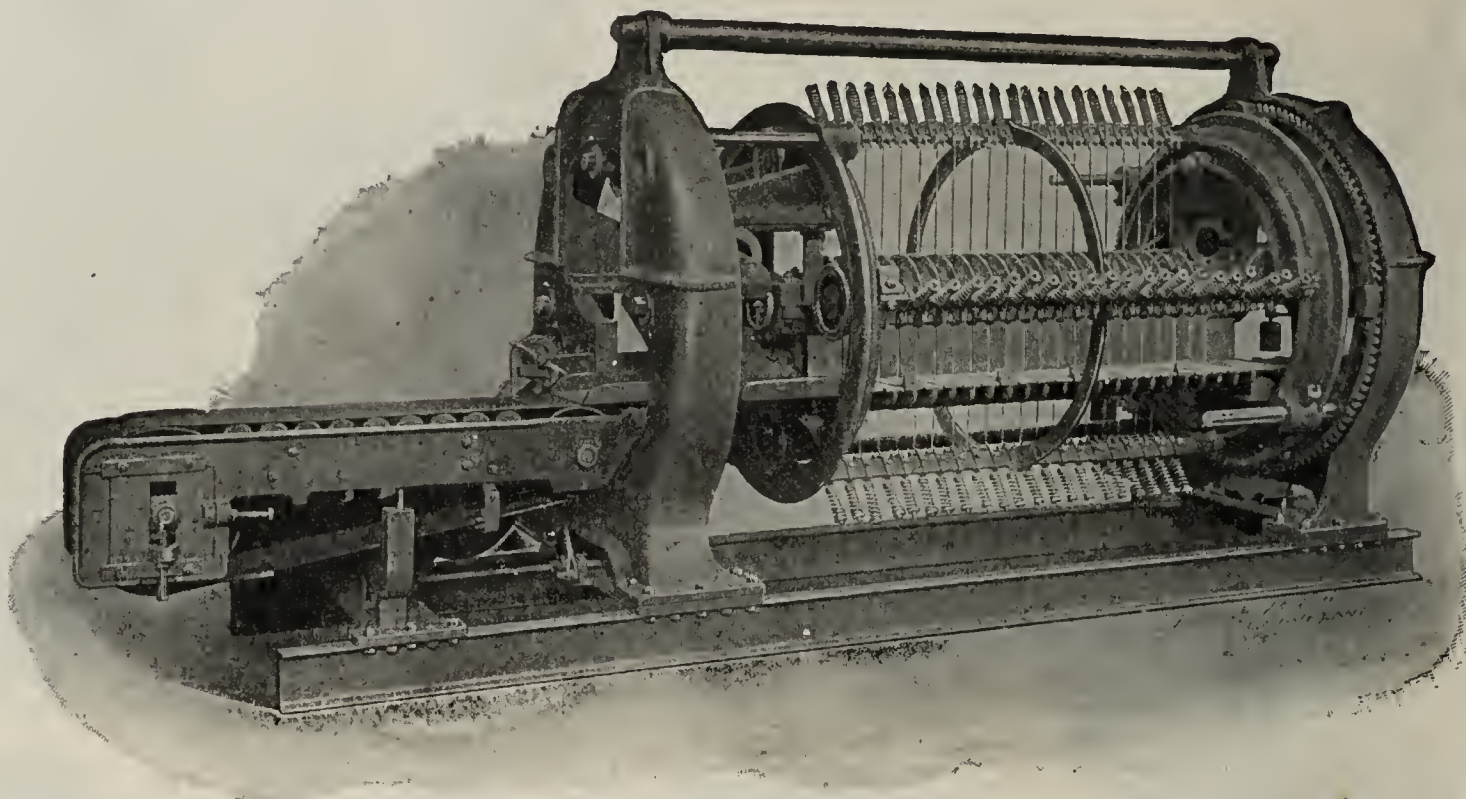
Modern Clayworking Machinery

Complete Stiff-Mud Equipment.

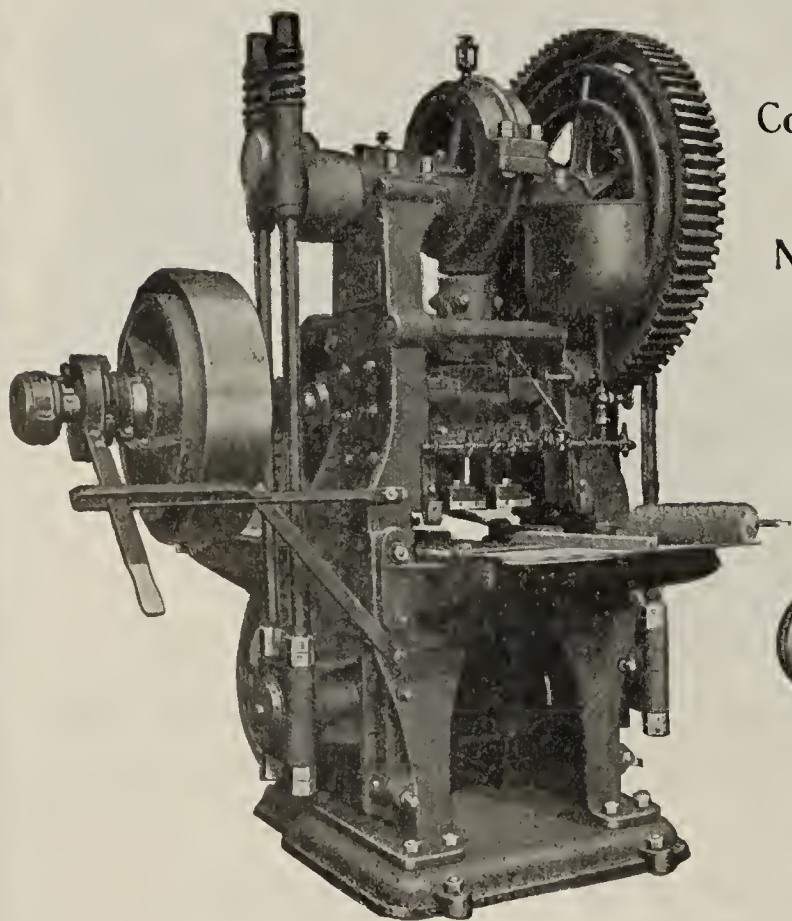
Self-Contained
Accessible
Simple-Cutting
Mechanism.

All wearing
parts above
clay column and
out of dirt.

Capacity
100,000 Brick
in 10 hours.



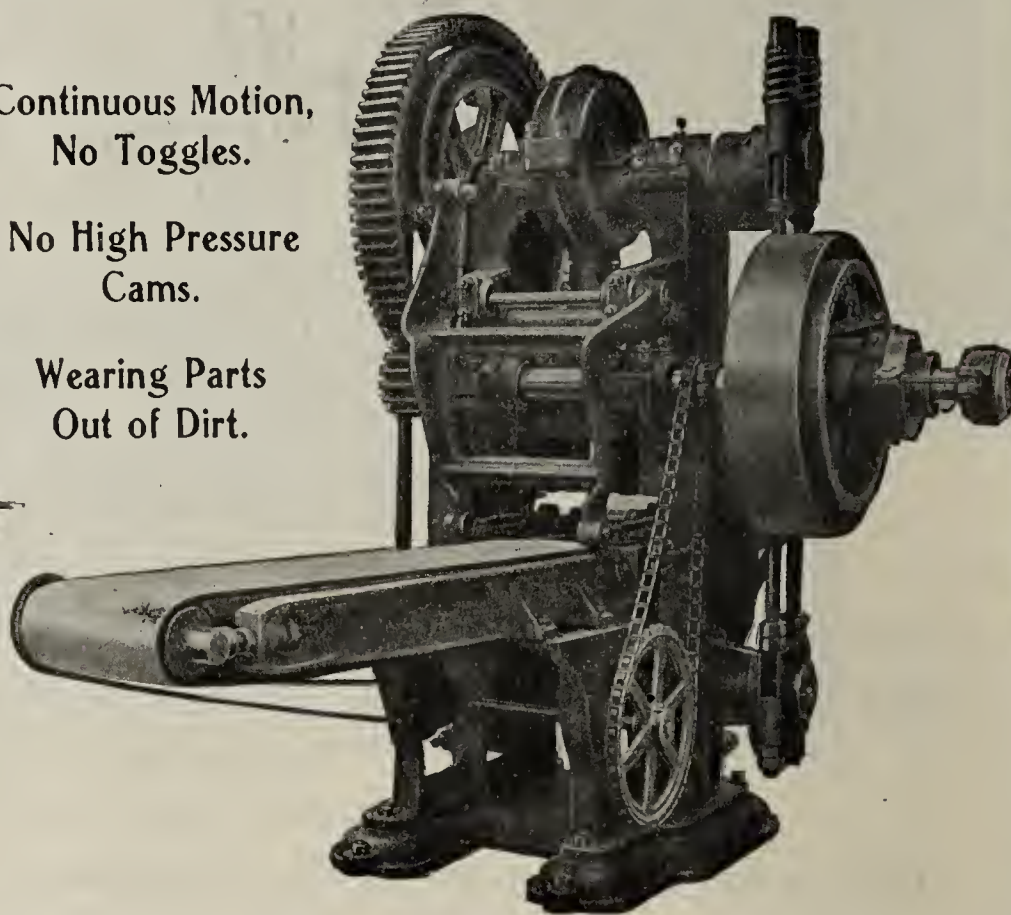
ROTARY AUTOMATIC CUTTING TABLE.
Cuts Brick Within 30 Inches of Brick Machine Die.



Continuous Motion,
No Toggles.

No High Pressure
Cams.

Wearing Parts
Out of Dirt.



"CANTON" DOUBLE-DIE REPRESS.

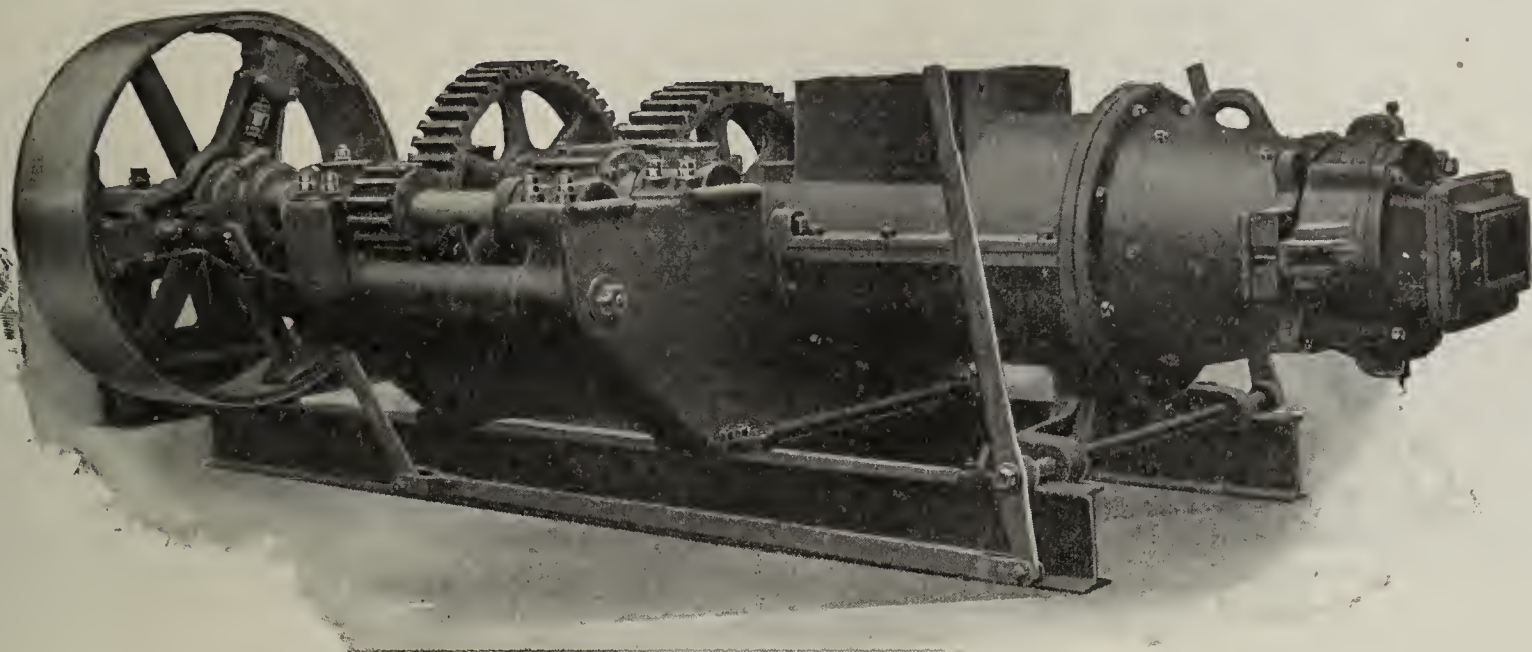
THE BONNOT COMPANY,

305 New York Life Bldg., Kansas City, Mo.

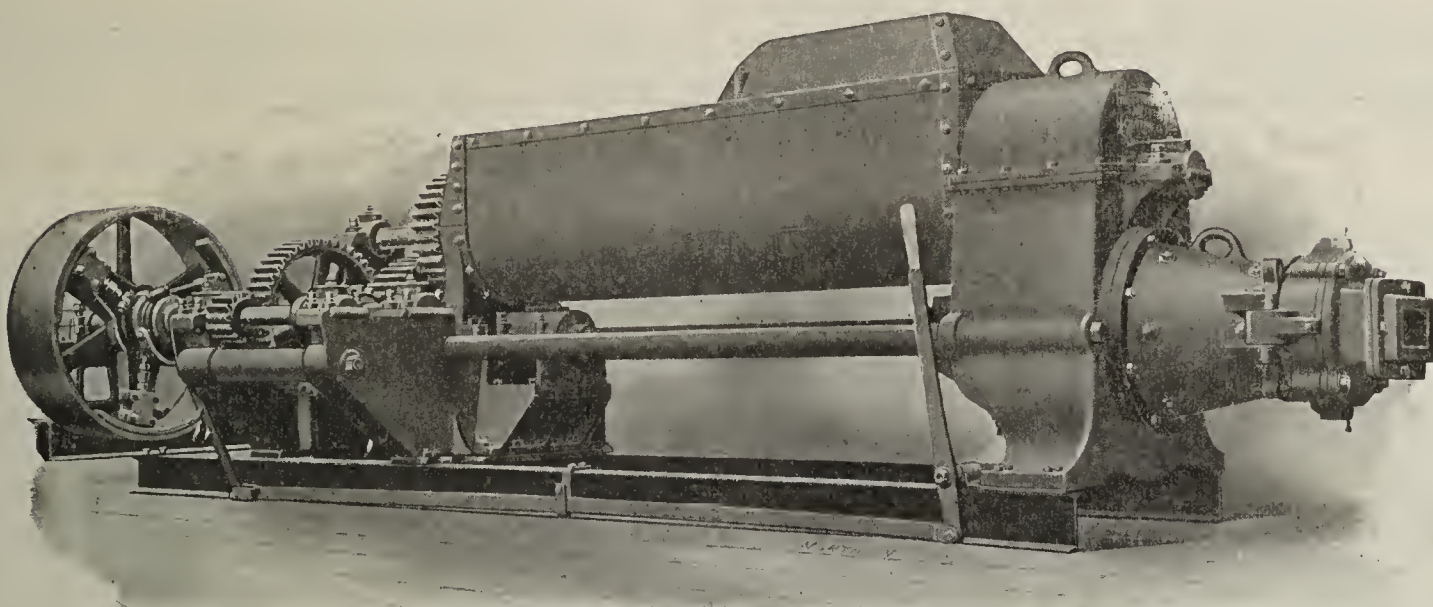
CANTON, OHIO.

Modern Clayworking Machinery

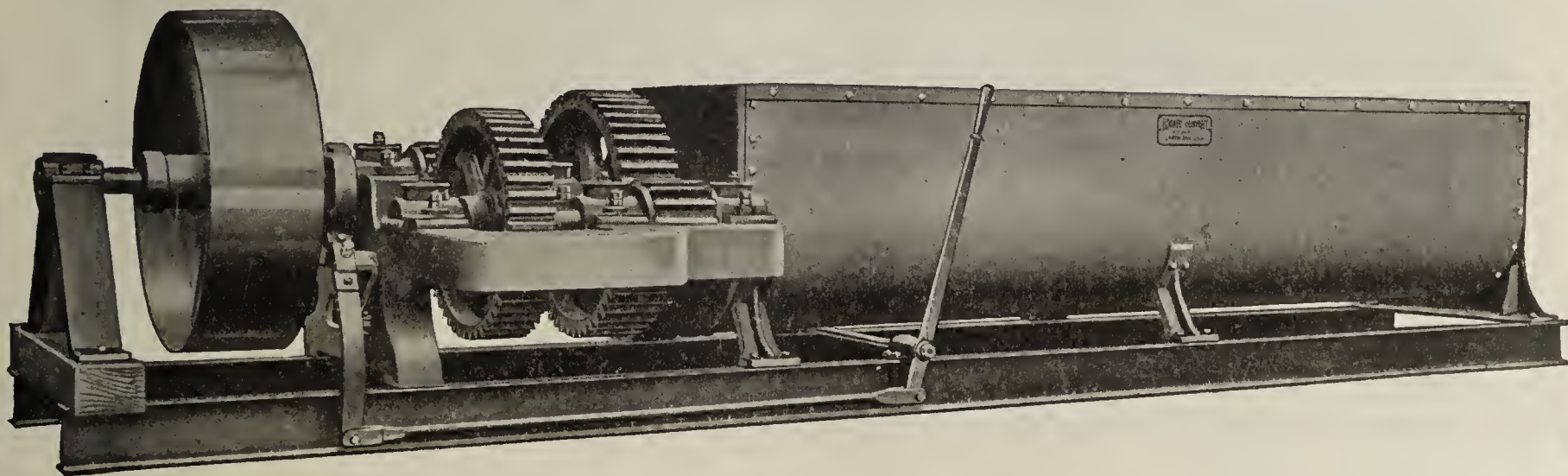
Single and Combined Machines of Any Capacity.



No. 8 Auger Brick Machine. Capacity 25,000 to 40,000 Brick per Day.



No. 14 Combined Machine, 25,000 to 40,000 Capacity. We Have Combined Machines from 25,000 to 125,000 Daily Capacity.



12-Foot Pug Mill for Heavy Duty.

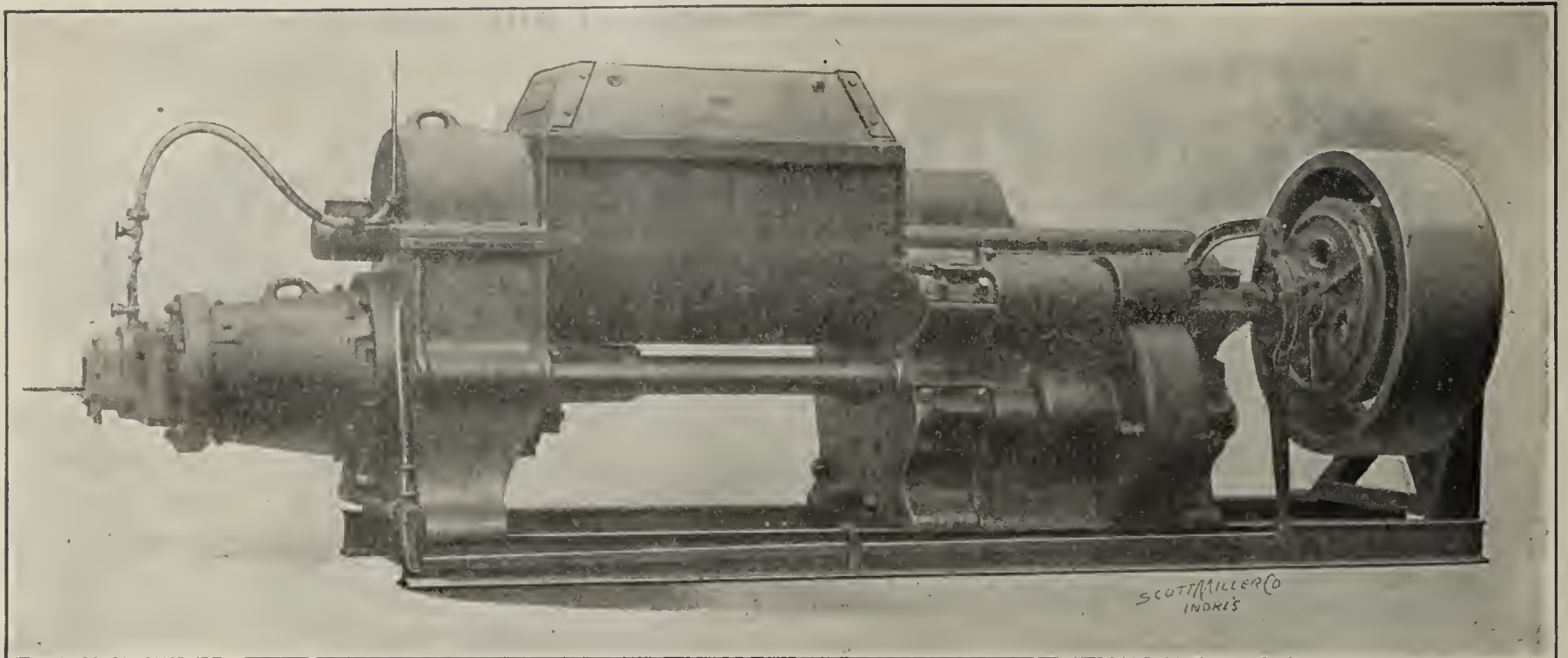
IF YOU DON'T HAVE OUR NEW CATALOG, GET IT, IT WILL INTEREST YOU.

THE BONNOT COMPANY,

305 New York Life Bldg., Kansas City, Mo.

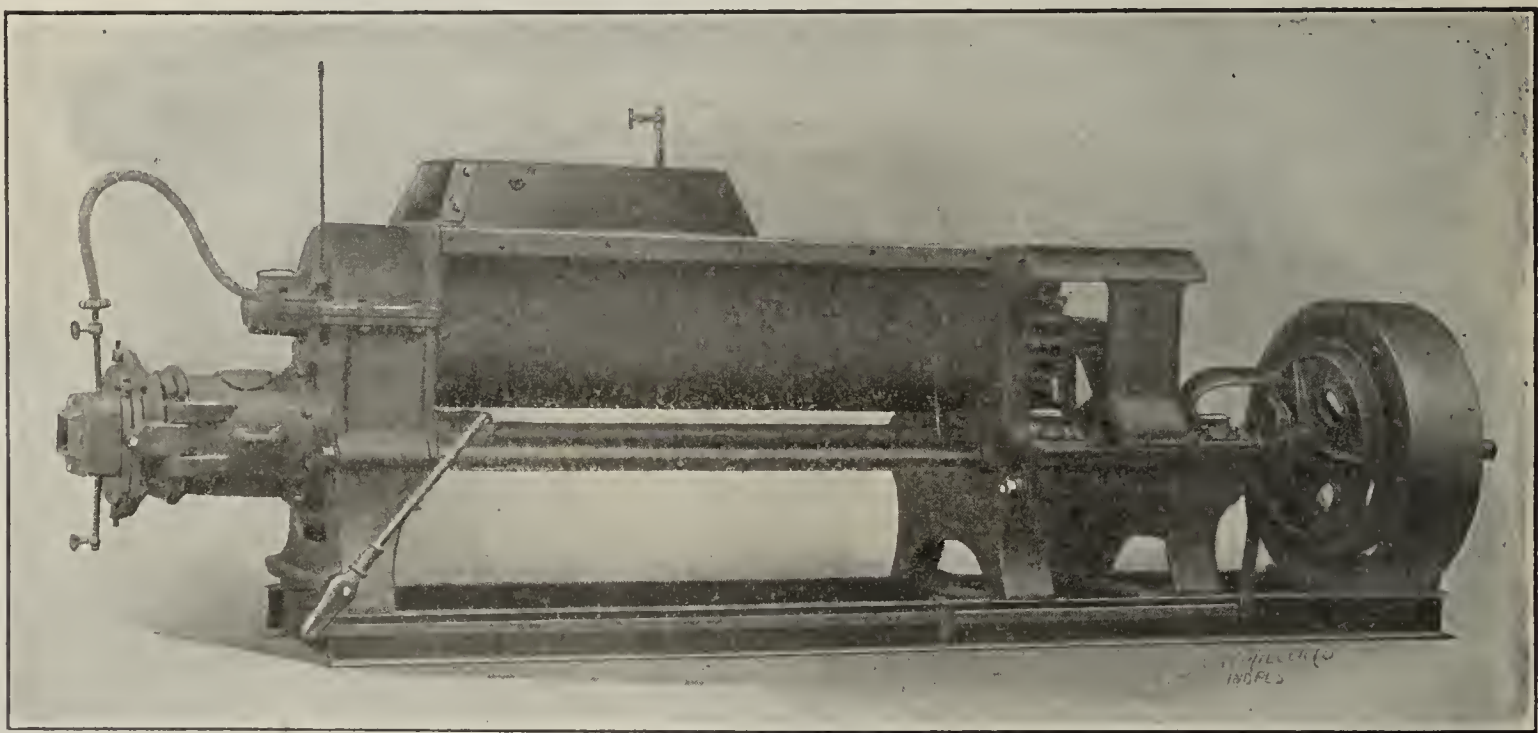
CANTON, OHIO.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

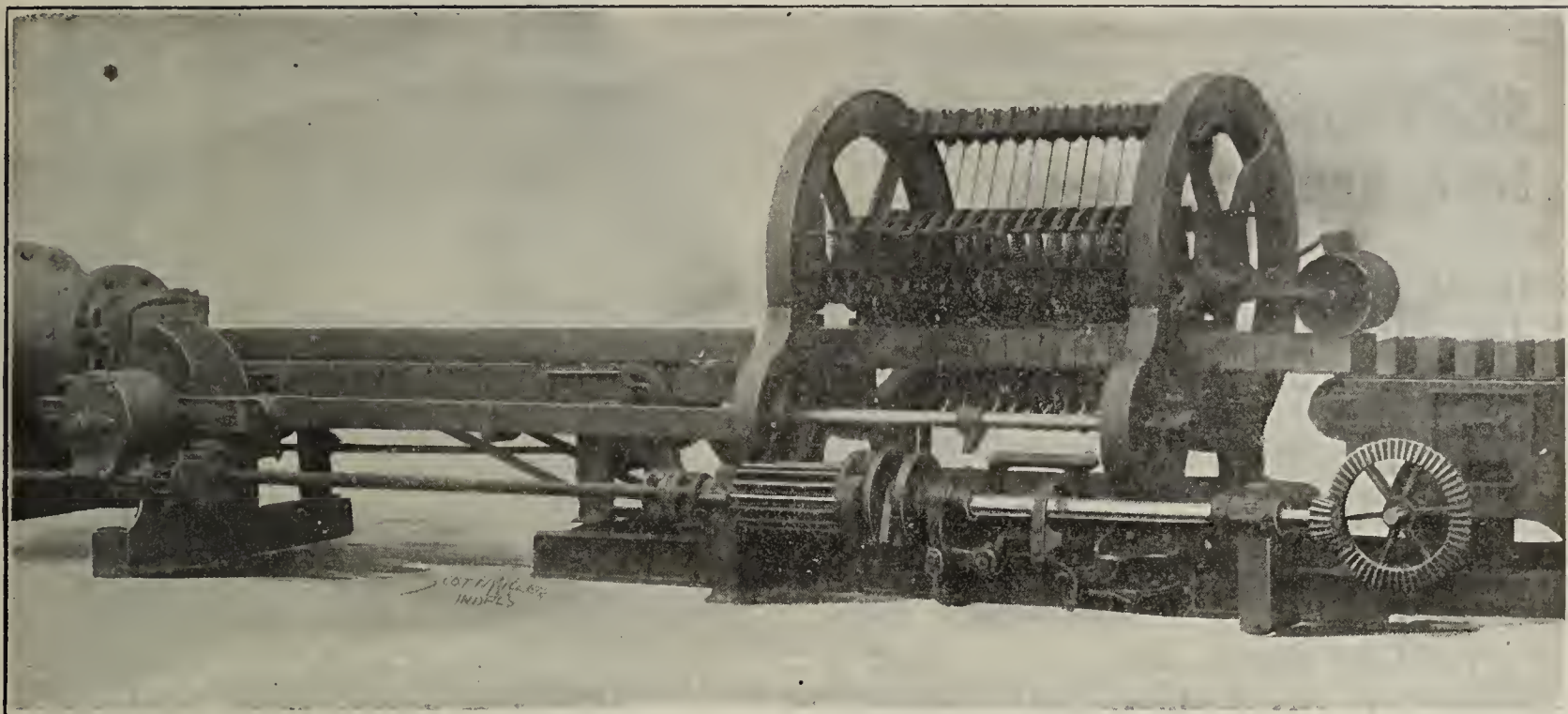
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

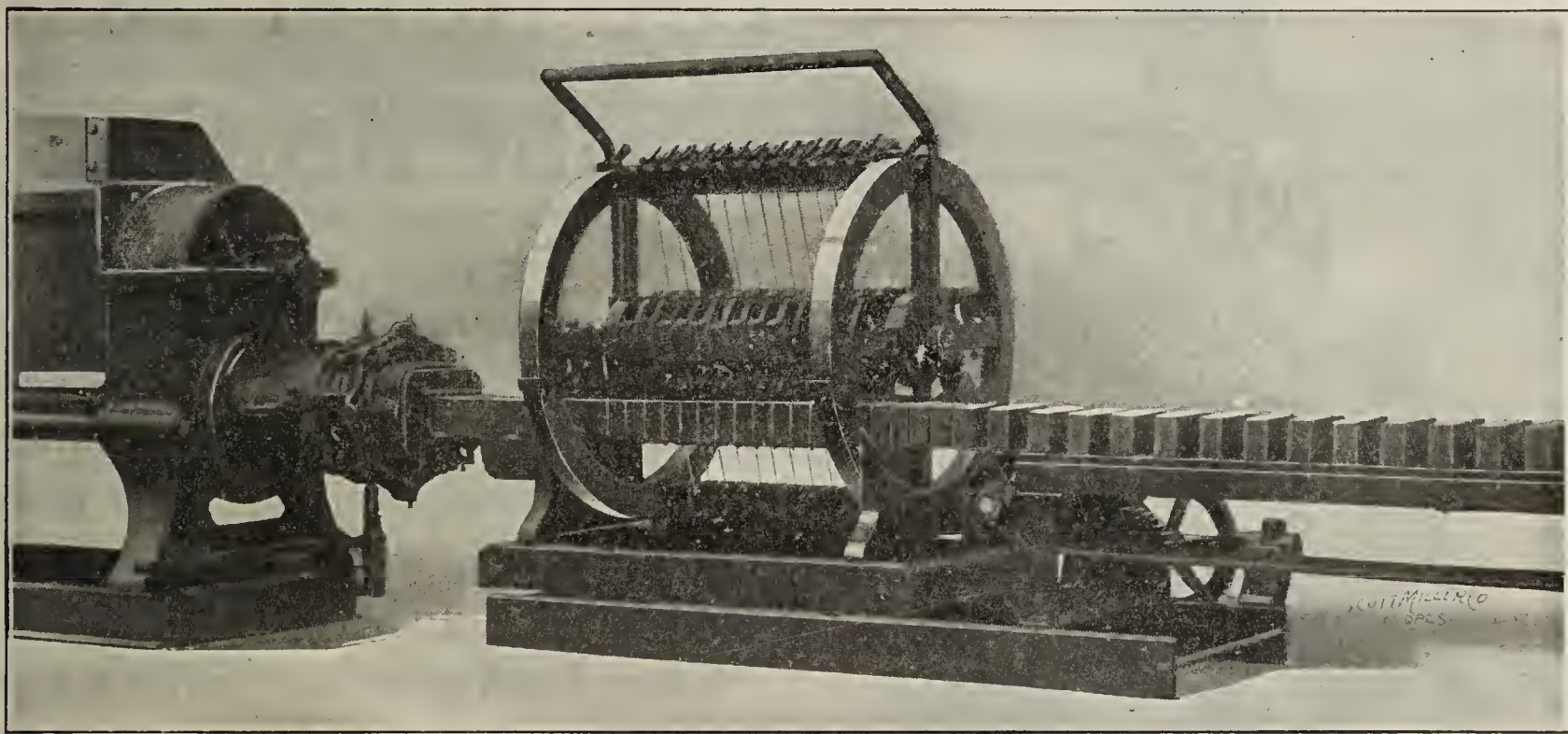
Write for Catalog.

Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

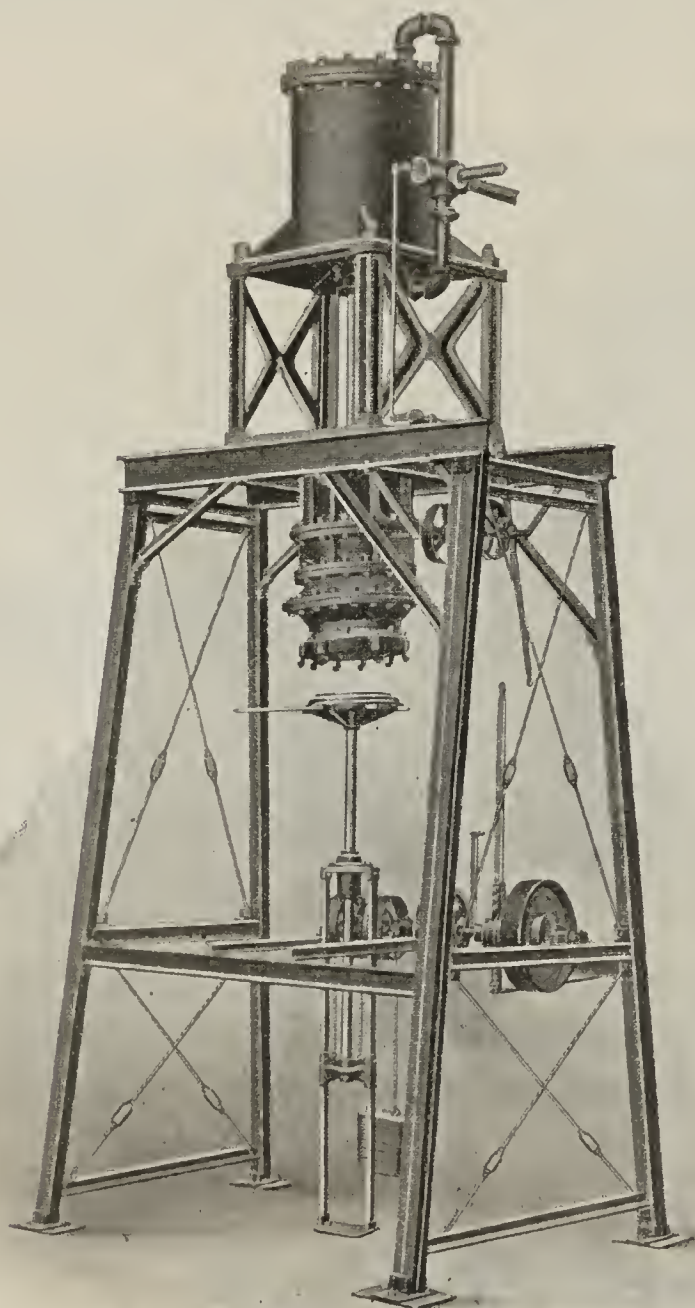
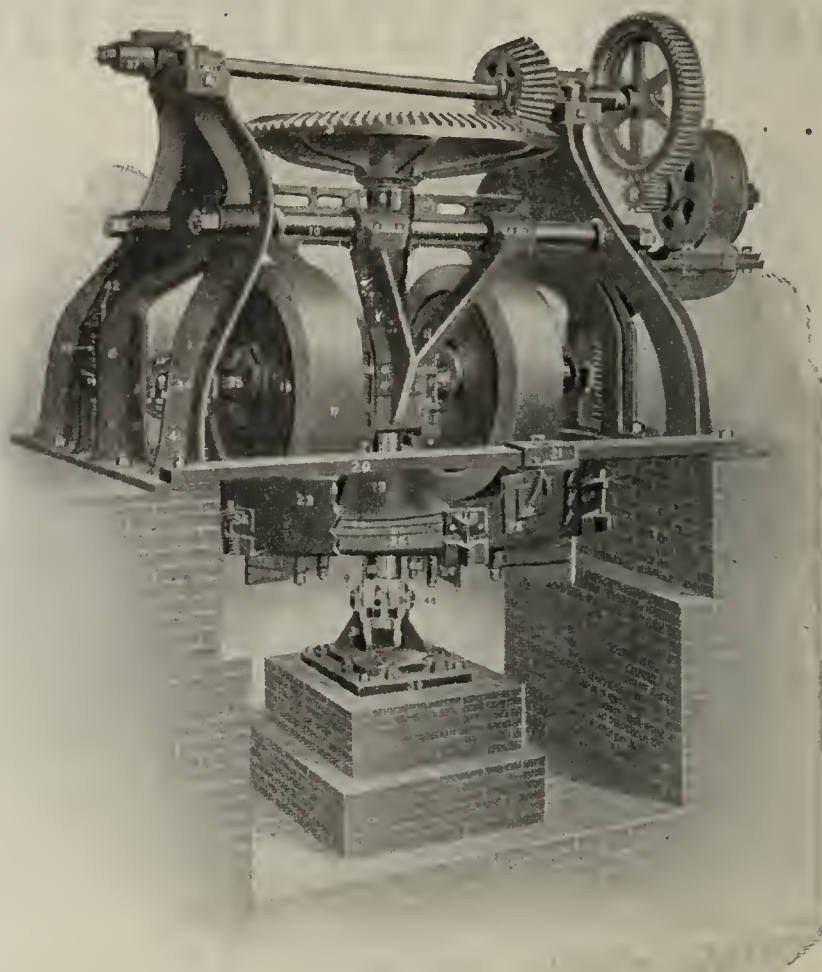
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

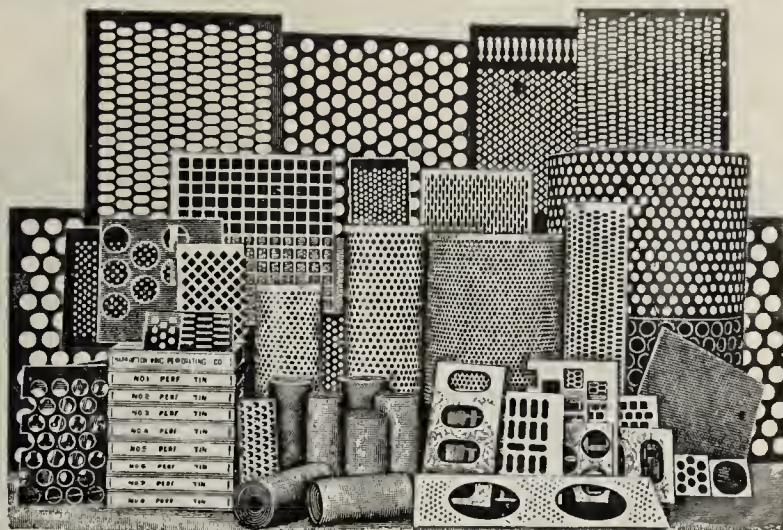
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



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The Rodgers Dryer is a dryer with an UNBROKEN RECORD OF SUCCESS.

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Waste Heat Dryer Specialists,
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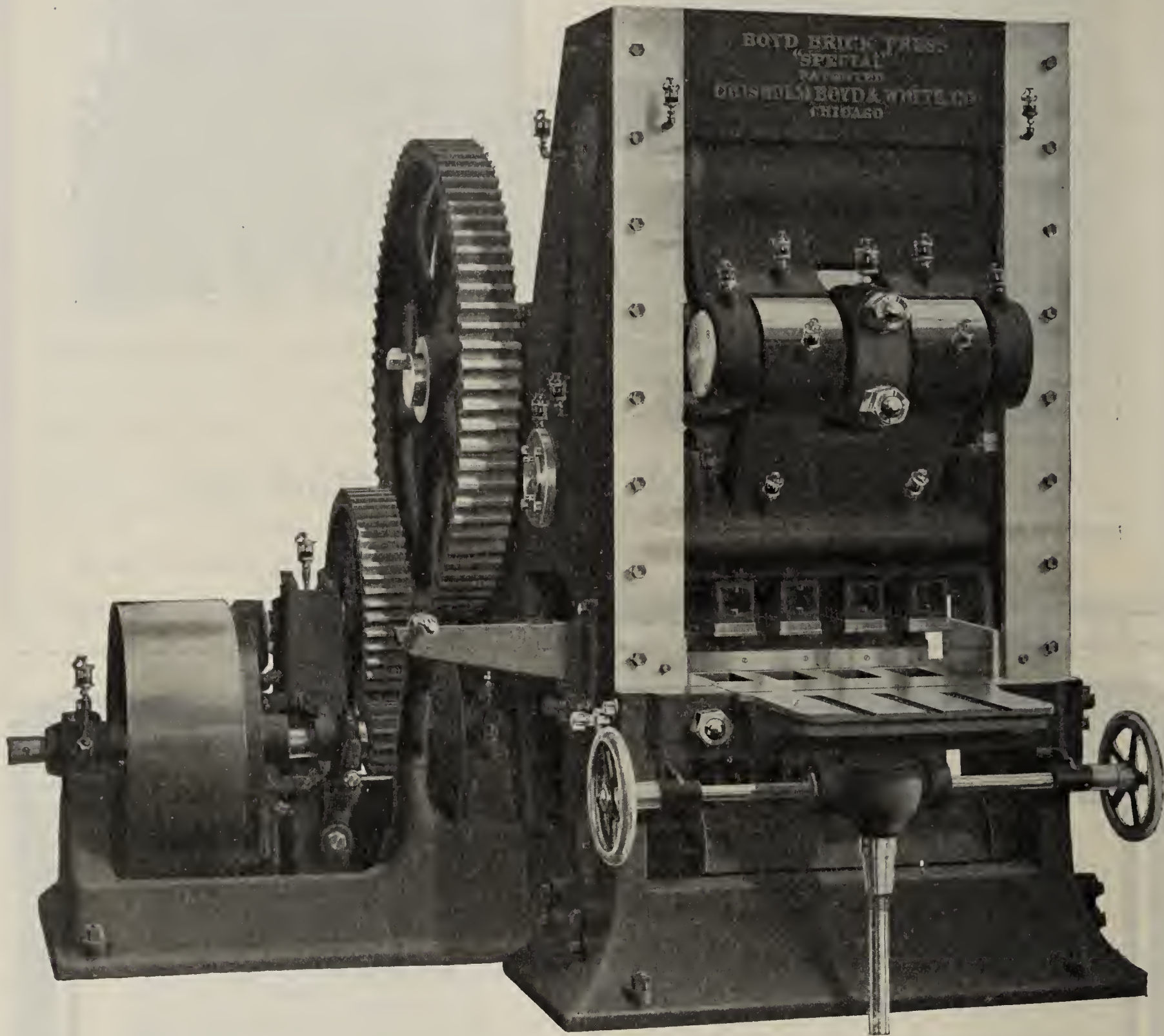
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Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

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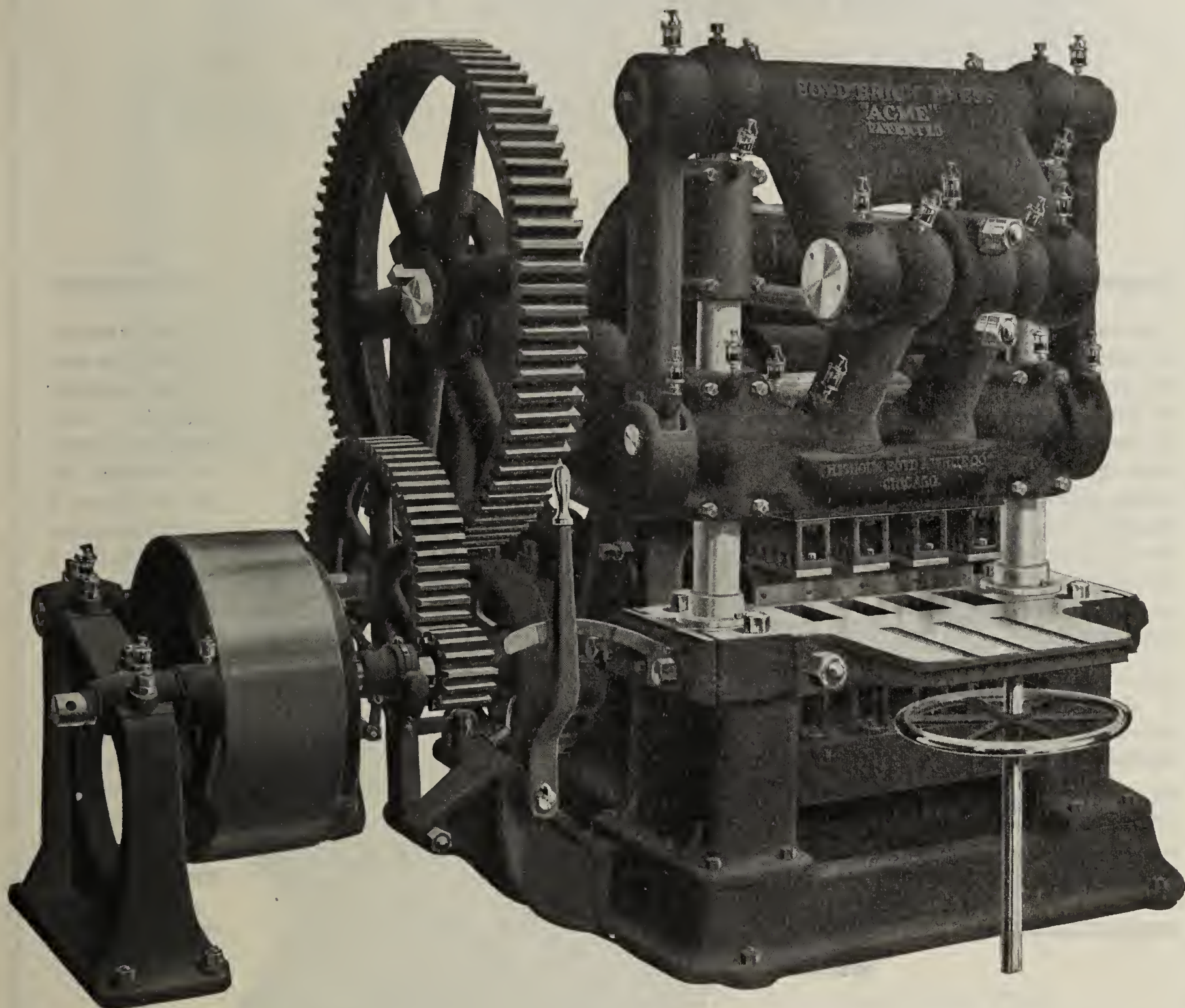
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The Boyd Brick Press

Four-Mold Acme.



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The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

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THE GRATH SPECIAL

Five-Mold Brick Press

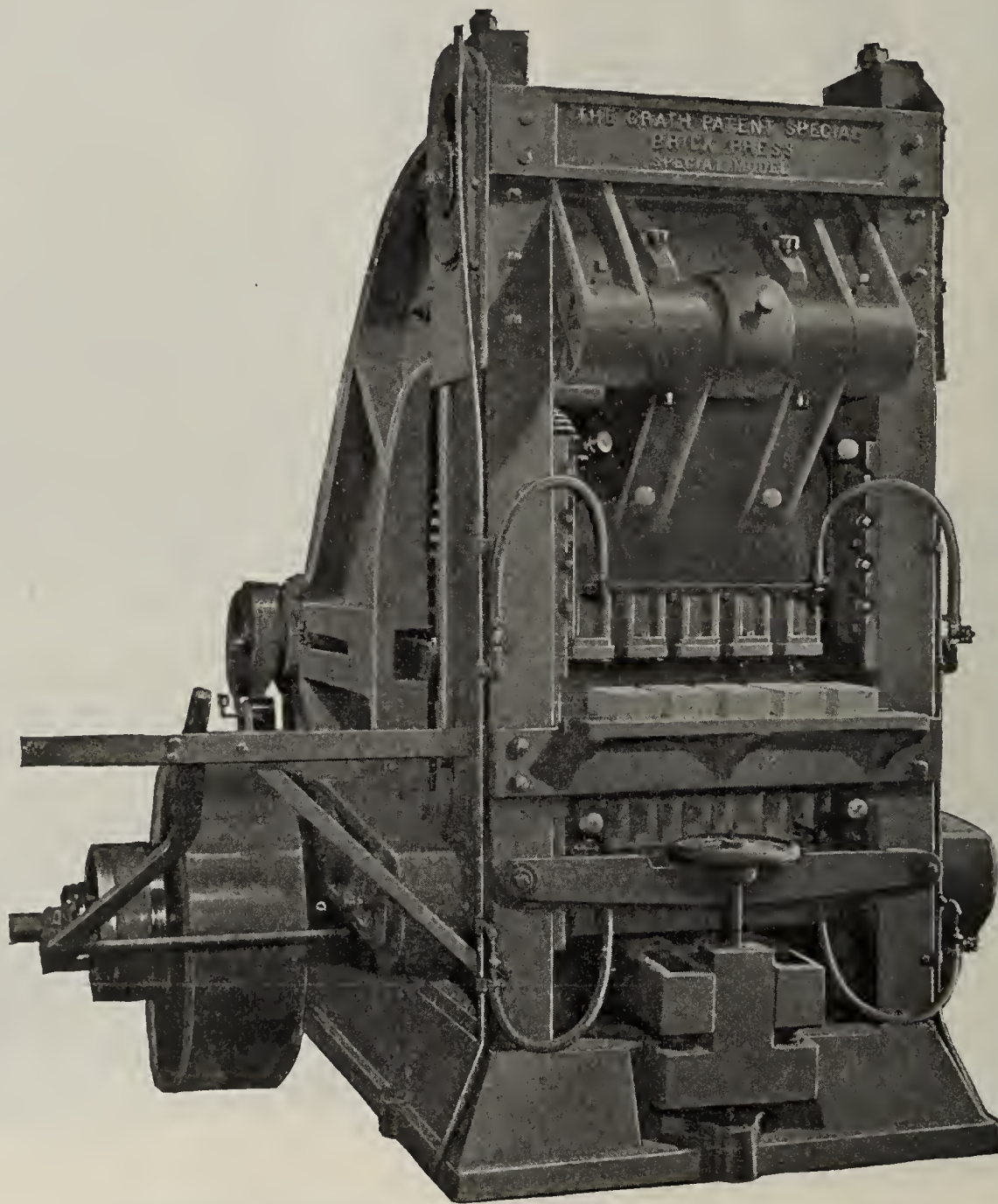
For Dry or Semi-Dry Clay Press Brick of Highest Grade

THE PRESS THAT MAKES THE PROFITS

You can not afford to make anything but the BEST brick; the kind that finds the market in dull times; the kind that gets the orders even though the other fellow bids under you. To make this BEST brick you must have BEST machinery.

That is why the **GRATH** has won its way into popularity.

The GRATH Special is built in two, three, four and five mold sizes.



It is built by experts. Embodies the most correct mechanical principles. Made from the best obtainable materials, and the best attention is given to every detail of its construction. It represents perfection in brick presses.

The **GRATH** presses equally from top to bottom. It is simple in construction and operation. Is strong, massive, indestructible and guaranteed against breakage.

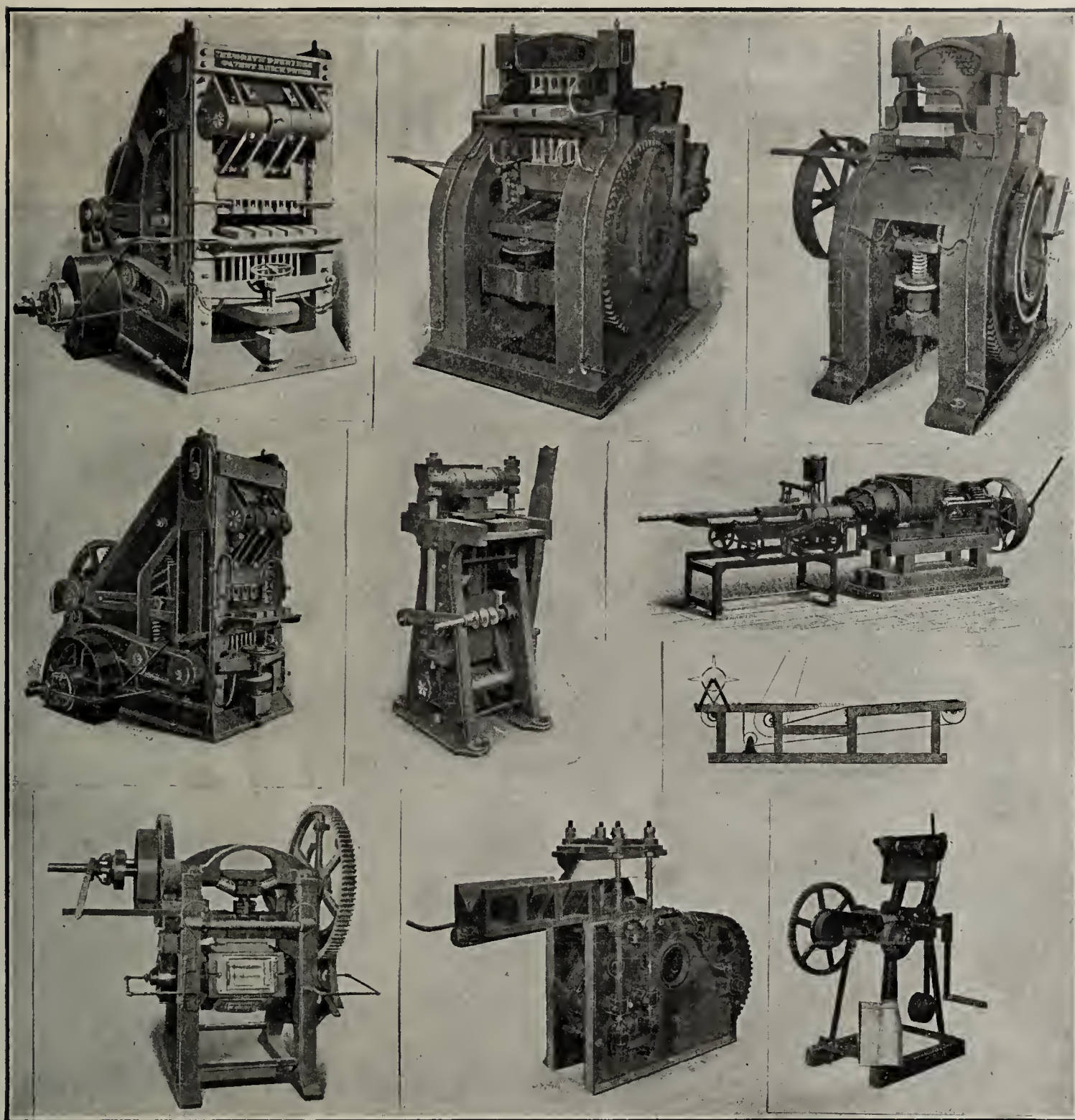
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If you have suitable clay or shale, we can show you WHY and HOW you can make more money by making pressed brick than wire cut brick. If you are not sure send us a sample of your material and we will tell you.

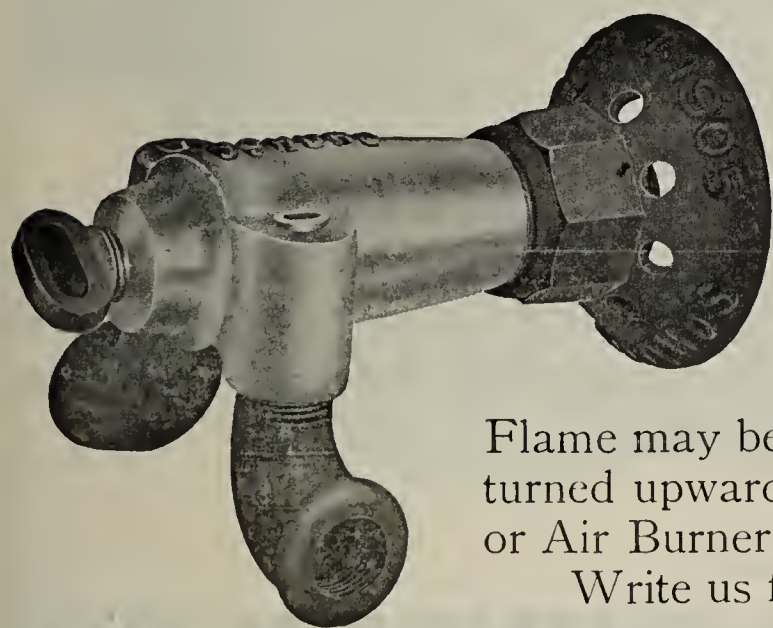
*Send for our "Treatise on the
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OIL BURNERS**

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Flame may be regulated as desired and to produce any heat, can be turned upward, downward or sideways. Most economical Steam or Air Burner in the market. For Crude, Fuel or Coal Oil.

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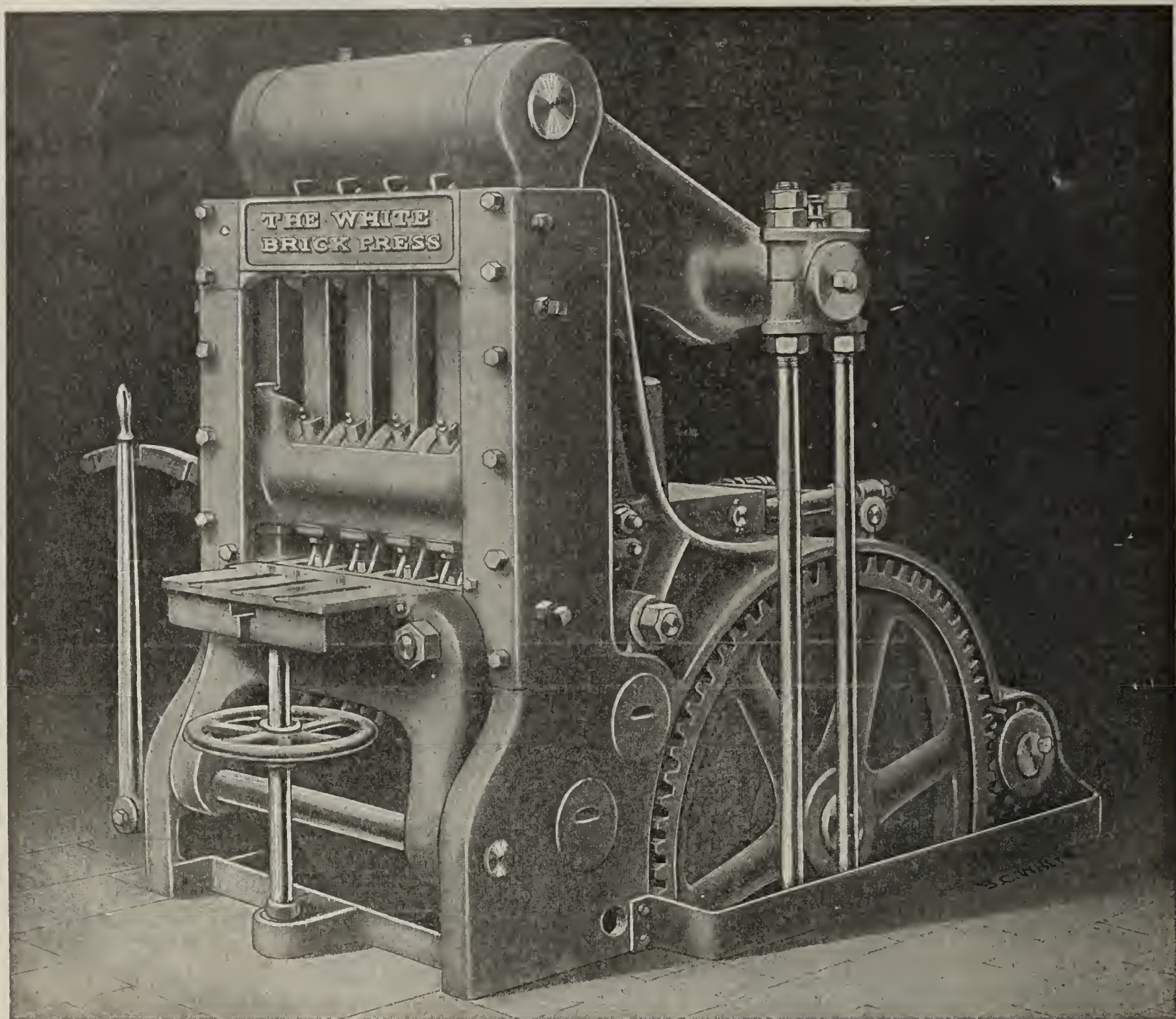
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Always Worth More Than You Pay For It



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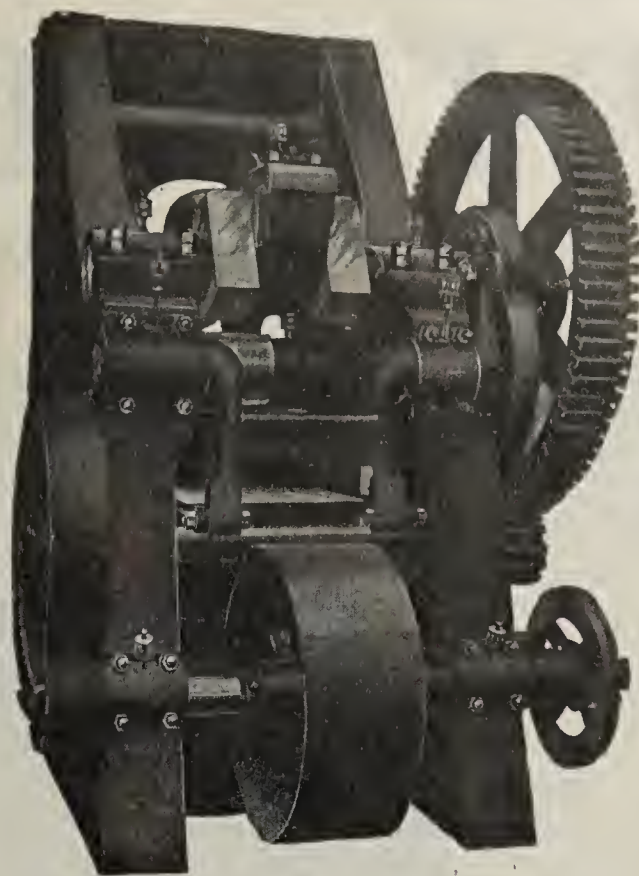
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Still in the
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and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
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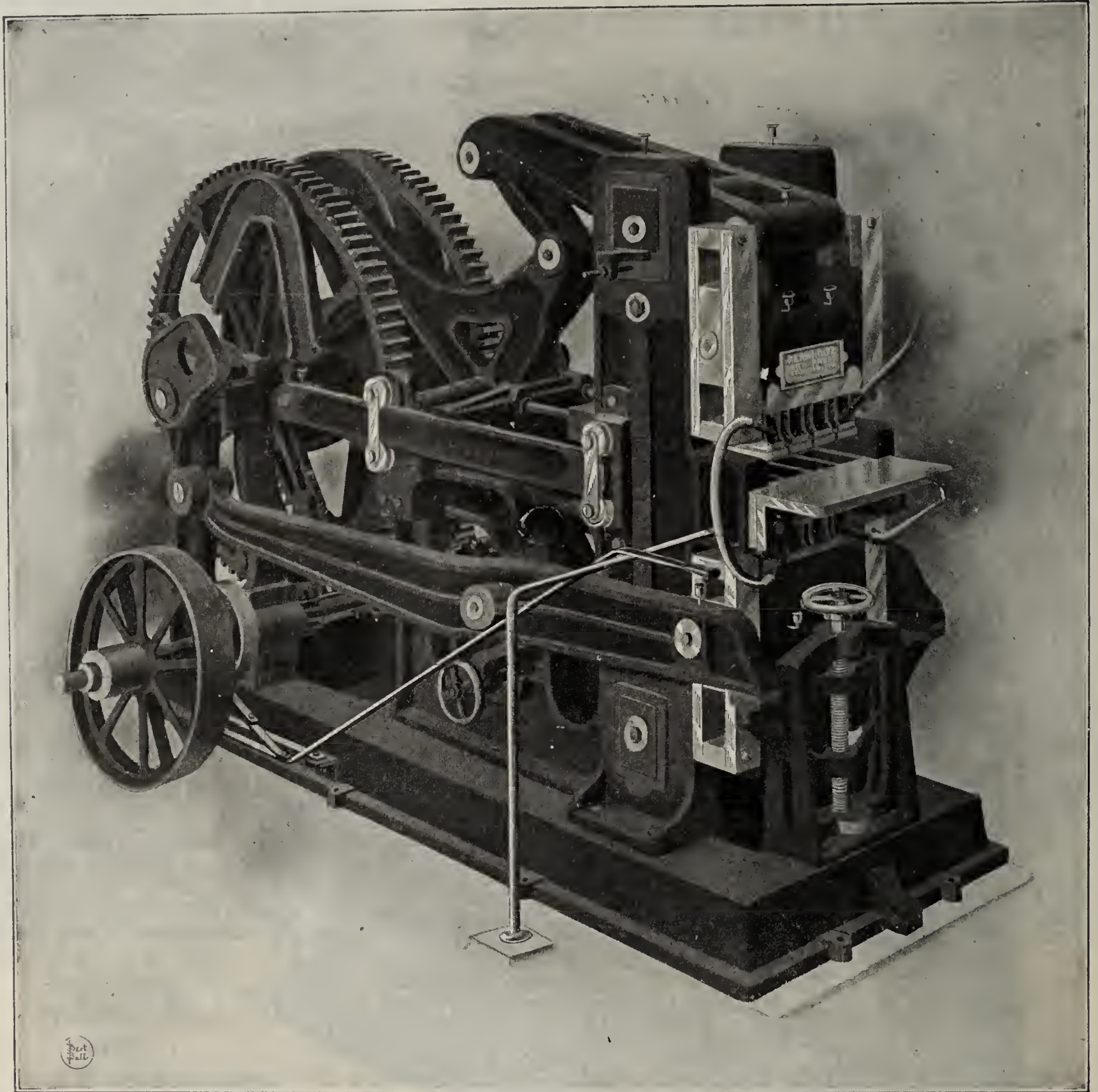
of either iron or steel, if desired.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,
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The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

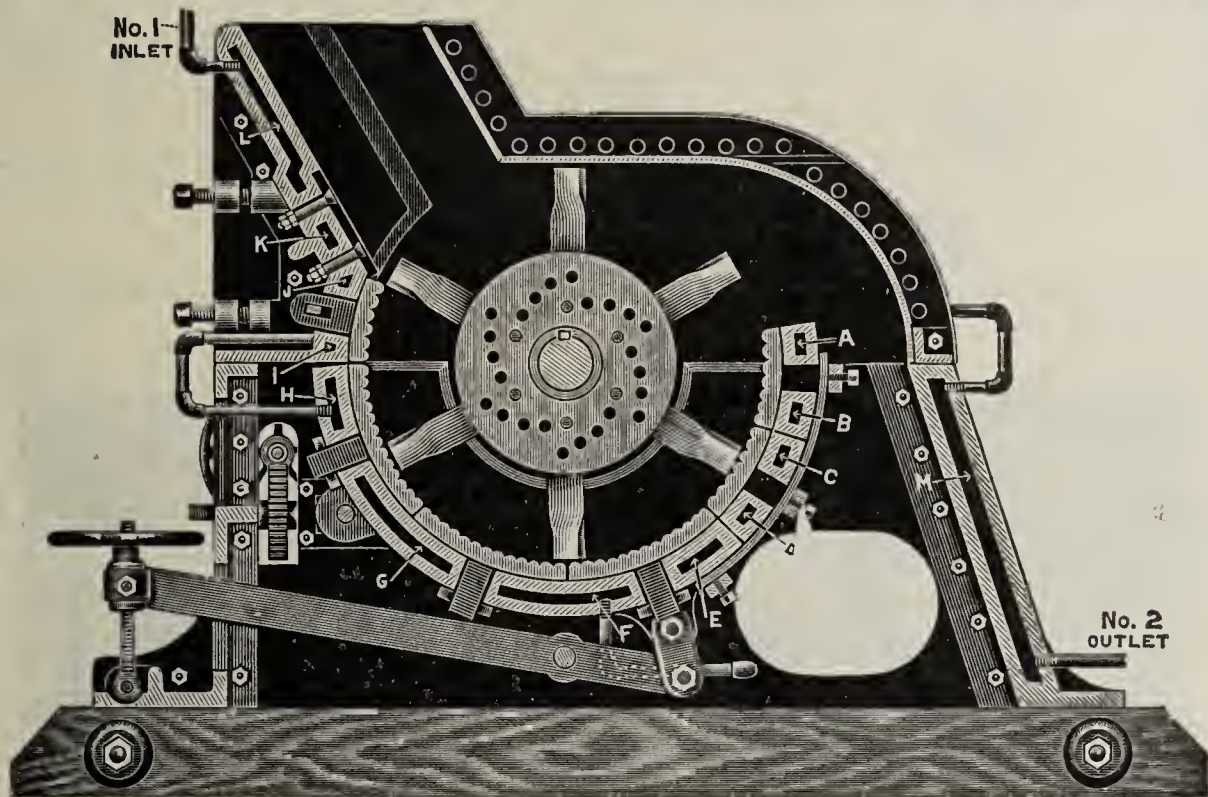


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

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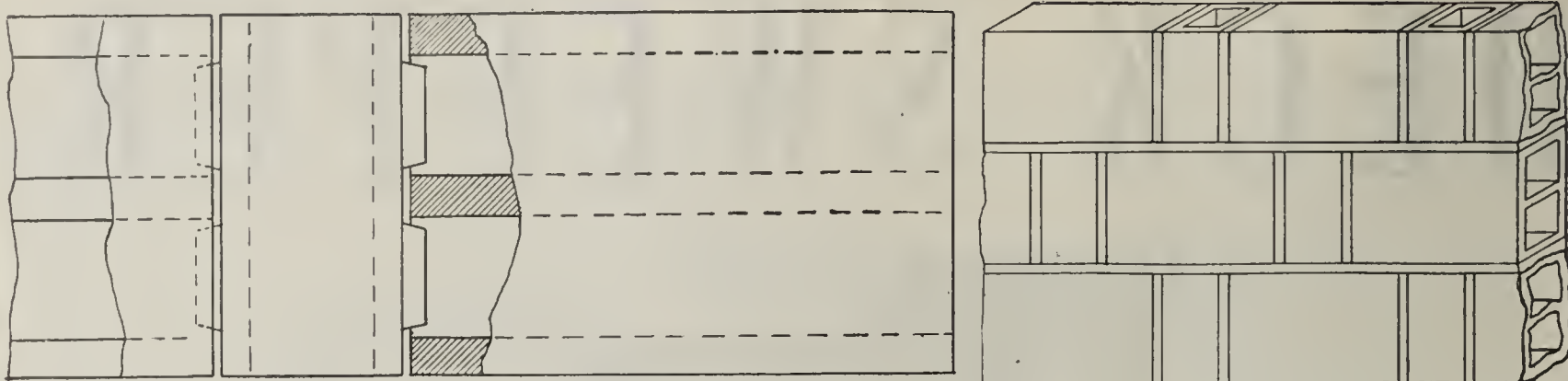
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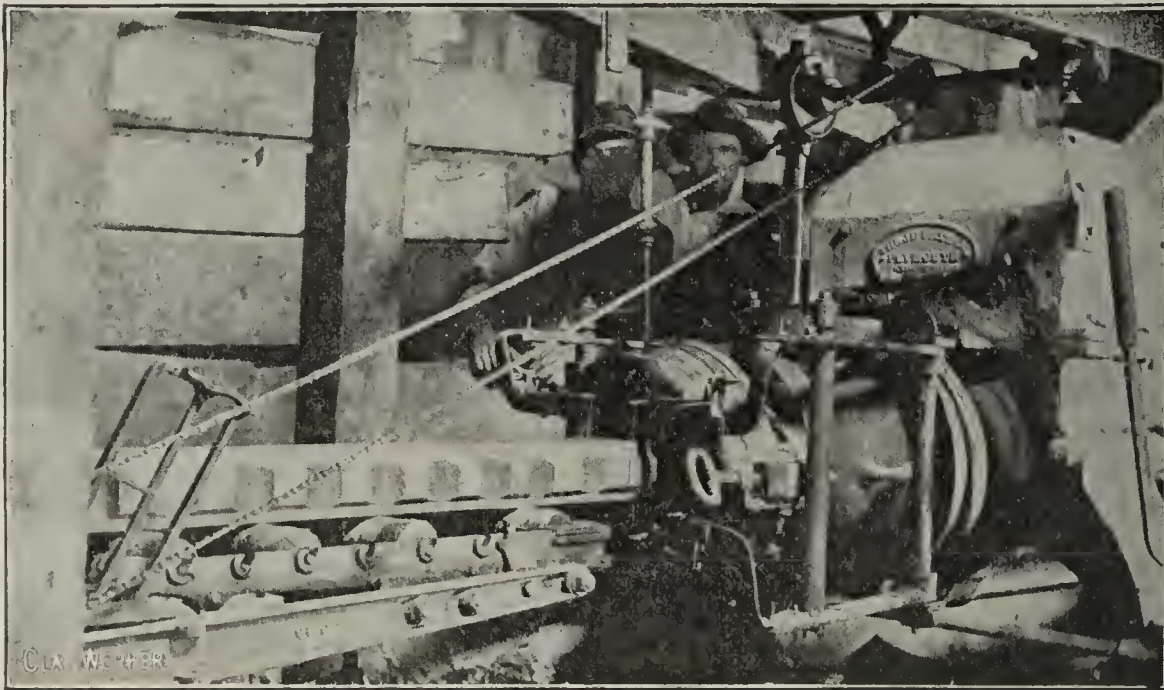
FOR SALE.

State Rights of My Patent No. 920967. Issued May 11, 1909



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Interlocking Building Blocks are made without any additional cost above ordinary blocks, as shown in photograph.



This machine (patent applied for) will be furnished to parties making contract for state rights.

A hollow tile wall laid up of ordinary blocks is never satisfactory because of the poor vertical joints which are never air-tight, and often fall out as experience has shown. This interlocking wall gives a perfect bond and the mortar joint can not fall out. Architects and builders are very enthusiastic about it. The Twin City Brick Company owns the rights in the Northwestern States. They are furnishing 400,000 hollow interlocking facing tile to the new million dollar hotel in St. Paul, and have more orders than they can fill for residences, flats, churches, etc.

**CHEAPER TO MAKE THAN BRICK.
CHEAPER TO LAY THAN BRICK.
BETTER THAN CONCRETE AND
SAVES MONEY OVER FRAME.**

State Rights will be sold only for cash or a combination of cash and royalties. Only manufacturers who have a clay suitable for making facing tile should apply to

FRITZ KOCH, President of Twin City Brick Company,
ST. PAUL, MINN.

25% DISCOUNT

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Thirty Days.

Big Stock. Immediate Shipment.

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The CLAY-WORKER, INDIANAPOLIS, INDIANA.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements."
 "Proper Construction of Brick Street Pavements."
 "Why Vittrified Brick Street Pavements Are the Best."
 "Why Should You Pave at All?"

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 Manufacturer of

Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
Hornellsville, N. Y.

OXBLOOD RED FRONT BRICKS

DEVONSHIRES and REPRESSED
KUSHEQUA

Highly Vittrified by Natural Gas.
 Made from same shale as our well-known Kushequa Paving Blocks.
KUSHEQUA BRICK CO., Kushequa, Pa.

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Shawmut, Pa. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.
 Burned in Yates' Patent Kiln.
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Thurber Vitrified Paving Brick
 and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.
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 Manufacturers of the Unsurpassed

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High Grade Vitrified PAVERS.

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

Our leading brands are CULVER BLOCKS, WABASH STANDARDS, "SPECIALS," for crossings on macadam streets, GUTTER BLOCKS, COLUMBIAN SIDEWALK BRICK and PIONEER BUILDING BRICK.

Our material has for over fifteen years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Manufacturers of the Highest Quality of

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Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

Office and Works: Clinton, Ind.

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

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Bessemer Limestone Co.

Youngstown, Ohio,

MANUFACTURERS OF

BESSEMER BLOCK,

An unexcelled repressed shale paver.

Correspondence solicited.

The Purington Paving Brick Co.,

of GALESBURG, ILLINOIS,

HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

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*The Culmination of
More Than Twenty
Years of Experience
in Brick Drier
Building*

Is Yours an Average Plant?

IF YOU are operating an average-size brick plant and if your clay is an average clay, then the logical drying method for you is that method which has been demonstrated to be the best adapted for similar clays and the most successful at similar plants everywhere.

No Other Drier So Good for You as a Steam Drier

If you were to communicate with all the other brick manufacturers who are situated about the same as you, a vast majority would advise you to install a *Steam* Drier, in preference to any other type on the market.

Among these brother brickmakers you would find a great many who have experimented with other types of

Driers—only to find them complicated, costly and unsatisfactory.

“Back to the *Steam* Drier!”—they’ll tell you; and they *know*. Ask them. Or perhaps you don’t need to ask anyone—perhaps you’ve had some experience along this line yourself.

No Other Steam Drier So Good as The Standard Drier

Any Steam Drier is better for the average brick plant than other types of Driers.

In all Steam Driers, the general underlying principle of drying is the same; but there is one—The Standard Drier—that is different from the rest in various vital features.

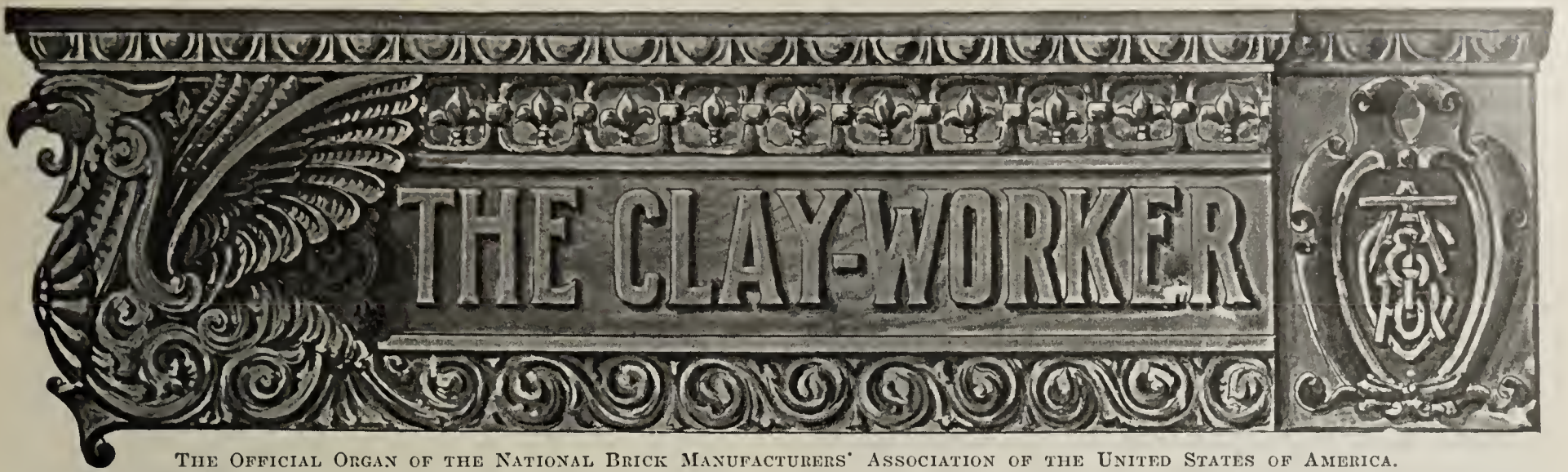
The net result of these features in The Standard Drier is, that the *ideal* drying conditions for the *average* clay are produced and applied to the product with perfect uniformity and complete success.

As a good business proposition, you ought to get in touch with the facts about The Standard Drier—its entire freedom from any machinery complications and from fire danger—its enviable ease and economy of operation.

And you should read what its many users say about it.

You’ll find all this information and much more, in our latest complete catalog. We’ll send it for the asking. Write us today—now! No obligation is incurred by doing so.

The Standard Dry Kiln Co., 647 South Penn. St.,
Indianapolis, Ind.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LII.

INDIANAPOLIS, IND., JULY, 1909.

No. 1.

Written for THE CLAY-WORKER.

PROGRESS AT PANAMA.

THE TALLEST CHIMNEY ON THE ISTHMUS BUILT OF BRICK SHIPPED FROM THE STATES.

PANAMA CITY has a new object of interest—a splendid sky-piercing chimney stack that, towering above all other structures, catches the eye of every visitor. Its graceful lines challenge admiration. It was built of brick imported from the States by the Panama Ice Company, and stands 155 feet from ground to top.

Perhaps the next tall stack erected here may be built of home-made brick, for the Panama Brick Company's plant is now fairly well established. A new up-draft kiln was recently finished; it has sixteen arches and holds something over 200,000 brick; wood is used as fuel; that seen in the accompanying view cost \$2.50 a ton in United States money. It doubtless will sound queer to CLAY-WORKER readers, but wood is bought by weight down here. It is delivered in the form of logs by sailing vessels, the plant being located near the shore of the bay, and is afterward cut up for use by the workmen at the plant.

The brick plant, which is equipped with Freese machinery, is only operated during the dry season. They have two beds of clay, one a dark color and the other a light color. These are mixed, two-thirds of the dark to one of the light, and the result is a fairly good dark red building

brick. In the construction of buildings, brick are not used exclusively, but instead a portion of nearly every brick structure is constructed with rough stone found in this vicinity; that is, brick and stone are used together. This is in keeping with almost every phase of life on the isthmus.

Almost every way one turns may be seen strange mixtures. The people themselves present an odd appearance; the dark-skinned natives predominate, but almost every nationality is represented. The accompanying view of a group of workmen may be studied with interest. In the center is a native youth employed as a water carrier. What seems to be a watch fob dangling from his belt is a brass check which bears the number by which he is known on the payrolls, instead of by name. Every one of the men in

the group has somewhere about his person one of these number checks.

Thanks to the brick-paved streets in Panama City, the story of which appeared in the January CLAY-WORKER, the sanitary condition here is now quite satisfactory. Now that Uncle Sam is in charge, tourists find life on the isthmus safe and interesting, but even now a protracted stay at either Panama or Colon is fraught with some danger, for the intense tropical heat is hard to bear for any great length of time. At the burial places (you can scarcely call them cemeteries), ten to fifteen graves are kept ready for the interment of the dead at all times. Thought for the living makes it necessary to bury the dead very quickly.

Work on the "Big Ditch" is progressing satisfactorily. Much of the soil excavated in digging the canal is



Street Scene in Panama City—The Large Brick Stack in the Background.

hauled by rail and dumped in the low marshy spots about the city, hence there is less malaria here now than in the past, and it is thought that in time there will be little trouble from that source. Nevertheless, Panama is not likely to appeal to the average northerner as a permanent place of residence, but it is an attractive place for a brief sojourn.

C. MORTON.

Written for THE CLAY-WORKER.

HONESTY OF THE BRICK MANUFACTURER.

THE ALMOST universal reform movement that is spreading over this vast country of ours is an evidence that our citizens are giving more consideration to higher ideals than has ever been the case in the country's history; and in keeping with the progress of the times, I take it that paving brick manufacturers are, as a class, those who would prefer to give encouragement and advancement to the onward march of complete moral reformation than

when the same is done for injury or with malicious intent, is not only dishonest, but one who is capable of producing more corruption and corrupt methods in disposing of his products than all other classes of men engaged in selling paving material combined.

I do not criticize a man who will present arguments as to the quality, character and permanency of his product, but when he says or advertises that his is exclusively the "best," he deliberately falsifies, and all his statements can be based on the same relative comparative plane, because he does not know and can not substantiate by proof the declaration that his product is the "best." He may with entire propriety say that his material is equal to the best, and that he believes it to be better than the rest, but if honest with himself he can go no further.

I do not find any objection to a man using, for his own service, the personal acquaintance or friendship of any other man, for in so doing he is only exercising that friendship to his personal advantage for returns of mutual courtesies that



The New Kiln of the Panama Brick Company. French Superintendent Seen on Left of Group of Workmen.

otherwise, and it is for this reason that I write on the "Honesty of the Brick Manufacturer," or his representative in disposing of his product.

In the first place, the most essential element necessary and the foundation for the successful conclusion of this sentiment or condition is for us to be "honest with ourselves." There are far too many men who are daily deceiving themselves and who are more deceptive to their fellow men in presenting and representing their product; therefore, if you would start right and run right, get honest with yourself. With this condition accomplished, so that those who know you best may know it, the road to successful future developments is comparatively easy.

This is a broad, wide world of ours and the opportunities for success are varied and many. I believe the paving brick manufacturer, or his representative, who resorts to practices of making false or misleading statements relative to the kind, character and quality of the product of his competitor,

may previously have been exchanged, and this is honorable and commendable.

In my judgment, the representative of any manufacturer of paving brick who maligns and discredits the product of another, when it is and can be shown that under like conditions such product shows equally good service with that of any other, is doing and does do more harm to the permanent advancement and the use of brick as a high-class paving material than the most despised, unreliable and dishonest efforts of any representative for any other kind of paving product. This criticism may seem severe, but it is only too true in its application and effects, because you can reasonably expect such conduct from a competitor on a different kind or class of paving material, but a representative of paving brick is expected to truly advocate brick, but with the dishonorable methods referred to, he is only boosting the other fellow's dirty game, and the sooner we as manufacturers wake up and get "honest with ourselves,"

the earlier will come the time when all material opposition to brick will disappear.

We are pleased to say that the questionable methods and practices that were quite generally in use in the early history and development of the paving brick industry are fast disappearing, and that selections of paving brick are now quite generally made on price, together with fair and honest methods of argument as to quality, and that the "health" of the official families of the country no longer require the "soft velvet treatment" that was once so seemingly necessary in the days gone by.

We are also satisfied that the friendly relations between manufacturers has grown more defined and noticeably appreciated by them during the past few years, and we are frank to say that no agency has been quite so potent a factor in bringing about this very satisfactory condition as has been the National Paving Brick Manufacturers' Association, and the frequent visits and interchanges by its membership to

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM THE TWIN CITIES AND THE NORTHWEST.



ENTIRE NORTHWEST is experiencing a most encouraging increase in construction work this summer, and if the present volume of building keeps up for the rest of the season, there can be no doubt but that the record will surpass any previous year. The revival is naturally very pleasing to all lines of business engaged in structural work, and is a fair indication of the return of confidence in the northwest. While the erection of residences continues as brisk as that of last year, the number of larger structures going up far exceeds that of 1908, and will probably be ahead of 1906 and 1907. The fact that owners are



Group of Workmen on the Panama Brick Plant.

the different plants throughout the country and the very courteous reception accorded on such occasions has given us renewed confidence in our fellow co-manufacturer.

Let us continue the improvement of this splendid field of education and confidence in all its branches, and, in the end, "Be good and let all else who may, be clever, do noble things, not dream them all day long, and so make life, death and that vast forever one sweet song." A. N. ISSER.

FIFTY YEARS AT ONE BENCH.

Jacob Hyer, of Rahway, N. J., aged eighty-three years, was found dead under a tree in his garden recently. Apoplexy was the supposed cause, although he was suffering from blood poisoning from a scratch on his wrist three months ago. He had worked at one bench in a pottery at Rahway more than fifty years. He leaves five children, seven grandchildren and two great-grandchildren.

insisting on the best grade of work and materials in their buildings this year is also a strong criterion by which to gauge the prosperity of the northwest. Business has been so brisk that in some cases considerable delay has been caused by inability to get materials on time, but this has been the only real disturbing factor in the situation, and is generally anticipated in a rush year. On the other hand, labor disturbances have been surprisingly few in number, and employers and employes seem to be working together in harmony.

Naturally the material conditions have much improved with the heavy building and prices have advanced to a profitable point. The number of large structures going up has especially helped the brick manufacturers, and reports come in weekly of brickyards in the northwest who are far behind on their orders. The educational campaign recently instituted by the brickmakers in this section has proved of

much help in bringing this about, although most of it has, of course, been caused by the generally improved conditions. Pressed brick and terra cotta is also gaining in favor, and the demand for them for facing and ornamenting the larger structures is growing rapidly.

Minneapolis.

Plans have been completed by E. S. Stebbins, architect, for brick additions to the Prescott, Irving and Corcoran grade school buildings.

A four-story brick addition to the Security Bank building is to be erected. This may later be increased to ten stories, the height of the present building. It will be 25x152 feet in size, and will have a white enamel brick and terra cotta front. A four-story addition to the Northwestern National Life Insurance Company's building will also be erected of pressed brick, and will ultimately be extended to twelve stories.

Plans for the Elliott Memorial Hospital at the State University are being prepared by Wm. M. Kenyon, architect. The building will be of pressed brick and stone and will cost over \$100,000.

The Minneapolis Library Board has secured sites for two branch library buildings, and work will be started before fall.

Minneapolis building permits for May amounted to a total of \$1,550,460, the largest May total, with one exception, in the history of the city.

St. Paul.

The St. Agnes congregation will erect a church building at Kent and Thomas streets. It will be 80x200 feet in size and have a seating capacity of about 1,500. It will cost about \$150,000.

Bids are being taken for the erection of the new Schubert Theater building. It will be five stories high and fireproof.

C. H. Johnston, architect, is preparing plans for the new Y. W. C. A. building, to be erected on West Fifth street. It will be of pressed brick, five stories, 70x120, and will cost \$300,000.

A new city jail is to be erected at Fourth and Market streets, on plans which are being prepared by Reed & Stem, architects. Cost, \$150,000.

Reed & Stem, architects, have prepared plans for a new science hall costing \$50,000, which will be erected at Macalester College.

The contract for the new Soo Line freight depot has been let to C. Ash. It will cost about \$100,000.

St. Paul building permits for May were \$1,324,287, as against \$891,499 in May of last year.

J. George Cunningham has been appointed city building inspector of St. Paul, to succeed W. Townsend, who has accepted a position with the Union Pacific Railway, with his headquarters at Omaha.

Northwestern Notes.

The St. James (Minn.) Tile Manufacturing Company is planning on enlarging its plant by erecting two new buildings.

The capacity of the Ladysmith (Wis.) Brick and Tile plant has been enlarged to a 2,000,000 capacity.

A brick and tile plant is to be started at Akaska, S. Dak.

There is talk of a brick plant being started near Kenyon, Minn., by Minneapolis capitalists.

C. F. Niles is considering the establishment of a pottery plant at Menomonie, Wis.

Toms Bros. will start a new brickyard at Long Prairie, Minn.

The organization of a builders' exchange at Devil's Lake, N. Dak., is being agitated.

The Gold Bros. Brick Company, of Big Stone, S. Dak., have increased the capacity of their plant to 4,000,000 brick per season.

The Morton (Minn.) Brick and Tile Company will erect a new building and install additional machinery. T. WIN.

Written for THE CLAY-WORKER.

LETTERS OF A YOUNG CLAYWORKER TO HIS YOUNGER BROTHER.

FUNCTION OF THE TEST KILN—LETTER No. 8.

KAOLIN, GA.

DEAR JACK:

I have your recent letter, in which you say you are contemplating trying out some stunts in which you have not sufficient confidence to warrant doing them on a large scale, and that in order to play safe you are thinking of putting up a test kiln to be used for such purposes. I note your misgivings as to the possibility of getting in test kiln burns, results which will give you an accurate idea of what can be done in a commercial way. You say that so far as you can judge from the experience of others, a small test kiln is apt to be very unsatisfactory at the best, and that you question whether it would pay to build one large enough to approximate commercial burns.

It is true that a small test kiln has certain serious limitations, and that probably in most cases such kilns have been unsatisfactory. On the other hand, it is to be considered that experiments on a large scale have also been unsatisfactory in a great majority of cases, and even those which have been worked out to a satisfactory conclusion have usually been made at great expense; therefore it is worth while to give the test kiln mature consideration before rejecting it as impracticable, and while I do not wish to advise you in your specific case, it may be of some help to you to analyze the limitations of the test kiln with a view to judging as to how far you can correct the faults, and to what extent you can make the apparatus serve your purpose.

To my mind the principal difficulties to be expected in test kiln burns are as follows: First, the fluctuations in temperature in a small kiln, particularly one which is heated by a single furnace, are greater and more sudden than the fluctuations in the temperature of a large kiln of ware. Second, in most cases there is a great unevenness in the hardness of the burn, it being difficult to get anything like uniformity of burn in the different parts of the little kiln. Third, the lack of a direct comparison between the length of time during which the ware in the test kiln is subjected to a given condition as compared to the corresponding period in a given portion of a large kiln.

As for the first of these difficulties, it may be said at the outset that a very great deal depends upon the skill of the burner, and constant attention to the firing of the little kiln. In a large kiln the grate area is much smaller in comparison to the amount of ware to be burned than in the usual form of test kiln, and while considerable fluctuations of temperature are possible, and do occur in the burning of commercial kilns, the large amount of material in the kiln has a tendency to modify these fluctuations very greatly; in fact, it is impossible to raise the temperature of a whole kiln of commercial ware suddenly if it were attempted, and even with gross negligence the temperature would not be lowered with any great suddenness. On the other hand, with the little kilns, having as they usually do, and as is usually desirable that they should do, a large grate area as compared to the size of the kiln, it is possible to get sudden rises in temperature or sudden drops, and while it is not fatal to the practical burning of some materials, it is so in other cases. Usually it is a thing to be avoided and the question is whether it can be modified to such an extent as to make the test kiln practicable. Of course, the most obvious solution to this problem is to build the kiln large enough so that it can be heated by a number of independent furnaces, and to fire only one furnace at a time, so that while one furnace is burning fresh fuel another is burning down, and a third may be in an intermediate condition, etc. The trouble with this scheme is that it is likely to run you into considerable expense in the first cost of the kiln, as the simplest construction and cheapest is that of the single furnace kiln. With the latter everything depends

on the judgment and skill and vigilance of the kiln fireman. It is possible by skillful handling to get very fair results with the single furnace; but to do it the fireman must consider the causes of his fluctuations and give his entire attention to the elimination of those causes, so far as possible. One precaution that is essential is the cutting down of the draft when the furnace door is to be opened, not only for cleaning, but even for firing. If the draft is left on while the grates are cleaned, it will pull in cold air and chill a small chamber of ware very quickly, whereas if the draft be cut down sufficiently there will be practically no circulation through the kiln, and very little drop in temperature during the cleaning. The same is true of opening the door to throw in fresh charges of coal, but, of course, to a very much less extent.

Another precaution of importance is to fire light and often. A heavy charge of green coal will lower the temperature of the kiln very quickly, and then when it gets well afire will go the limit in the other direction. This tendency can be very largely overcome by light firing and still further by charging the fresh fuel on a coking plate, or even on the front part of the grate, and then spreading it out over the fire after it has gotten partly roasted and is in a condition to make heat instead of absorbing it. The burner who studies these points and is vigilant in making the most of them can cut down the fluctuations of temperature to such an extent that they are not injurious with most materials. A fireman may not get good results with the first burn, but then you have the advantage of having comparatively little at stake, so that you can afford to practice, and with the practice will come an improvement in results which may exceed your expectations.

As to the unevenness of burn in different parts of the small chamber, that can be controlled to a considerable extent if you give proper attention to the causes. In a large kiln you are likely to get a lighter burn next the doors and next the wall than you get in the interior of the setting, and the same is true of the little kiln to a greater extent, because in the first place the burn is quicker and the walls have less time to heat up, and in the next place the proportion of your ware which is in close proximity to the walls is much greater than in a large kiln, and if you get a light burn on all the outside brick you have not very much left.

Then, again, there is probably more of a tendency to get the top overburned and the bottom light than in a large kiln, but here again the trouble is not so much from the fact of the difference in temperature in the top and bottom as that after you reject the overburned top brick and the light-burned bottom ones, you have not a great many properly burned ones left. The tendency in burning the test kiln is to burn it as quickly as possible and get it over with, and such practice naturally gives a less even burn than would be gotten with a longer period of heating. The top brick naturally heat up first and it takes time for the bottom brick to catch up. This is well recognized in burning large kilns, and if the same attention is given to it in the small ones the unevenness can be overcome to a very large extent. The tendency is apt to be to build a test kiln too small, and the smaller it is the greater care must be taken in its firing. I should say that you would get good tests for most purposes with a kiln that will hold 500 building size brick, and that fair results can be gotten with even smaller kilns than this. This statement refers only to the size of the kiln chamber, and while this can be of the size indicated you want to be sure and get a good big combustion chamber in your furnace, between your grate and the chamber in which the ware is to be set. In other words, about a half of your interior kiln space should be given to the furnace and the other half to the setting. The comparatively large empty space over the grates gives the gases coming from and through the fuel bed an opportunity to mix before they pass into the setting proper, so that combustion takes place to a large extent before the gases reach the ware you are burning. Without the large combustion chamber, there is a tendency for uncombusted gases and cold air to pass through the setting in streaks or currents, and for the gases not to burn completely or to finish the job in the stack if it is finished at all.

As for the difficulty of getting underburned brick (if you are burning brick) next to the walls and the wicket of the

kiln, this can be at least partially obviated by leaving a space between the setting and the wall on every side, so that your brick are not in contact with the wall and there is an opportunity for the heat to pass through the kiln between the setting and the wall, as well as through the setting itself. Then, again, the walls should be thick enough so the lining will not be constantly cooled off by the rapid radiation from the outside of the wall.

There is apt to be a tendency with the simple down-draft test kiln for the heat to pass over the top of the bag and strike on across the top of the setting passing down through the back part of the chamber, that is, the part furthest from the bag wall, making what may be termed uneven horizontal distribution of the heat. This can be controlled in two ways; first, by the adjustment of the opening in the bottom into the flue to the stack, and second, by the setting, making it more open where the tendency is to burn light and closer where the tendency is to burn hard.

What the whole thing amounts to is that in order to get any satisfaction with a little test kiln, you have got to give it careful attention and not go on the assumption that it can be set and burned, just as a commercial kiln would be.

If you have occasion to make tests to determine what sort of brick or other articles you can produce from given materials, and you know, or find by experience, that the kind of burn which you get in your big kilns is not suitable for the ware you are trying to make, you are forced to a choice between burning a large kiln of it by itself and burning a small kiln of it. Inasmuch as you can burn the small kiln a good many times and in different ways, if you like, for a fraction of the expense which would be involved in making up and burning one large kiln, the economy and the opportunity of giving yourself the advantage of studying the effects of different kinds of burns on your material make it worth while to devote special attention to the handling of the test kiln, from its construction to its operation. Moreover, if you find that your material will produce good goods in a test kiln burn, you are pretty safe in assuming that it will do as well and probably better in regular commercial practice, so that your results are on the conservative side.

If, on the other hand, you desire to try out on a small scale the effect of a proposed change in your regular method of burning in large kilns, you are apt to be disappointed and even to be led into errors by drawing conclusions from the results you get with test kiln burns. This would be the case especially with problems of oxidation. If you are burning a material which is hard to oxidize and you are allowing a certain length of time for the oxidation period in your large kilns and wish to try to cut the time down without endangering a whole kiln of ware, you might, at first thought, expect to be able to make the test of the length of time actually required for the oxidation by repeated burns in a little kiln. While I would not say that it is impossible to accomplish anything in this way, I certainly would advise you to be very much on your guard as to drawing conclusions from such experiments.

If you take everything into consideration and make due allowance for the fact that in the test kiln the atmospheric conditions in the chamber approximate those in the furnace, while in the commercial kiln the atmospheric conditions, particularly in the bottom part of the setting, are in many cases very greatly affected by the reducing influence of the carbon, etc., in the ware itself, you may be able to draw some valuable deductions from your test kiln observations. The oxidation problem is one which requires a great deal of individual study if one happens to be up against an extreme case of it, and I can only impress upon you at this time the fact that whenever you attack a problem of oxidizing a difficult clay, either with or without help of the information which you can get by test kiln burns, that it will behoove you to proceed very cautiously and to take nothing for granted.

I am not sending you any further suggestions as to how to design a test kiln, because I am not at all sure that my design would be as good as yours. If, however, you decide to build one and care to send me a sketch of your design before you build it, I will be very glad to look it over and make whatever suggestions occur to me.

Hoping to hear from you again in the near future, and wishing you success with your work, I am,

Yours as ever,

ST. ENTIC.

Written for THE CLAY-WORKER.

AT THE HOME OF "BRADFORD REDS."

A Fitting Celebration of the Opening of Yard No. 2.

The

BRADFORD Pressed Brick Company, of Bradford, Pa., celebrated the opening of their No. 2 plant June 25th and 26th in a most fitting manner; in fact, in a way which will not soon be forgotten by the score or more of men who visited the home of the famous "Bradford Reds" upon that occasion, on the cordial invitation of Mr. Hanley, president of the company.

The two days were crowded with good things for the visitors, and their every convenience was looked after by the hospitable gentlemen serving the company's interests. From the beginning to the end, the two days' program was a continuous round of pleasure, consisting of a reception in the Bradford Pressed Brick Company's office, an enjoyable luncheon at the St. James hotel, an afternoon at Rock City, a cool, inviting summer resort, a banquet, an inspection tour of the plants, and, by no means least, numerous automobile rides in and about the old town of Bradford, which, nestling



Wm. Hanley, President Bradford Pressed Brick Company.

among the foothills of the Allegheny Mountains in northwestern Pennsylvania, possesses a location rivaled for scenery by few other cities of its size in the country.

Bradford is a thriving city with attractive homes, well-kept lawns, substantial office buildings and twenty-two miles of brick-paved streets. There is no paving material used other than brick and macadam. Bradford derives most of its wealth from the natural resources found in this region of extensive coal mines, oil and natural gas wells, and inexhaustible rich shale deposits. Its origin sprung from the big oil strike, which brought to this section years ago many investors, who built their homes and formed a small settlement, which gradually grew until today Bradford boasts of about 20,000 inhabitants.

The country about Bradford is dotted with oil wells which have been worked for many years and are still fair producers. Even in the city of Bradford today can be seen a number of the old derricks of the wells, some of which are now dry, but the majority still producing high-grade oil. But today oil is not the richest treasure of the beautiful hills surrounding Bradford, for they contain inexhaustible shale deposits averaging many feet in depth and extending for miles back

into the foothills. These shales are easily mined, and have qualities which make them unusually valuable in the manufacture of high-grade brick, tile, terra cotta and sewer pipe.

Besides the fine shale found here, there is an abundance of natural gas, which is used to a great extent in the burning of the clay wares. There is no finer fuel known today for this purpose than natural gas; it is easily controlled and regulated and gives the finished product a color hard to obtain by any other process of burning.

Little further need be said of the whys and wherefors of



An Inviting Retreat at Rock City, N. Y.

Bradford's several well-known clay plants; suffice us to say that they are all prospering and there is a demand for their products which keeps the plants running constantly.

So prosperous has the Bradford Pressed Brick Company been during recent years, that a second plant had to be built to keep up with their trade. In celebration of the



One of the Many Large Crevices.

completion of this plant No. 2, we went to Bradford, were cordially received at the station by Mr. E. F. Knight, the manager, and escorted in automobiles to the St. James hotel. After a hurried brushing up, we visited the company's office, where the glad hand was extended and everyone made to feel absolutely at home.

After an enjoyable luncheon at the St. James hotel, during which many yarns were spun by the visitors and Mr. A. S. Reid, of Newark, N. J., was presented with a leather

medal for the best story telling, we were escorted by Mr. Hanley on a seven-mile refreshing trolley ride to the north of Bradford, just across the boundary line of New York state, to a point nearly 2,100 feet above sea level, known as Rock City. This is a delightful spot, the resort of hundreds of picnickers, who spend the hot summer days here in rest or exploring the many crannies and crevices of the peculiar, conglomerate rock formations, some of which stand 60 to 75 feet high and have been named the "natural bridge,"



"Table Rock," a Massive Conglomerate Rock.

"table rock" and many similar appropriate names, due to their unusual shapes and construction. On the top of the principal pebbly rock formation, we found comfortable benches and spent much time looking off over the beautiful valley dotted with fields of wheat and corn, backed by a thick timber land. It is claimed that from this point one



A Group of Visitors Under the "Natural Bridge."

with an eagle eye can look over a stretch of country covering forty miles.

Later in the day we were joined by a second squad, under the guidance of Mr. E. F. Knight, and at sunset reluctantly left Rock City by trolley winding in and around the hills back down to Bradford, where a delightful banquet was served at the St. James hotel. Forty-five sat down to the daintily decorated tables and enjoyed an eight-course feast. Each individual was presented with a red rose pinned on a

badge bearing the words "Bradford Reds." The menu cards were excellently gotten up, bound in a green leather cover, held together with a white leather ribbon. Through a rectangular opening at the top appeared the print of a fine red press brick stamped with the company's name.

While the banquet was in progress, an orchestra rendered a number of fine selections, and between courses everybody joined in the chorus of the Stein song.

Mr. E. F. Knight performed well the part of the toastmaster. The toast list included City Solicitor F. P. Schoonmaker, of Bradford; E. J. Burke, Rochester, N. Y.; Hon. R. B. Stone, Bradford; A. D. Rogers, Boston; J. E. Randall, Indianapolis; John F. Lent, Pittsburg, Pa.; R. A. Whiston, Galion, Ohio, representing the E. M. Freese Company; James Carter, New York City, of Carter, Black & Ayers; A. S. Reid, Newark, N. J., of A. S. Reid & Co.; Herman Matz, Chicago, of S. S. Kimbell Brick Company; L. Emery, Jr.; W. W. Bell; J. P. Melvin; E. J. Jones, and Wm. H. Hanley, all of Bradford. After Mr. Hanley's toast, Mr. A. S. Reid, of Newark, N. J., presented Mr. Hanley with a handsome cut glass punch bowl and glasses, with the compliments of the visiting gentlemen.

Inspection Tour of the Plant.

Early Saturday morning the guests were taken in automobiles out to Lewis Run to see the two fine plants of the



Squad No. 1 On Highest Point at Rock City.

Bradford Pressed Brick Company. Four large touring cars were kept busy running out to the plant and back, as several of the visitors left at noon for their homes.

The Bradford Pressed Brick Company's Plant No. 1.

The Bradford Pressed Brick Company was organized in 1893 and started operations in the fall of that year, the plant being located at Lewis Run, a small village about seven miles south of Bradford, easily reached by trolley. The new plant is situated immediately south of the old plant, both having excellent switching facilities, sidings from both the Erie and Buffalo, Rochester and Pittsburg railroads running into the yards.

The extent of the shale deposits which lie immediately around the plant is practically unlimited and runs to an unknown depth. The company is now working a 60-foot face, and could go much deeper but for the additional expense which would be made necessary by pumping off the water.

It is necessary to strip a thin layer of surface soil before mining the shale, but, owing to the thickness of the shale bank, this is a small item. The shale is blasted and loaded into cars of local manufacture, which, when filled, are drawn



The Immense Shale Deposit.



Clay Bank Back of Yard No. 2.



The Dry Press Room.



Machinery Room, Plant No. 2.



The Sorting Room.



Partial View of Gas-Fired Kilns.

Scenes in and About the Bradford Pressed Brick Co.'s Plants.

from the pit to the shale room by a steel cable and friction pulley. The motive power at the yard is furnished by one 80 h. p. and one 60 h. p. Otto gas engine, the two engines being installed as separate units, thus insuring economy and efficiency. Natural gas is used for power.

The shale is dumped into two American Clay Machinery Company's 9-foot dry pans, which grind daily sufficient shale for 35,000 brick. The press room is equipped with two four-mold Boyd presses, made by the Chisholm, Boyd & White Co., Chicago, and one small press for the manufacture of ornamental and special shapes.

The brick are taken directly to the kilns from the presses and allowed to water smoke five to seven days before high firing. There are ten rectangular kilns on this plant of the up and down-draft type, not of any patented design, but the result of many years' experimenting with various methods of construction and containing many points worked out by Mr. Hanley and his associates.

These kilns have a capacity of from 85,000 to 90,000 brick each and are all equipped to use natural gas for fuel. Half the kilns are so arranged that they can be fired either with gas or soft coal. The expense of burning with gas is greater than with soft coal, but a great deal of dirt and inconvenience is saved by the use of gas, and much better results are obtained in the burning. The object of equipping the kilns so as to burn both fuels is to be independent of either.

The stock shed has a capacity of approximately 2,000,000 brick and is now being enlarged to a 3,000,000 capacity to enable the plant to run continuously during dull periods and the winter season.

At this plant are manufactured "Bradford Reds" by the dry press process in Roman, standard and ornamental shapes. A stock of approximately 125,000 ornamentals are carried at all times, and the company is prepared to not only furnish ornamentals to their own trade, but are furnishing several other brick companies with the ornamentals they require.

The selling territory is largely in the states of New York, Maryland, Pennsylvania, Michigan and the New England States, the latter section giving the company the heaviest trade. Brick have been shipped to Florida, Minnesota, to Winnipeg and Saskatchewan, Canada, and many other distant points.

There is a decidedly marked difference between this plant and the general run of brick plants. There is little or no dirt; every bare spot of ground is paved with brick, and there is an impression of order and pride throughout the whole factory.

Bradford Pressed Brick Company's Plant No. 2.

The new plant of the company is known as Yard No. 2, and is situated immediately south of Yard No. 1. Both plants are entirely independent of each other, but are so located that the waste heat from the old yard can be used at Yard No. 2 if necessary. By having the two plants built close together, it is also possible to load a car partly with dry pressed and partly with stiff mud brick without incurring switching charges.

The construction of Yard No. 2 was begun in the fall of 1908, and the first kiln was fired about April 1, 1909.

The shale cars are of the side-dump pattern, with a capacity of 2 cubic yards, and are drawn from the shale pit to the shale shed by steel cable and friction pulley.

The machinery at Yard No. 2 consists of one 200 h. p. Otto gas engine, using natural gas for power, and has developed 250 actual h. p. In addition to this large engine, there is a second Otto engine of 50 h. p. for running the fan and electric light plant. These engines have given excellent satisfaction, combining economy, simplicity and low maintenance expense. The company has installed an American Clay Machinery Company 9-foot dry pan. It is the intention of the company to install another dry pan as soon as the kiln capacity of the yard requires it, which will bring the

daily capacity of the plant up to between 60,000 and 75,000 brick.

The pug mills and the brick machines were furnished by the E. M. Freese Company, and have a capacity of 60,000 to 80,000 brick daily. The Freese Company also furnished the automatic cutting table in use and other necessary machinery.

The dryer consists of eight tunnels, each one being equipped with two tracks, each track holding twelve cars, with a capacity of 500 brick to the car. The brick are dried by waste heat, which is drawn by a fan from the cooling kilns and forced through the dryer. The length of time that brick are held in the dryer varies somewhat, requiring approximately thirty to thirty-six hours.

The plans for Yard No. 2 call for ten kilns of the up and down-draft type, rectangular in shape, with a capacity of approximately 125,000 brick to the kiln. Five kilns have been completed and it is the intention of the company to proceed with the work of building new kilns and stock sheds with all possible speed. Some of the kilns at Yard No. 2 are built on the same plan as Yard No. 1, while the others are patented kilns, which will be thoroughly tried out before additional kilns are erected.

A novel feature of some of these kilns is the use of the McManigal grateless furnace. There are five kilns in Yard



Autos Near Hotel on Return Trip from Plants.

No. 1 and four in Yard No. 2 equipped with this type of furnace, and the results have been very satisfactory.

It is the intention of the company to use coal entirely for fuel at Yard No. 2, but they can use gas if desirable.

The capacity of the stock shed for Yard No. 2 when completed will be 3,000,000 brick. The company expects to manufacture nothing but wire-cut stiff mud brick at Yard No. 2 at present, but later will repress a portion of their product.

Mr. Wm. Hanley, of Bradford, Pa., is the president of the company, and is the owner of practically all the stock. Miss A. M. Hanley, the eldest daughter of Mr. Hanley, is secretary and treasurer.

When the Bradford Pressed Brick Company was organized in 1893, Mr. Hanley was but a small stockholder. The plant was operated at a loss for some time, and Mr. Hanley was using a large portion of the output in his work as a general contractor. The other members of the company made a proposition to Mr. Hanley that he should assume the management of the plant and run it until some disposition had been made of the property. After running it for some time, Mr. Hanley advised the other members that the business could be made a paying venture by putting sufficient money into it to build a number of kilns and make other needed repairs. The other members of the company

did not wish to invest any more money and made a proposition to Mr. Hanley that he should buy the other members out. Mr. Hanley accepted their proposition and in this manner became the owner of the property. He at once built a number of new kilns and installed new machinery and the business began to pay almost immediately. After running the plant a few years, the capacity was doubled and with the addition of the new yard the present capacity is trebled.

Mr. Hanley is a man of about sixty years of age and is a Canadian by birth, being a native of Read, Ont., where he spent his early boyhood. He came to the United States about the time of the discovery of oil at Oil creek and was a participant in many of the stirring events of that period, having an acquaintance with many of the men who afterwards became prominent in the brick industry. He is a hard worker and a man of tireless energy. He gives his business the benefit of a close personal supervision. He is slow to give his confidence to anyone, but when an employee has demonstrated that he can take care of the work intrusted to him, he is left undisturbed.

After the inspection of the two plants, the visitors were invited to a Section Q meeting across from the Lewis Run depot, after which the automobiles carried them back to the St. James hotel, where again the inner man was satisfied. Saturday afternoon they were taken on an automobile trip over Bradford. Many of the visitors left during the afternoon, while several remained over to enjoy a delightful dinner at the Country Club, after which they danced the light fantastic.

Mr. Hanley certainly is to be congratulated on his work in building up two such splendid brick plants, both of which are a credit to Bradford and its people.

Weather-Resisting Qualities of Roofing Tiles.—Regarding the porosity of roofing tiles, no exact data has so far been brought out as to give a definite law as to what porosity roofing tiles can be used. A vitrified roofing tile which shows a glassy body is not absolutely required. There are many roofs on which the tiles are more than a century old, and, upon investigation, it will be found that they have a rather great porosity, and the water absorption is often very great. A porous tile has many advantages over a vitrified one. First, in the freezing test, on account of the greater porosity, they will stand better than vitrified ones. They will add more in the ventilation of roofs. The sweating of the roofs is not observed with porous tiles, but is a great disadvantage of vitrified tiles. The limit of absorption is about 15 per cent. However, we find many tiles which are hand-made which absorb a greater percentage. While red tiles are largely in demand, brown-glazed tiles are also used very often. Tiles of blue slate color are used in the northern part of Germany. The clays used for this purpose are red burning clays. They are mostly burnt in periodical kilns, and the blue reducing color is obtained with the firing of wet wood or with crude oil. All air inlets and other holes in the kiln are completely closed up, and the tiles are cooled in reducing atmosphere. When the kiln is ready burnt and tiles have their required hardness, all fireholes are charged with all the wet wood or crude oil in cans which they will hold. The kiln is then completely shut up from all draft and air inlets, and the ware is then cooled in reducing atmosphere. The reducing atmosphere in the inside of the kiln, with its great excess of carbon, fills all the pores of the ware, and prevents the iron contents of the body to get its red color by oxidation. The kiln remains closed until the inside is dark and then the kiln can be opened up and cooled rapidly. Not all clays can be blued in that manner, but the clays of the lower Rhine Valley and Holland are well adapted for this purpose.—Deut. Topf. & Z. Z., No. 5, 1909.



WANT OF KNOWING HOW.

AT FIRST farm drainage was not so satisfactory on account of using tile that were too small, and not well laid and not laid deep enough. Some farmers have dug up the old lines of tile and relaid with larger tile, laying them deeper, thus adding greatly to the efficiency of drainage. Some leading farmers will not commence the work of drainage until they have had a survey made of the land, and the levels taken and marked by a competent man. Very few will lay tile without the use of a level. Experience and observation has proved that the work of tile laying, in order to secure the greatest efficiency, must be done accurately, taking into account the levels and conditions of the area to be drained.

They have learned that if the work is done in a haphazard manner, the tile laid shallow and not well placed and are too small, that the results or benefits to be derived from drainage are minimized. Farmers are now putting small streams, open ditches and waterdraws under ground by using large tile. It is almost unbelievable what an amount of water can flow through a drain laid with 18 or 20-inch tile—streams so large that the inexperienced would at once think it impossible or at least impractical. A gentleman writes that a stream near him having a low wet bottom on each side has been put under ground successfully that was thought to be too large to be confined in its flow through the largest size of tile known to the business, but it was done by the use of 20-inch tile, and then he adds: "Besides getting rid of the meandering flow of the stream and the weeds and bushes that grew along the banks and in the wet bottom land, the past season they had a yield of over 100 bushels of corn per acre, cultivating the growing crop right over the buried stream."

A DRAINAGE EXPERIMENT.

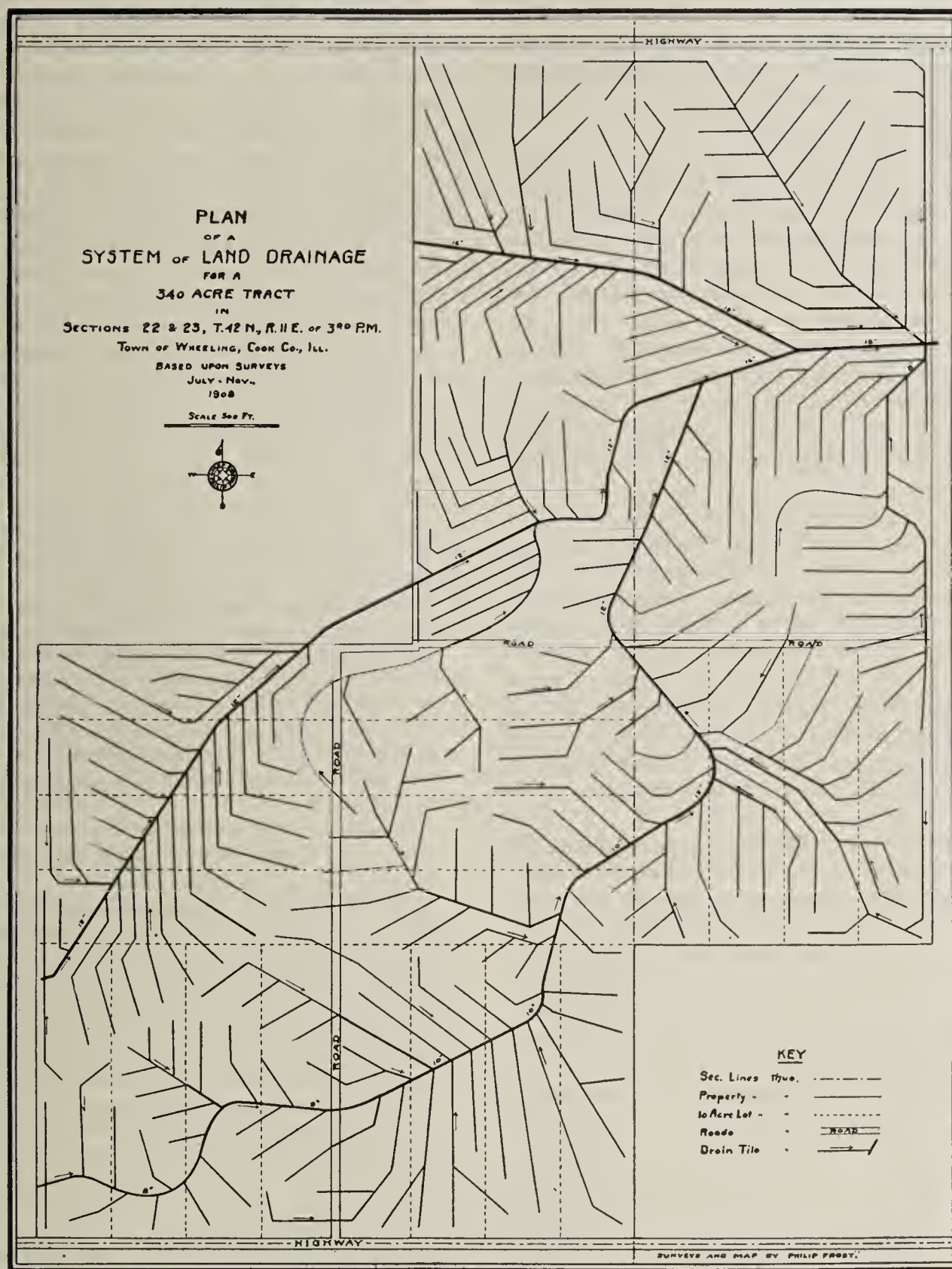
At the Texas Experiment Station, Mr. S. A. Beach began a series of experiments to demonstrate the effect of tile drainage in the crop yield of vegetables on drained and undrained soil. He writes as follows: "The ground selected for this experiment has a uniform slope to the north of about 5 inches to the rod, at the foot of which is the main drain. The soil is rather heavy clay loam underlaid with hard pan at a depth varying from 10 inches to 2 feet. From the main drain laterals were extended up the slope for a distance of 20 rods. During the season the land was planted in Irish potatoes and cabbage. The variety selected was Early Rose, with which a certain area of the tile drained land was planted and on the remaining part of the same lot potatoes were planted in an undrained field of similar soil. The two pieces of land were previously manured alike and were given the same care and cultivation.

"In the undrained field, on May 31, an area was selected equal to the area planted on the tiled land and the potatoes were dug. (The reader must keep in mind that this experiment was made in the State of Texas.) The yield (on the undrained land) was 3.75 bushels. Three days later the potatoes on the tiled land were dug, making a yield of 10.25 bushels, the apparent increase in yield from tile drainage thus being over 170 per cent.

"There was also great superiority in size, appearance and

quality of the yield on the drained land. The experiment with this cabbage was conducted in a manner entirely similar to that with the Irish potatoes, and gave even more marked results. Similar soil on tiled and untiled land was selected, manured the same, and set to the same variety of early cabbage. The heads began to mature about a month earlier on the tiled land than on the untiled plat. At this writing six heads have been gathered from the untiled plat. Their average weight is 1.58 pounds. The tiled plat has matured 342 heads, having an average weight of 2.24 pounds, thus

well. If one is putting up a temporary fence it does not matter much whether the line be quite straight or the posts well set. It is worth while, however, to expend time and money in getting the line right and the posts stable, if the fence is to be a permanent one. It does matter whether the line for a tile drain be well chosen, or whether the work be well done or not, for the reason that a system of tile drainage, well done, will last for generations and give its annual return of benefits. Hence the importance of having no weak point in the system, as, for instance, to neglect to



showing a remarkable advantage in time of maturing and increase of size on the tiled land."

FARM DRAINAGE.

No one thing over which man has control has done so much for the State of Illinois in the past few years as has tile drainage. The experience of thousands of farmers is being added to the argument, showing that this work, sensibly done, has been, is, and will be a good investment. Nevertheless, the farmer should not attempt too much, and what is done in this permanent improvement should be done

have an open, free outlet for the water, or a failure to maintain a regular incline of the tile, allowing depressions in the drain lines, where the silt may deposit and lessen the capacity of the tile drain, either of which may render ineffectual and useless an otherwise well-executed system of drainage costing much money and labor.

They are trying mighty hard to stir up a little revolution or two down in South America. Something of that kind is about due down there, for they seldom go long without a little excitement, and a revolution is the common way for getting it.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



HE CHICAGO building market continues to hold its hot pace, and this year, as last, there is apparently going to be no season of midsummer dullness.

In the downtown district there is great activity. A number of new buildings, ranging from skyscrapers to mercantile buildings of moderate height, are going up. Old buildings are being remodeled and in some cases enlarged, and the huge roof of the Republic building, at the southeast corner of Adams and State streets, is being raised to permit the insertion of four additional floors—the first time this operation has been performed since The Fair added to its quarters in the same manner about four years ago.

The most noticeable line of activity is in hotel construction. The LaSalle hotel, which has been in the last stages for some months, is again threatened with a labor tie-up. The trouble this time is caused by the strike of the elevator constructors at the plant of the Otis Elevator Company, which has the contract for the building. The building trades union is considering the advisability of co-operating with the strikers and refusing to do any work in connection with installing the elevators in the new hostelry. The members of the steamfitters' union "opened the ball" by refusing to connect the pumps with the elevators. Conferences looking toward an arbitration of the strike differences are reported in progress.

Meantime the new Blackstone hotel, which is to be the very grandest thing in the hotel line in Chicago, is soaring into the skies at Michigan avenue and Hubbard place. This is a twenty-one-story building, and the outer walls are already completed up to the sixteenth story. Above them stands the completed skeleton of the remaining stories and the dome, waiting for the final touches and the cloak of brick and terra cotta—the crowning glories. It fronts 80 feet on Michigan avenue and has a depth of 172 feet along Hubbard place. The bare cost of construction is estimated at \$2,000,000, exclusive of furnishings, which will come to \$500,000 more.

The building commissioner's office has just compiled figures for the first six months of the year, and on this basis, provided, of course, that the activity keeps up at the same rate throughout the year, there will be 60 per cent. more building in 1909 than in any previous year of the city's history, not excepting last year, which was a record-breaker.

The following table shows the figures for the first six months of this year, and the comparative totals for the corresponding period this year and last:

Month.	Permits.	Frontage feet.	Estimated cost.
January	669	18,873	\$8,277,700
February	828	22,873	5,159,000
March	1,254	32,831	8,145,800
April	1,082	30,129	8,047,900
May	1,054	31,332	12,609,480
June	1,182	29,468	7,786,300
Totals	6,069	165,506	\$50,028,180
1908, 6 months.....	5,405	151,388	\$29,375,875

In the year following the Chicago fire the cost of rebuilding was represented by \$45,558,200. If the present rate of building is kept up the end of the year will note that there has been added to Chicago's wealth in improvements upon real estate \$100,056,360. The total cost of building for any one year first passed the \$25,000,000 mark in 1884, and since then there have been eras of depression and seasons of prosperity, but always Chicago has grown ahead. Last year the figures for the second six months ran ahead of those for the first, and, of course, the order may be reversed this year

and the contemplated total never realized. Still, with so many large projects in contemplation and even before the architects, there will have to be a great reversal of present form to save the former records.

The Chicago Association of Commerce has not given up its plan for an expensive new home in the downtown district; a new railway station which may cost millions and which will run close to the million mark in the most modest event, is certain to be constructed for the Western Indiana before the close of many more months, and there are a number of other propositions of real magnitude. The Wabash Road also is considering a station of even more ambitious plan.

Building Commissioner Murdock Campbell has announced that the commission of architects which is revising the building code intends to recommend that the maximum height of skyscrapers be changed from 260 feet to 200 feet. The object of this recommendation is to compel the commercial and business district to spread out over a greater area. A 260-foot building contains twenty stories, while a building only 200 feet high is generally limited to sixteen stories. The new LaSalle hotel and the new building of the Peoples Gas, Light and Coke Company are the latest types of the twenty-story structure, 260 feet high. The gas company's building will have a tower, making it really 275 feet high.

A large number of small theaters, ranging from the simple moving picture affairs, which are springing up everywhere all over the country, to more pretentious houses, designed to house light operas, musical comedies and the like, are cutting a good deal of figure in the building records this year. Most conspicuous of these is the little Cort theater, on Dearborn street, on the west side of the street, between Randolph and Washington streets. It is being designed on most approved lines for safety, and, at the same time, is expected to be really beautiful. It is estimated that it will cost \$200,000. It is of brick and fireproof construction, following in architecture Italian lines. E. O. Pridmore is the architect.

An up-to-date hotel building, costing from \$300,000 to \$400,000, is in contemplation for erection at the northwest corner of Fifty-first street and Grand boulevard. It will overlook the park and be devoted exclusively to the purposes of a family hotel. The real estate negotiations have been closed, and it is understood the plans will be turned over to an architect shortly.

SCRIP.

TESTING THE CLAYS OF OKLAHOMA.

Prof. C. N. Gould, director of the Oklahoma Geological Survey, is planning to have extensive tests of the clay resources of the state made this year at the Government Testing Laboratory at Pittsburg, Pa. The chemist of the survey, Mr. L. C. Snider, will spend several months at Pittsburg working under the directions of Prof. A. V. Bleining, making practical tests of the various clays sent from Oklahoma by clay men and commercial clubs.

The clay resources of Oklahoma are said to be very large. Fuel of all kinds is abundant. The state has somewhere between 6,000,000,000 and 10,000,000,000 tons of coal in sight, produced nearly 50,000,000 barrels of crude oil last year, and has hundreds of gas wells, yielding all the way up to 50,000,000 cubic feet of gas a day.

The population is nearly 2,000,000 and relatively little permanent building has been done. There is a great and increasing demand for all sorts of clay products. All the tile, fireproofing, terra cotta and similar products, as well as the greater part of the brick used, are shipped into the state. With the development that is inevitable, the demand for clay products is bound to increase.

There is no more attractive field in the United States today for the establishment of clay products plants than Oklahoma, for the consumers are now compelled to send out of the state for about everything used in this line.

It is believed that the results of the tests made by the survey chemist this summer will justify the establishment of a number of clay products plants in Oklahoma. Both the raw material and the market are at hand; nothing is needed but the installation of plants.



The Cracking of Bricks in Clamp Kilns.—When the lower courses of brick in the flues of a clamp kiln crack, then the clay is too sensitive to cooling, and should be burnt in down-draft kilns or in continuous kilns. If the brickyard is small, a partial continuous kiln is the proper kiln for that purpose. When the yard expands this kiln can then easily be changed to a large continuous kiln.—Deut. Topf & Z. Z., No. 21, 1909.

Continuous Kilns in France.—Mr. C. E. Bourry read a very interesting paper for the annual meeting of the French National Union of Clayworkers and Lime Manufacturers at Paris. In this paper Mr. Bourry reviews the progress made in the handling of brick and the rapid adoption of continuous kilns for the drying and burning of brick. One of the main advantages of the continuous kiln is the continuous making of brick winter and summer, increased production and lesser cost of burning, and thereby great saving in the fuel bill, which makes itself shown in additional gain.—Moniteur De La Ceramique, No. 8, 1909.

Discovery of Clay Beds in Switzerland.—A very large clay bed has been found near Aesch, in the county of Basel-land. It was discovered while boring for water, and, according to the data obtained, the bed covers over fifty acres and has a thickness of 150 feet. It has been calculated that one acre of the clay will yield about 20,000 carloads. This clay will make excellent fire brick, sewer pipe and vitrified tiles. Inasmuch as Switzerland has obtained the greater part of the raw materials used in the manufacturing of such products from Germany, the new clay beds will prove valuable. The Government has taken a very active part in the development of the clay beds.—Tonwaaren Fabrikant, No. 11, 1909.

Calcareous Clays for Brick.—The best method to clean calcareous clays for the manufacture of brick is the washing process. This method is, however, expensive. In case of new deposits, the best plan to pursue is to subject the clay in question to two different processes. In the first the clay should be ground on rolls which are set very close, and in the other method the clay should be put through a dry pan. Bricks made out of the material ground in these two different ways, are dried and burnt side by side, and the burnt brick closely inspected as to their quality. The best test for brick made from clays containing lime is to take them from the kiln while still hot and put them in water. If there is much free lime present the brick will burst and slake. If the lime is in very small particles and well ground, the brick will stand the water test all right.—Deut. Topf & Z. Z., No. 21, 1909.

The Brick Tax of Germany.—It is estimated that the proposed tax on brick which are sold, and which is proposed to be levied at the rate of 50 cents per thousand, will net the German Government a yearly revenue of \$25,000,000. From different sides this proposed tax is vigorously attacked. The brick industry in Germany is not in a very flourishing state at present. Many of the brickyards have only had a production of 25 to 30 per cent. for the last few years, and if the proposed tax is enacted it will be next to impossible for new factories to get started. From the point of view of a direct tax, brick should not be classified with other articles which are consumed by the great mass of people, like tobacco, beer and whisky, which each bear their tax well. The brick tax is more on the style of the window tax in France and other European countries, where the taxpayer pays revenue to the Government for the light he gets

through his windows. According to the sentiments of the German Association of the Clayworking Industry, the tax will not be enacted at this session of the German Congress.—Deut. Topf & Z. Z., No. 26, 1909.

Brick Industry in Uruguay.—The yearly demand for brick in Montevideo is about 140,000,000 common brick, 350,000 pressed brick and 200,000 roofing tiles. There are forty-four brickyards in and around Montevideo, with a production of 55,000,000 brick per year, while eighty-four yards, which are distributed through the whole state, are manufacturing the balance. The brick measure 11x6x2 inches and sell for \$14 per thousand.—Tonwaaren Fabrikant, No. 7, 1909.

Porcelain Warships.—An experiment has been made by the Royal Porcelain Manufactory, at Berlin, to make a model of one of the latest type of German warships in porcelain. The result has been a great success, and it is admitted in naval circles that the model is strictly up-to-date. The total length of the model is a little over 2 feet. Everything is duly represented, and even the color and decorations are exact duplicates of the original warship. The model has been exhibited in the company's store in Berlin, and will afterward be transferred to the War Museum.—Keramische Rundschau, No. 13, 1909.

German Porcelain Industry.—The German porcelain business is still very unsatisfactory and the demand of the world markets are still very limited. In comparison with the month of January of 1908, January this year is far behind in trade transactions. The export to the United States of America and other foreign countries has been very poor. The total export was only 244 tons, which is a decrease of 42 per cent. The export to Belgium, Denmark, Italy and Holland was very much lower, but the lowest export was to Switzerland, where the amount decreased from 694 tons to 118 tons. The export to France increased somewhat. The total decrease amounts to more than 2,000,000 marks.—Keramische Rundschau, No. 16, 1909.

White Glaze for Brick and Tiles.—In the making of glazes for brick and tiles the use of oxide of zinc is often made. A small quantity will make the glaze white by low burning temperature. Its white covering power, however, is not as great as oxide of tin, and it does not give the same white color as tin, but will always have a shade of yellow. A good glaze which has been tried for years on enameled brick is made as follows:

Oxide of zinc.....	20 parts
Carbonate of potash.....	5 parts
Carbonate of soda.....	4 parts
Flint	49 parts
Oxide of tin.....	7 parts
Borax	15 parts

This glaze matures at about 1,000 degrees, about Cone 05a, and in spite of the fact that it only contains 7 per cent. of oxide of tin, it is a very good covering and white glaze for brick.—Keramische Rundschau, No. 13, 1909.

Burning Roofing Tiles in Continuous Kilns.—In the burning of roofing tiles the fire can be advanced very rapidly, and a chamber should not remain any longer in the fire than twenty-eight to thirty hours. The main trouble with water smoking and slow burning glazed goods in a kiln is that the glaze is exposed too long a time to the sulphur gases of the smoke and also the vapors of the drying clay. The glaze will become so saturated with sulphuric acid that its composition will be changed, and the final results will be entirely different from what is expected. A well-adopted glaze for roofing tiles which has been in use a number of years in burning such tiles in continuous kilns, is composed of the following ingredients: Transparent glaze—white lead, 520 parts, 310 parts of flint and 50 parts of red burning clay (Helmstadter clay preferred); brown glaze—400 parts of white lead, 120 parts of flint, 60 parts of red clay, and 15 parts of manganese; black glaze—400 parts of white lead, 140 parts of flint, 60 parts of red clay, and 50 parts of manganese. This glaze matures at the melting point of Seger Cone 08.—Tonind. Z. Z., No. 27, 1909.

Written for THE CLAY-WORKER.

AN UP-TO-DATE DRAIN TILE PLANT.

Hancock Brick and Tile Company Manufacturing High-Grade Clay Products.



OF ALL THE many up-to-date tile plants in the leading clay state, Ohio, none are more interesting than that of the Hancock Brick and Tile Company, located one-half mile from the city of Findlay, on the T. & O. C. Railroad.

There is a superabundance of rich alluvial clay in this vicinity, suitable to the manufacture of a high-grade drain tile and building brick, so that with the excellent management and the heavy demand for their product which the company is enjoying today, there is little or no need for worry concerning the future success of the plant.

The clay is a common, red burning, surface clay averaging 6 feet in depth, with little or no stripping necessary. The company is now working out a portion of the clay field one-half mile from the plant proper. The clay is dug by means



Thew Steam Shovel in Clay Field of Findlay Plant.

of a No. 0 Thew automatic steam shovel, which has proven of great value to the company. It can do four times the amount of work required, and needs but one man in its operation, thus doing the work of four or five men in a much less time and in a more satisfactory manner, giving an average mixture to the material which can not be obtained in the common hand shoveling method.

The clay is dropped from the bucket of the steam shovel into Horton side-dump cars, which are hauled by horses to the plant on a 36-inch gauge, 16-pound rail track. These cars, totaling nine in all, hold 2 yards of clay each and are easily handled. The employment of a horse for the hauling is soon to be a thing of the past on this yard, for they are going to install a gasoline locomotive, which will prove more satisfactory in the long run.

The cars are drawn up an incline at the plant by a cable and friction winding drum. The clay is dumped into a Rust clay feeder, made by the Marion Machine, Foundry and Supply Company, Marion, Ind. Beneath the feeder is a hopper which holds three cars of clay. From the hopper the clay passes into a Michigan disintegrator and thence into a horizontal machine made by the J. D. Fate Company, of Plymouth, Ohio. This machine has more than sufficient capacity for making tile from 3 to 24 inches in size. The

superintendent is much pleased with the Fate machine installed in this plant, and declares that it gives absolute satisfaction in all details. In making changes for manufacturing different size tile, it is not an unusual thing for them to stop the machinery, throw the machine out of gear when making 3-inch tile, change the floor, carry out the Bensing cutting table, put in the vertical attachment and be making



1. A Glimpse of Plant from Stockyard.
2. Interior View Second Floor Dryer.
3. Tile on Way to Kiln from Dryer.

large size tile within seven minutes. The vertical is handled by chain hoist and track.

The 3, 3½ and 4-inch tile are dried in a ten-tunnel waste heat dryer, each tunnel holding twenty cars of tile. A Crawford & McCrimmon 12-foot fan draws the heat from the cooling kilns through underground flues and forces it into the

dryer, while large stacks are used at the exhaust end of the dryer to give the necessary draft.

A temperature of 200 degrees is maintained. Only the small sized tile are dried here, while the large sizes are elevated to the two dryer floors above the dryer proper. The three-story building used entirely for drying the green ware is 100 feet square, with a wing 50 feet square. Exhaust

are connected to two stacks, one 95 feet high, while the other is 80 feet.

The company is now erecting another kiln and expects to add more in the near future. So great has been the demand for their high-grade tile that the enlargement of the plant is now necessary.

The power plant consists of two Polk water tube boilers of 125 h. p. each, one return tubular boiler of 100 h. p., and a large Chandler & Taylor engine.

The plant has exceptionally good railroad facilities, loading tracks passing on either side of the plant, directly connected with the T. & O. C. Railroad.

The officers of the company are: President, Mr. James M. Esler; vice-president, D. Earl Child; secretary, A. G. Fuller, and treasurer, J. A. Gibson. Mr. D. Earl Child is the manager of the plant, and, though quite a young man, is considered by many as one of the best versed men on drain tile manufacture in the country today.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

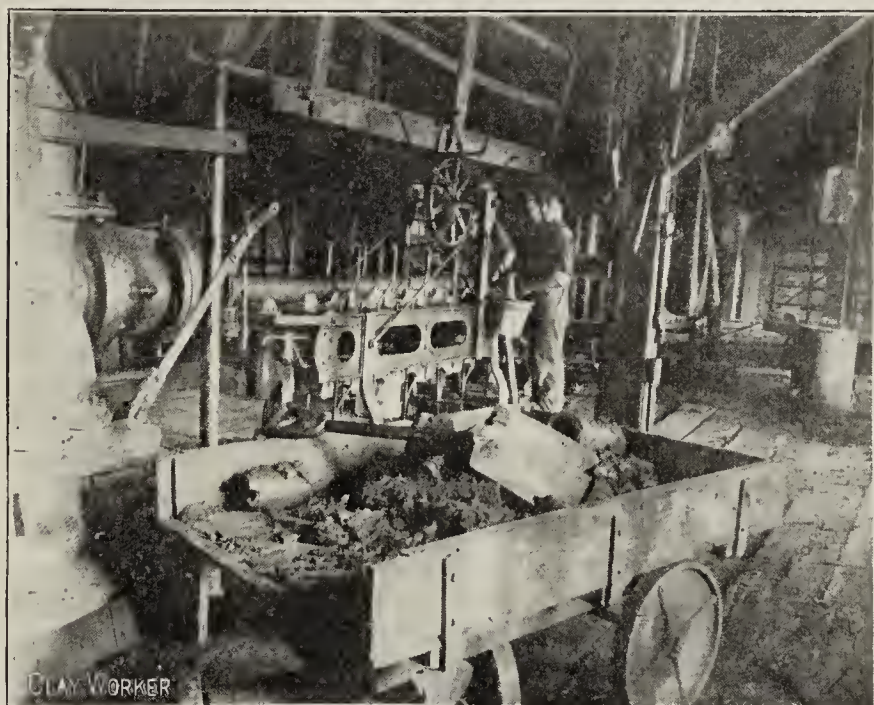
THE BUILDING activity in the Puget Sound section is still good, and the summer months will be good. The building permits of Seattle were larger last month than any month so far this year. The demand for common



1. New Kiln in Course of Construction.
2. D. Earl Child Inspecting the Stock Pile.
3. General View of Hancock Brick and Tile Plant.

steam from the engine is used for heating the drying floors during the day, while live steam is employed at night. The large tile are handled on two-wheeled trucks made by the J. D. Fate Company.

The ware is burned in eight kilns, six of which are 26 feet in diameter, while the other two are 30 feet. The two larger kilns have multiple stacks, while the six other kilns



Machinery Room, Hancock Brick and Tile Plant.

brick is still great and prices are keeping up all right. The Alaska-Yukon-Pacific Exposition is drawing large crowds, and while the exposition from a clayworker's point of view is not very educative, the general arrangements and the great scenery are worth while the visit to the northwest.

The many large buildings which now are building in Seattle and Tacoma are using concrete to very large extent, to the detriment of common brick. This is, to a great extent, caused by the shortage of brick early in the spring. It would be well for the Puget Sound brickmakers to be on the outlook and supply plenty of brick, so that the contractors will not have any excuse for changing the specifications from common brick to concrete, as has taken place in several instances.

At Kalama, on the Columbia river, a new company is organized under the name of the Ranier Face Brick and Clay Company. The plant will be located on Fox creek, where six acres of land has been secured, and the building of the plant will start at once. They intend to manufacture common brick and sewerpipe.

A large body of clay has been discovered by J. A. Johnson at Prince Rupert, in British Columbia, and the manufacturing of brick will be begun before long.

The Denny-Renton Clay and Coal Co. secured some large paving contracts last month. They are enlarging their

Renton plant with several kilns, and are also enlarging their dryer by putting on a second story.

The Washington Brick and Lime Manufacturing Company, of Spokane, has been sued by the contractor of the Missoula, Mont., county courthouse for delay and nondelivery of architectural terra cotta. It is stated that the courthouse is delayed one year on account of the failure to deliver acceptable terra cotta.

The Seattle Brick and Tile Company is contemplating enlarging their plant, and the president, Mr. Niedergesasse, who has just returned from an extensive trip in Europe, will put in some of the latest devices for the making of brick.

The Ballard Brick Company will commence burning their first kiln of brick with crude oil this week. The experiments are watched closely by all brickmakers in this section, and if successful other plants will probably adopt this method of burning.

The Slater Brick Company, of Billings, Mont., has doubled its capacity and is installing some new machinery.

The Northern Clay Company, of Auburn, has just finished the addition of another story to their plant, and will increase their capacity materially. Their architectural terra cotta is favorably adopted by all leading architects, and last month they secured some large contracts in Spokane, Portland and Wenatchee.

The Whinby Brick, Tile and Pipe Company has been incorporated by Anacostes parties. They intend to manufacture fire brick, sewer pipe and brick. Mr. Samuel Ginnet, Jr., is president of the company. SIWASH.

Written for THE CLAY-WORKER.

NEWS FROM SOUTHERN INDIANA CLAYWORKERS.



BUILDING OPERATIONS in Evansville and towns in southern Indiana, southern Illinois and western Kentucky are picking up a great deal, and indications point to an active trade for the brick manufacturers, concrete workers and pottery manufacturers. Brick manufacturers report that while they are not operating their plants on full time as a rule, that business is a whole lot better than it was this time last year. More orders are coming in and inquiries are increasing right along. Building material men say they are busy and believe there will be more activity this fall than during the early summer months. Things look good, the manufacturers state, and they have no room to complain. Banks have plenty of money; loans are easy and collections are getting better right along. Crop conditions are promising. The wheat yield will be up to the average of last year. Oats and timothy are first-class, and reports from Kentucky and Tennessee state that the tobacco crop will be good. With all these things existing, trade conditions are bound to get better right along.

H. C. Kleymeyer, secretary of the First Avenue Brick and Tile Company, and general manager of the Standard Brick Company, Evansville, has returned from a business trip to Toledo, Ohio, Mattoon, Ill., and other points. He says trade seems to be picking up all over the west, and he is looking for a busy fall. At a recent meeting and election of the directors of the Mercantile National Bank and the Mercantile Trust and Savings Company, of this city, Mr. Kleymeyer was re-elected a director of these two financial institutions. He is one of the progressive business men of this section and stands high in the business and financial world.

John Andres, secretary and treasurer of the Standard Brick Manufacturing Company, Evansville, reports business brisk at this time, with every indication of a busy fall and winter trade. The plants of this company, while not running on full time, are turning out a nice lot of work, and a good many orders have been received during the past month. The Standard Company is furnishing the brick for the new factory of the New York Dimension and Supply Company, of this city. They are also furnishing the brick for two large buildings for the Hercules Buggy Company; they have also finished a large three-story factory for the Schelosky Table Company, a new brick factory for the E. Q. Smith Chair Com-

pany, and are now laying the foundation for a new warehouse for the latter company. They furnished the brick for the fine residences of Dr. B. S. Rose, of this city, W. A. Koch, Edward Kiechele; large flats for Dr. P. Y. McCoy, and for the residence and store building of Samuel Vickery, all of this city. The Standard Company also have the contracts for the brick work for the addition to the Evansville Manual Training School, and another contract to furnish the brick for a large new store building at New Harmony, Ind. "Business is very good with us," is the way Mr. Andres expressed himself. "It is a whole lot better than it was this time last year, and, in fact, is getting better all the time. We expect to have all we can do from this time on. Building is picking up a whole lot, and I look for one of the best falls in many years. The outlook for the future is certainly very flattering to us."

Brick manufacturers at Owensboro, Ky., have the brick contracts for a new high school building at Owensboro, which is being built this summer.

Kleymeyer & Klutey, tile and brick manufacturers of Henderson, Ky., have the brick contracts for the new court house at Calhoun, Ky., that is being built to take the place of the one which was destroyed by fire a year or eighteen months ago. The company also have the contract for the brick work for the addition that is being built for the Henderson Desk Company, at Henderson, Ky. Kleymeyer & Klutey also furnished the brick for the fine \$10,000 residence for Larkin White, at Henderson, Ky.

The Industrial Brick Company, at Mt. Vernon, Ind., have the brick contract for the new Elks' Home at Mt. Vernon, as well as the Carnegie Library at Harrisburg, Ill. They are also furnishing the brick for a store and bank building at Ft. Branch, Ind.

The Claytonia Brick and Clay Product Company, whose plant is located at the corner of South Kentucky avenue and the Illinois Central Railroad, Mt. Vernon, and Herman Klammer, whose plant is located near the city, on the Mt. Vernon road, report business very active just now.

Thomas Reed, the veteran brick manufacturer of Petersburg, Ind., who has been in bad health for several years, has slightly improved. He is one of the oldest brick manufacturers in this part of the state.

The Uhl Pottery Company, of Evansville, which was incorporated in 1903, is moving its factory to Huntingburg, Ind., a few miles northeast of this city, where they were given a free site and will be exempt from city taxes for a number of years. They are arranging to erect a large warehouse in this city, and will use it to store their wares in for shipments. George M. Uhl is the president of the company, and Charles M. Uhl secretary and treasurer.

Business with the Crown Potteries Company, of Evansville, is reported very good just now. The plant of this company is located at the corner of Division street and Crown avenue, and the officers are as follows: President, A. M. Weil; secretary, Arthur A. Davidson; treasurer, M. B. Wilson, and manager, Henry W. Flentke. The company was incorporated in 1902. The National Pottery Company, another large concern of this city, have their plant located at St. Joseph avenue, and the officers of the company are as follows: President, A. M. Weil; treasurer, M. D. Helfrich, and secretary and general manager, H. F. Weaver.

The building and machinery of the Bocksting Brothers' brickyard, at Huntingburg, Ind., was destroyed by fire a few days ago. The origin of the fire is not known. The damage will amount to about \$1,200.

T. H. McIntyre, of Equality, Ill., a well-known tile manufacturer of that city, and a subscriber for THE CLAY-WORKER, was in the city a few days ago on business. He reports trade in his section very good and says indications for an active fall business are very encouraging.

The Ohio Valley Roofing Company, of Evansville, reports a large amount of work on hand at the present time. A handsome tile roof is being placed on the residence of Police Judge William M. Blakey, on Riverside avenue. Workmen for this company left a few days ago for Vincennes, Ind., to put a roof on the residence of W. N. Robertson. Imperial red tile will be used. Tile roofs are becoming extremely popular in this part of the country, and during the past year tile men have done more business in and around Evansville than ever before.

HOOSIER.

Burned Clay Versus Concrete Construction.

IF CONCRETE IS GOOD IT ISN'T CHEAP.

IF ITS CHEAP IT ISN'T GOOD.

CONSIDERS BRICK MORE FIREPROOF THAN CONCRETE.

THE BRICK MEN of the Pacific Coast have a new champion in Mr. T. J. A. Tiedemann, an insurance expert, who recently addressed the Pacific Coast Underwriters on the question of "Building Construction and Rates." In the course of his remarks he cited a number of cases where brick had proved to be superior to all other building materials. Extracts of Mr. Tiedemann's paper are given herewith:

"As a result of the conflagration in 1906, many defects in material were exposed, particularly in respect to the various kinds of stone work. Granite, limestone, and in some cases sandstone proved wholly unsatisfactory, being so badly damaged by the heat as to require replacement, partial or complete, in nearly every instance. Marble fronts and stairways also developed serious defects, and in the case of steps it was demonstrated beyond question the absolute necessity of metal supports underneath. Defective flooring in steel frame buildings was another of the structural defects most noticeable after the fire. Hollow tile flooring, when not reinforced, was practically worthless, permitting, as it did, safes to crash through from upper stories to the basement. One of the best examples of this defect which came under my notice was in the Mutual Life building, on the corner of California and Sansome streets. In this building a safe crashed down many stories, leaving apertures almost as large as an elevator opening for the flames to shoot through. Pressed brick and common brick walls in which cement mortar was used, i. e., honest brick work, proved conclusively that as a fire-resisting material it is superior to the various kinds of stone, and the only reliable barrier to check the spread of flames. Of reinforced concrete buildings, we did not have any in the fire zone. Therefore, an opinion based upon experience in this conflagration can not be formed as to the fire-resisting qualities of this class of structure. We must also have demonstrated the adaptability and suitability of the various kinds of crushed rock and other materials used in the mixing of the concrete, together with the sand used here, for the production of a first-class structure of stability and durability. In the case of foundations, it was clearly proven that in San Francisco, where the earthquake hazard has to be considered, the foundations should be most homogeneous in construction.

"It has been argued that concrete foundations on piling are superior to any other. I do not wholly concur in this, my ideas having recently been changed. I believe that well-burnt brick, laid in good cement mortar on piling or other good base, is as durable and serviceable as concrete. As an illustration of this, and to support my statements, I would draw your attention to the foundations recently removed from the site of the old Balfour-Guthrie building on California street, and from the west wall of the destroyed building of the New Zealand Insurance Company. These foundations were put in over forty years ago, and were of good brick, laid in cement mortar, all resting on massive timbers placed horizontally. These timbers when taken out were found to be as sound as on the day they were put in. A careful examination of those walls showed that they had

sustained no damage from the earthquake, and, despite the fact that the ground was wet all the time, were so solid as to defy attempts to break them with picks or sledges. Drills and sledge hammers were finally used, and the foundations pried out in small sections. The solidity of those walls spoke volumes for the honesty of the work in their construction. The objection to this class of foundation is, however, that it is more expensive than concrete, inasmuch as the excavations have to be considerably deeper and require a much wider base terraced to the width of the proposed walls. From inquiries made in this matter, I find that the relative cost is in the ratio of 5 to 3.

"Another foundation that has just been exposed to view, the debris of the ruined building having been removed from it within the past month, is on the site of the Fair building on Montgomery street, next to the Mills building. These and other examples of foundations put in many years ago in San Francisco will suffice, I feel sure, to convince in a great measure even the most skeptical. From the foregoing illustration it is apparent that as an all-round building material, durability and fire-resisting qualities considered, and from an expense point of view, a well-made and properly burned brick, laid in good cement mortar, is the superior of all materials.

"Assuming that my claim of superiority of brick as a building material is correct, and taking into consideration the object lessons presented at the time of, and immediately after the conflagration in San Francisco, when the walls and remaining portions of destroyed buildings, and those gutted by fire, cooled off, exhibiting many serious defects in all building material, other than brick, the question presents itself: 'Should not differential rates be applicable when computing the special rates on new buildings having exterior walls of brick, granite, sand or other stone?' Personally, I am convinced that this should be done. I believe I am not in error when I state that on this coast there is no scale of charges for different materials. A steel frame building of fireproof construction, with exterior or panel walls of granite, sand or other stone, takes the same rate as an equally well-constructed building whose panel walls are brick, with sills, cornices, etc., of similar material, or improved terra cotta. I am opposed to this rule, and believe the time has arrived when we should revise our rating schedule for various mercantile buildings. Taking the results of the Baltimore and San Francisco conflagrations as guides, I should grade building materials as follows: First, brick, or brick with improved terra cotta facing; second, reinforced concrete; third, sandstone; fourth, marble; fifth, granite No. 1; sixth, limestone; seventh, granite No. 2. In support of my contention in this respect, I will take as examples for comparison the following buildings, as they appeared after the fire of April, 1906: Merchants' Exchange, Mutual Life, Union Trust, Mills, Crocker, Woolworth Bank and Flood building. In this I shall forego reference to steel frames, etc., and confine my criticisms to the exteriors. The brick walls of the Merchants' Exchange were but slightly damaged and otherwise discolored, but aside from some cracks in the east and rear walls, showed no serious structural defect as the direct result of the fire.

"The Mutual Life building, admitting its inferiority struc-

turally, was, with its heavy columns, caps and bases of granite, badly wrecked. While the upper half of the building has been taken down, the damage to the granite caps and bases can still be seen and estimated by visiting the building and viewing that portion left standing and at present occupied. In my opinion, it affords the very best lesson of the great damage that can be done by fire to semi-coarse and coarse-grained granite, of any building that was destroyed in the April, 1906, conflagration."—The Architect and Engineer.

SAFER BUILDINGS REQUIRED.

Until comparatively recently pretty nearly all kinds of buildings were tolerated in our cities, so that today we have a hodge-podge medley of highly combustible and dangerous buildings, interspersed among which are a few, very few, fire resisting and first-class structures—not over 8,000 in our total of over 12,000,000 buildings in the country.

Of late years building ordinances have been enacted in most of our cities, but they have been rather lax and still more laxly enforced. Wood has been too freely permitted. inferior construction has been allowed in too high buildings, so-called "slow burning" construction has been permitted, and far too great latitude has been given the exploiters of the various reinforced concrete systems to experiment with their untried and often most questionable expedients in the name of economy. Endless troubles and sometimes disasters have resulted. For instance, the too liberal permission to use wood was the very direct cause of the appalling losses by fire in Baltimore, San Francisco, and likewise in the devastation of the lesser fires of more recent date.

The authorities are awakening to the necessity there is for more stringent legislation. New York has taken the lead in revamping its building ordinances and the other cities will undoubtedly soon follow suit. New York's Building Code Commission has completed its labors and evolved a splendid schedule of requirements. It limits the height of combustible buildings to three stories in congested districts, it limits likewise all constructions of other than absolutely fireproof materials to safe heights, so that they can be easily handled by the fire departments in case of fire, and it recognizes as standard fireproof construction buildings erected of steel frame protected with hollow fireproofing tile, a system that has been in vogue for thirty years and has stood satisfactorily every fire to which its properly assembled parts have ever been exposed. With few exceptions the leading architects and engineers of the country thoroughly approve of the new code proposed for New York, and contend that in building laws as in the divorce laws, for instance, there should be uniformity in all the states. It would be a very great advantage to the entire country if the state authorities, rather than the city, would adopt New York's building code and make it uniform and obligatory in all the cities of each state.

FIREPROOF CONSTRUCTION .

Building records of the country show that the total of new construction done in the fifty-one leading cities during 1908 amounted to \$546,467,390; the building record in the same cities for the month of March, 1909, was nearly \$64,000,000, just about twice what it was for March, 1906. A goodly proportion of this later work was built or is being built fireproof.

Considerable reinforced concrete work is being done, yet fully 70 per cent. of the fireproofing executed is the old, standard steel-hollow fireproofing tile blocks. Referring to this difference in materials, one of the highest authorities in the land, writing in the current issue of LaFollette's Magazine, says that all columns and girders about a building

should be covered with such tile fireproofing and that the floor arches and partitions should also be of brick or tile, but that: "In lower buildings, if you insist upon it and believe that by prayer and much wakeful attention you can supervise every detail of it, then use reinforced concrete. At the very best, in its most perfect state, it is an extra hazardous material with which to work, subject to all the ills of other materials and uncounted ones of its own. . . ."

On this same subject, Mr. J. K. Taylor, the Supervising Architect of the Treasury, and who does more work every year than most of the architects put together, says, in a signed communication to a concrete journal: ". . . It is either good or bad. The material is peculiar in that sense and differs from others as a somewhat indifferent piece of brick work could be allowed to stand without endangering the structural strength of the building, but an indifferent piece of concrete is a menace to the lives of the occupants. . . ." He further states that the department refrains from using concrete in many instances where it could advantageously be adopted, "not because of any prejudice against it, but simply of the fear of disastrous results from faulty or dishonest workmanship."

FRANCE IS GRATEFUL.

THE FRENCH JOURNALS just received here comment in glowing terms upon the ceremonies attending the recent transfer of l'Enfant's remains to the National Cemetery at Arlington, at which President Taft, Ambassador Jusserand and other dignitaries were present. They look upon that graceful act of the American nation as a great mark of friendship for France and an added tie between the two countries.

"La Construction Moderne," the leading architectural journal of that country, says editorially:

". . . L'Enfant played a most important role in the establishment of Washington as the young nation's capital. To him is due its beautiful plan and the sightly locations of its early buildings. But later on, there, as elsewhere, the artistic and harmonious scheme was abandoned and the state buildings were located, at haphazard, as best suited the needs of the moment or private interests or greed. Then, in 1896, Architect Fitzpatrick, of that city, inaugurated a vigorous campaign to persuade the nation that it was time to revive the artistic spirit and to revert to the original plan of l'Enfant. The idea was well received, and, as we noted at the time, the President appointing an Art Commission to care for the systematic grouping of buildings and the control of parks and improvements. There has been a decided renaissance not only in that city, but in the entire country in the direction of the City Beautiful.

"In France few of us remember that l'Enfant rendered such signal artistic services to the young republic after having fought its battles beside our Lafayette under the orders of Washington, the great general and president, who has been the model of all succeeding presidents in every republic. The Americans, it would appear, know better than we how to preserve and honor the souvenirs of the past. They possess in a high degree those practical qualities so absolutely indispensable for national progress, but we note they possess equally the higher idealism and sentiment that make them grateful to all who have helped them in their adolescence, a beautiful quality. Since it is France and a Frenchman that were honored in this recent touching ceremony, it is but meet and just that we do not let the occasion pass without showing our appreciation and extending to them the hand of fellowship and good will. . . ."

Every man has a right to his own opinion, and frequently no one else wants it anyway.

VITRIFIED BRICK ROADWAYS.

BY WILL P. BLAIR.



VITRIFIED BRICK highway is the one kind of pavement for country roads that has clearly passed the experimental stage. The most important special features that have been proven beyond all dispute are as follows:

They are the most economical.

They are the most satisfactory in use.

Their proper construction in all its details is easily understood.

It is true that they may and generally do cost one-fourth to one-third more in the first instance than any of the high-

ways constructed. Three years afterwards it was determined to construct a highway of broken stone from the terminal of this improvement some distance into the country. From the time the improvement was finished the highway was subjected to excessive travel. For more than a year past a deteriorated condition of the stone portion of this road was such as to make it impossible to haul as much tonnage per vehicle by at least 50 per cent. as was hauled over the road when in first-class repair.

The economy of that road must be measured by the loss incidental to its condition and character. In this case, as in all like cases, the brick portion of the road sustains every element and character of a high-class road, as from the beginning. It carries the same load and will carry the same load for years to come.

The broken stone road entails a 50 per cent. loss in its use. Unless rebuilt and brought into complete and full re-



Hollenden Avenue, S. W., Cleveland, Ohio. Laid in 1899 With Repressed Block, Sand Base. Cement Filler.

ways made of macadam and broken stone, even where they are treated by one of the various methods in the use of asphaltum, oil or tar.

The cost of a highway, however, is not to be measured by the first expenditure for it, but it must be measured by the cost of the first expenditure plus the cost required to maintain it in first-class condition for the purposes for which it was built.

There is another element of cost that must be considered by way of comparison in the economy of a brick road with that of any form of gravel or macadam, and that is the deteriorated condition which always obtains for a considerable lapse of time before a repair is or can be made.

The writer witnessed a condition illustrating this element of cost but a few days since. Six years ago, to the then corporate limits of the city of Linton, Ind., a brick street

pair, it will soon lose its value entirely as an improved road. The difference in the cost of the two is consumed already. The writer recalls another example of a macadam road constructed three years ago in northern Ohio, at a cost of \$76,000. It has proven so worthless in use that the farmers along its route, tired of the excuse for a road, have recently petitioned for a brick road, thus correcting the mistake they made in the first instance, willing to throw away the \$76,000 in order that they may have something that they can use every day in the year.

The writer has just received information that certain brick roads in Washington county, Ohio, have been built for \$11,500 a mile. Such a thoroughfare is to each acre of each section on its either side a cost of less than \$10. In other words, the interest charge for such a road per acre is less than 50 cents annually. With thirty bushels of wheat to

the acre, or fifty bushels of corn to the acre, hauled away when the market is near its best, or at an average advantage of price invariably as against when it can be hauled away with the road in permissible condition, at least 10 cents a bushel may be gained in the disposal of crops year after year. In other words, an advantage of from \$2.50 to \$4.50 per acre is always the market advantage enjoyed by reason of good roads, not to say anything of the economy in the wear and tear of vehicles and abuse of horses.

The vitrified brick road is always satisfactory in use because always in repair—never a mudhole or a chuckhole, and practically free from dust; it does not originate dust at all. The traction resistance is so little that the maximum loads can always be hauled. The greatest satisfaction, because it is the exception, in this one peculiar respect—of all the roads that may be built, the brick road is the one road where legislation against its use is never necessary. In many states legislation of this sort against improved highways practically stops their use for weeks at a time, strange to say, when such forbidden or restricted use is the very season of the year when it would be most advantageous to the farmer to put them to his greatest use. Unaffected by the weather, they are equally good during the leisure season as when work is most called for upon the farm proper.

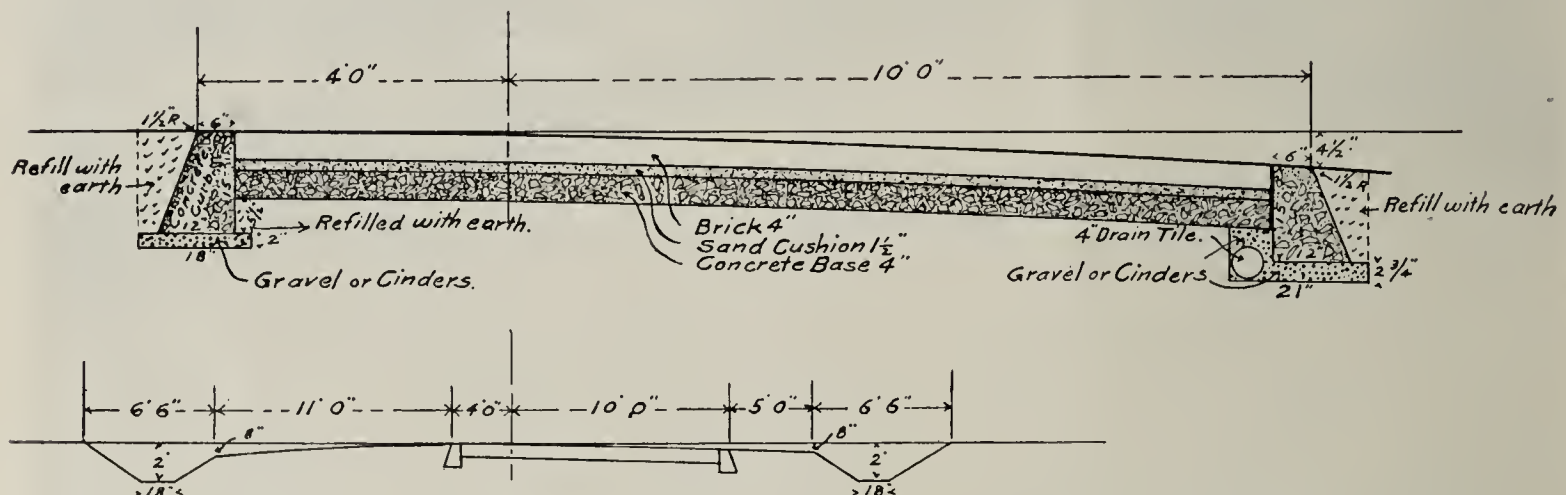
uniform 2 inches in thickness, and when the bricks are laid, they must be rolled and compacted thoroughly into this cushion, and, incidentally, the cushion itself must be thoroughly compacted.

In the application of the cement filler, it must be mixed and applied in the proportion of at least one to one and in such a manner that this proportion shall obtain uniformly throughout. The minute method of application, as well as other details in the construction of brick highways can always be obtained gratuitously by application to the National Paving Brick Manufacturers' Association, Board of Trade building, Indianapolis, Ind. The simple directions for the proper construction are readily understood by anyone seeking to understand their importance.

When built in accordance therewith, there is no charge against a highway, and will be none for very many years to come. They are always ready for use and uniformly so in all conditions of weather and at all seasons of the year. They will last a generation without any cost of maintenance. If the doubtful public and the public inquiring for good roads could but spend a day in the inspection and use of the brick-paved country highways in northern Ohio, the question would easily and promptly be settled. These roads afford an example of the best for all purposes with the least cost of

STANDARD CROSS SECTION.

Cuyahoga County, O
1908.



Type No. 4. This is a cross section of the Miles Road, and is now used almost exclusively for country highways in Northern Ohio. It meets, in every respect, the approval of the general traveling public.

A most important feature of vitrified brick roadways is that their proper construction in all details is easily understood. The essential ingredients that enter into all parts of the construction are not mystified in unknown chemical terms or secret processes. The price of every ingredient is easily obtained. The quantities necessary in the construction are well known, and therefore the actual cost may be easily figured by the taxpaying public. There is no possible opportunity to impose an unreasonable profit upon the taxpayers. This may be thoroughly understood and appreciated by an examination of the type of road herewith illustrated that is likely to become popular in many sections of the country. The type itself may be changed to conform to the necessity of travel, but, for the ordinary country highway, a wearing surface of brick, ranging from 8 to 14 feet in width, is entirely sufficient.

There are a few important details in the construction of this roadway any and all of which are easily complied with, but each of which is important in affording the perfect road of its kind. The brick must be of good quality. The concrete foundation must have a smooth surface which shall conform to the grade of the finished roadway. The sand cushion on top of this foundation and underneath the brick must be of

maintenance of any like number of miles of highway in the world.—Good Roads Magazine.

PATENT INTERLOCKING PAVING BLOCK.

An invention of special interest to manufacturers and users of paving brick is covered by letters patent No. 926062, recently issued to Wm. Hanley, of Bradford, Pa.

Mr. Hanley's claim is:

No. 1. A paving brick having projections on one of its sides and depressions on the opposite side thereof, said projections being of greater length and less width than the depressions whereby contact is permitted between the end of the projections and the bottom of the depressions of adjacent blocks, the difference in width allowing for contraction and expansion and irregularities in manufacture, substantially as described.

No. 2. A paving brick having projections on one of its faces paraboloid in form, and depressions on the opposite face corresponding in position, said projections, by reason of their shape, contacting at their ends with the bottom of the recesses of adjacent blocks, but leaving a space between their adjacent walls, substantially as described.

No. 3. A pavement comprising a series of blocks, each

block having projections on one of its faces and depressions on its opposite face, so as to interlock with adjacent blocks, the projections being of greater length and less width than the depressions, whereby an interlocking structure is secured, rendering unnecessary the use of curbing and at the same time providing for irregularities in manufacture, such as shrinkage, without interfering with the interlocking action, substantially as described.

Mr. Hanley will be pleased to furnish full particulars as to the form and method of manufacture of these blocks to manufacturers desiring same. Interested parties are requested to address him at Bradford, Pa.

NO MORE MACADAM.

ALLEGHENY COUNTY, Pa., the second in the state in point of population and wealth, will build no more macadam roads. Brick will be used instead. One of the officials says that the automobile has made it necessary to find a substitute for macadam. The motor cars tear up the surface, no matter how well it may have been constructed, and scatter it in the form of fine particles. Roads that were built a year or two ago are in worse shape than if they had been subjected to the wear and tear of horse-drawn vehicles for fifteen years.

The officials have been making an investigation of roads constructed with brick in Ohio and they are well pleased with the results. While it is estimated that it will cost about 33 1-3 per cent. more to lay brick than macadam, the cost of maintenance is almost nothing, while the average cost of maintaining macadam is \$800 a mile a year in Allegheny. Brick roads in Ohio, with broken stone and sand base, have been in use for ten years with practically no cost for keeping in repair.

Already macadam roads have been built in Luzerne county at a cost of \$250,000 or more. Those constructed a few years ago are full of ruts and depressions, made so by the ponderous automobiles. Since it cost from \$8,000 a mile upwards to build the roads in the first place, they should be reasonably durable. The county commissioners are at present experimenting with a surface covering made of bitumen and other material, but all such things have not yet passed the experiment stage and their value has not been positively determined.

The problems of road construction are large and troublesome. In addition to what the counties are spending on their own account, the state is building many miles of macadam every year. But from all sections comes the same complaint, that the automobiles are saddling excessive burdens for repair upon taxpayers. If brick were laid in preference to macadam, at a considerable increase in original cost, it is likely that as many miles would be laid in the future as at present, if the saving in cost of maintenance is as large as has been reported. The action of the Allegheny authorities is well worth considering in Luzerne and other counties. Would it not be economical to use brick until such time as a form of macadam construction has been invented that will stand the wear of the motor vehicles?—Exchange.

REPAIRS SHOW THAT BRICK ROADS ARE CHEAPEST.

The commissioners of Washington county, Pa., are in receipt of a check from the State Treasurer for \$3,888, allowed by the State Highway Department on account of the amount expended last year by the county for the maintenance of county roads. The amount upon which the county's claim was based was an expenditure of about \$34,000, and the full amount of its claim was about \$5,400. The sum asked for by the county was approved of by the State Engineer, but on account of the appropriation being insufficient, the amount paid was somewhat under the claim.

This is the first claim ever made by the county for its share of the state fund for maintenance of roads and will be

the last one, since all improved roads must now be maintained by the townships in which they are located.

The county has spent for repairs on roads constructed under the Flinn law over \$50,000, all of this amount being spent on seven of the roads, six of them not yet having undergone any repairs. The roads upon which repairs have been made, time when built and the amount spent are as follows:

West Middletown, 3 miles, 1905.....	\$11,827.01
Claysville-Burnsville, 3 miles, 1904.....	19,968.14
Beallsville, 1¾ miles, 1904.....	5,292.72
McDonald-Primrose, 1 mile, 1905.....	2,291.34
Burgettstown-Florence, 2 miles, 1905.....	164.62
Labratory-Lone Pine, 2 miles, 1905.....	2,624.83
Zollarsville, 3 miles, 1905.....	8,476.55

Total number of miles, 15¾.

Total cost of repairs, \$50,645.21.

This would show an average cost of \$1,071.86 per mile for each year since the roads have been built. These figures do not include any money spent on the pikes which were controlled by the county for several years, but are confined exclusively to the roads actually constructed by the county. Part of the above amount was spent for widening the roads, as it has been found that 9 and 10-foot roads are so unsatisfactory that they must at once be made wider, and in doing this the expense incurred was charged to road maintenance. If this amount were taken from the above figures, it would probably reduce the annual cost of maintenance to about \$800 per mile.

Upon this basis the margin between brick and macadam would be exceedingly small at the end of the first five-year period, and would be all in favor of brick at the end of the second five-year period. It is not conceivable that a brick road would cost more than a few dollars per year to maintain, most of the expense being due to slides or slips in the ditches, and matters of that kind. It would not exceed at the very outside \$50 per mile each year, and would probably not run that much. The brick road would cost about one-third more to build, so that would leave the figures in about the following shape per mile:

	Macadam.	Brick.
Construction	\$13,000	\$18,000
Repairs, first five years.....	4,000	250
Repairs, second five years...	4,000	250
Total, end ten years.....	\$21,000	\$18,500

From that time forward the brick road would be costing annually \$750 less per mile, and at the end of twenty years the difference in the cost of the two roads would actually be \$10,000 a mile less for a brick road than a macadam road, with the difference increasing nearly a thousand dollars each year thereafter.—Exchange.

ANNUAL CONVENTION OF ARKANSAS BRICKMAKERS.

The Brickmakers' Association of Arkansas met in annual convention at Ft. Smith, June 22, 1909. The meeting was held in the rooms of the Commercial Club of that city, the president, Mr. M. C. Burke, of that city, presiding. A fair attendance of the members was present, all the membership being comprised of brickmakers of the State of Arkansas and the northern portion of Louisiana. Among other business transacted was the passage of the resolution extending the bounds of the membership to include certain portions of Oklahoma, Louisiana and Texas, which are adjacent to the State of Arkansas. Such brickmakers were invited to unite with this association should they so desire. A part of the time of the convention was spent in the inspection of the large paving brick plant of the Burke Bros. Brick Company. Much routine business was disposed of by the members present. A reminiscence address was given by the Hon. Harry E. Kelley, of Ft. Smith, who was one of the pioneer brickmakers in this state. An invitation to hold the next meeting in February or March, 1910, in Little Rock, was accepted. Officers and an executive committee were elected for the ensuing term.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



DEMAND FOR building brick continues in Toledo and vicinity, and the local concerns have been kept on the run in an effort to care for the wants of their customers. This has been something of a problem, as there was but a small supply on hand to start the season with, the business having been so nearly dead that no one seemed to anticipate that there ever would be a real live market for building brick again. Some idea of the situation may be gained from an inspection of figures covering building operations during the first half of the year, which ended last week. During the period there were 642 permits issued from the office of the city building inspector for improvements estimated at a valuation of \$1,894,989. These figures in no sense constitute the building business done in Toledo, as hundreds of new structures are well under way for which permits have not yet been taken out, while permits themselves are in nearly every instance from 20 to 50 per cent. under the actual cost of the buildings. No permit has yet been issued for the new half-million dollar Federal building, which is progressing rapidly. From these figures it will be seen that new buildings to the extent of from \$2,500,000 to \$3,000,000 have gone up in Toledo, or are now under way. To fully explain what this means, it may be added that during the same period last year 486 permits were issued, covering an aggregate valuation of \$870,362. Another noticeable feature is the fact that while the number of permits have been increased less than 53 per cent., the estimated valuation has shown a gain of nearly 118 per cent., showing that a better class of structures are being erected, and that building brick, as well as other building materials, have advanced in price very materially, as compared with last season.

Other clayworking institutions are also enjoying an increase in the volume of their trade. There has been a healthy call for paving block and sewer pipe, and some export business in paving block has been possible, as shown by the records of the United States Customs Office. Municipalities are no longer finding any serious difficulty in marketing their bonds, and public work is progressing in good shape. Many of the smaller cities and towns, especially in farming communities, are breaking all records in the matter of street paving and sewerage.

That the city of Toledo made no mistake in selecting Garrigan Bros. to take care of the Summit street paving contract, is shown by the results accomplished, record time being made. The contractors began the work on May 27, and turned the thoroughfare over to the city in time for the big military tournament this week. The paving extends from Michigan avenue to Bay View Park, a distance of 1,627 feet, and contains 9,600 square yards of paving.

The Ohio Savings Bank and Trust Company, of Toledo, was the successful bidder for \$66,000 worth of street improvement bonds recently issued by the city of Defiance, Ohio, to be used largely for sewerage purposes. The funds raised assure the paving of North Clinton, Jefferson and Second streets this season.

The contract for a waste water sewer from the new filtration plant to Delaware creek was let by the Toledo board of public service recently. M. Lewandowski was the successful bidder at \$13,995. Other bids ranged as high as \$28,310.

The Bloomdale Tile and Brick Company is the style of a new corporation organized at Bloomdale, Wood county, Ohio. The concern has an authorized capital stock of \$15,000, and was incorporated by Ross M. McPherson, Martin M. Wisely, Orrin F. Campbell, John M. Sticker and Daniel R. Good.

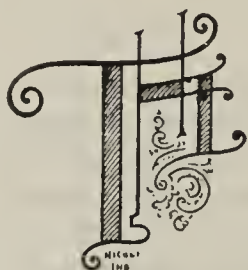
A larger number of sewer and paving bonds are being

readily sold by numerous small municipalities in northwestern Ohio. Toledo concerns are picking up many of these bonds. In fact, there is considerable rivalry among banks to secure them. Hamler and Fremont recently disposed of several issues of sewer bonds, and a number of sales are soon to be made in other cities.

Labor troubles have caused more or less annoyance at the four Sebring potteries at Salem, Ohio, recently. About 100 girls in the decorating department struck for a raise in pay from \$1.25 to \$1.50 per day.

T. O. D.

MIDSUMMER MEETING OF THE AMERICAN CERAMIC SOCIETY.



SUMMER MEETING will begin Thursday, July 29th, 8:00 a. m., at Kittanning, Pa., and close July 31st at Pittsburg. It is an occasion which has become a well-established custom of our society, as well as a pleasant feature supplementing the strenuous winter meeting by a gathering more of a social nature.

It has been decided this time to visit the Allegheny valley as an appropriate district for an excursion of this kind, since this section not only shows interesting industrial features, but presents, also, natural beauties of a pleasing character.

The starting point of the outing will be Kittanning, Pa., which is but a short distance from Pittsburg, forty-four miles, and can be reached by the Pennsylvania Railroad, Allegheny Valley branch, at frequent intervals. Trains will leave the city (union station) in the forenoon at 6:17, 8:15, 9:00, 10:30, and in the afternoon and evening at 1:10, 1:30, 4:15, 5:05, 6:15, 9:05 and 11:00, eastern time.

The hotel facilities of the town are sufficient to take care of our small crowd, there being two houses of about equal grade, the Reynolds and the Steim House. It is suggested that as many members as possible stop at the Reynolds, in order to keep together. During the stay in Pittsburg, the Ft. Pitt hotel, located close to the union station, has been selected as headquarters, which affords all the comforts of a first-class house.

Some unique opportunities will be offered on this excursion for obtaining a glimpse of the glass industry in connection with the manufacture of window and plate glass, as well as some interesting phases of the clay industry, the manufacture of glass pots, white ware, fire and silica bricks. Again, the clay products laboratories of the Technologic Branch, United States Geological Survey, located on the old Pittsburg arsenal grounds, will be open for inspection, and thus the members will be able to see for themselves what the Government is aiming to do in these new laboratories. This work is of special interest, since the agitation which caused the Survey to take up this line was started by our society. In addition, it will be possible to visit some of the mighty steel works of Pittsburg, and arrangements have been made to this effect. Finally, those desirous of seeing more of the great clay, glass and cement industries of western Pennsylvania and eastern Ohio, will find it convenient to do so, since Beaver Falls, East Liverpool, Wellsville, Toronto, Zanesville and other clay centers are within easy reach of Pittsburg.

The committee suggests that those intending to come to the meeting notify Mr. W. H. Fickes, Carnegie, Pa., as soon as possible, and he will be glad to furnish any information desired.

It is hoped that a goodly number of members will take this opportunity to meet again and a most cordial invitation is extended to each and every one. By arriving at Kittanning on the evening of July 28th, an enjoyable opportunity will be offered for quiet chats and button-hole talks.

With fraternal greetings and the hope of clasping you by the hand Thursday morning, July 29,

THE COMMITTEE.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Want to Know How to Fire-Flash.

Editor THE CLAY-WORKER:

We would like to ask through THE CLAY-WORKER the best way to fire-flash red brick in single draft kiln of down-draft type, also how to set brick for flashing, and if it can be done with bituminous coal. Would like to know if there is any way to kill the red color in red burning clay, so clay will burn of a lighter color.

B. H. REED & BROS.

Brick Burns Too Dark.

Editor THE CLAY-WORKER:

Enclosed find check for subscription to THE CLAY-WORKER. We have been having trouble with our brick burning too dark, almost black, caused by our clay having too much iron in it. What can we use to change the color to a brick red? Any information you can give us on this question will be much appreciated.

Very respectfully,

BRICK Co.

On Lightening Brick.

Editor THE CLAY-WORKER:

In reply to inquiry of the Camp Hill Brick Company, would say that the effect of an oxidizing fire is to turn the iron to a red color, and the higher the temperature the darker the color, even running to a purple. When burned under reducing conditions, the iron is converted into a lower oxide, giving in most cases a black color, and when reduction is carried too far, the iron may even be reduced to metallic iron. An odd color effect is obtained when, after a reducing fire period, an oxidizing condition is effected, and a peculiar reddish color is thereby created which is radically different from the original red color effect of the brick. The percentage of iron has also an effect upon the intensity of the color. These color effects are very clearly shown in the shades that can be produced in the manufacture of Venetian red from sulphate of iron. However, it might be advisable to try to get lighter shades of red by not burning so hard or by mixing a proportion of light burning clay with the original red burning clay, or possibly by adopting both suggestive changes. And it surely would also be proper to burn with oxidizing conditions and refrain from creating the harmful reducing conditions.

A little careful, judicious experimenting ought to give the desired results.

J. J. Koen.

Wants Remedy for Cracking of Brick in Burning.

Editor THE CLAY-WORKER:

As readers of your valuable paper, we would be very glad for you to give us any advice as to the proper method of handling our clay to prevent the brick from cracking in the kiln. We have a soft mud p'ant, using a compound disintegrator and crusher. We have some trouble with limestone pebbles, but thus far this season we have been operating our crusher, so that we absolutely pulverize the limestone. We are working our clay direct from the bank to the machine. Our bank has from 10 to 15-foot face, the first 3 or 4 feet being of white crumbly consistency, and the lower part of a heavy blue jointy clay. From the machine our brick go into the open rack and pallet drivers, and by protecting from the sun and wind for the first twenty-four hours, very few

brick crack in the dry sheds. We set our brick in the ordinary open kiln 8 on 3. The watersmoking is continued from forty to fifty hours. After the watersmoke is thoroughly cleared up, we run the kiln hot from three to four days and cool off in from three to four days after we cease firing. In opening the first kiln this season, we found that from 70 to 90 per cent. of the brick were cracked, some of them all over and in all directions. Our foreman is of the opinion that the cracking is the result of too quick watersmoking, and advises us to work slower on the next kiln.

Can you give us any advice on the subject? We should be pleased to hear from you, and assure you that any suggestions that you may offer will be highly appreciated.

Very truly,

DETROIT BRICK AND TILE MANUFACTURING Co.

Bricks and Poetry.

DEAR MR. RANDALL:

I enclose a clipping from the Chicago Tribune of a poem by John Davidson, entitled, "Fleet Street."* The lines are largely in praise of the importance of brick in civilization. Davidson was a young Scotsman, the son of a Morrisonian minister, and was afflicted with two great misfortunes, one curable and the other incurable, viz.: Poverty and cancer, and so to end it all he committed suicide a few months ago.

The poem is classical in its structure, having a Miltonesque flavor. Its strength and virility are apparent and in striking contrast to the usual doggerel of Kipling, or the silly rhymes of Alfred Austin. Is it not exquisite when he speaks of a brick as a "baked oblength of tempered clay year in, year out, unnoticed in a murky, mundane street." Was ever a common lowly brick so elegantly defined?

Doubtless also the poet had in mind the importance of common things, and the part played by the ordinary substratum of the so-called unwashed in the world's economy. When he speaks of bricks as "gallant souls"—"Noble and faithful bricks be not dismayed," and again when he says: "Such an enviable fate as that of any single solid brick." "Well and truly laid a molded, tempered, necessary brick."

He had in mind a strong, ringing, hard-burnt brick, and applies same to his standard of moral perception when he says:

"Could we but attain
The crude integrity of common place
Cohesion, even in the most exhausted, most
Decrepit, ruinous, forgotten orb,
In some back alley of the Milky Way,
How happy we should be."

Instead of being named "Fleet Street," it should have been named "Address to a Brick," as it is certainly fitted to rank with that other great poem, "An Address to the Devil," by his countryman, Robert Burns. Yours truly,

P. L. SIMPSON.

*The poem appears on page 70 of this issue.

Seen in New Jersey.

Editor THE CLAY-WORKER:

Along the Hackensack river all is animation and activity. Every plant is in full operation and the smoke is curling upward in blue clouds from every hill along the river. Scarcely a day passes that one or more schooners do not leave on their way to New York loaded with new brick. On the Ridgefield Park side, the trains are backed on the siding all the time awaiting their load. It is a busy scene, that much is certain, and it indicates how famously the makers are getting along. So far as prices are concerned, the situation is reasonably satisfactory. The demand has kept up fairly well and this has assisted in maintaining prices. Some have contracts, consequently prices do not disturb them seriously. Others are less fortunate, but it is perfectly safe to say that no one is losing money this year, and this will be recognized as a welcome change from the conditions which controlled last year and a portion of the previous year. The market for new brick has been adequate and sales have been active ever since the season opened. It is said that the situation will continue as promising as now throughout the season.

The business boom which it is expected will shortly hit this section of New Jersey is awaited with a good deal of

expectation. The opening of the McAdoo tunnels, which occurred July 20th, will have the effect of attracting a much larger population to the immediate suburbs of New York. The time will be shortened by a good many minutes—and time is the consideration, not distance—accordingly, with time reduced the attraction to this side of the Hudson, where one may escape from the discomforts and the disagreeable surroundings of the more open territory, will be powerful, and unquestionably it will prove irresistible to a large number. But if they come it will mean the construction of a good many new houses. The available dwellings are now all occupied, consequently the increased population will force increased construction, and that means consumption of brick and other clay manufactures.

It seems from what has been said recently that the construction of that ocean boulevard, which has been mentioned here previously, is quite likely to be brought about. The Governor is exerting all his powerful influence to accomplish it, and there are other interests equally powerful which seem determined that the boulevard shall be built. The interesting feature may lie in the selection of materials out of which it is to be built. The State Automobile Commissioner declares that something must be used on the roads of the state far more permanent than anything hitherto utilized. He doesn't suggest experiments with brick openly, but unquestionably he has brick in mind when he suggests some material which will remain smooth and hard even under the grinding of powerful machines. Nothing else will do this and it would seem that experiments along this line would be far more conclusive and would go farther toward solving the troublesome problem than anything else that might be done, and such experiments are recommended. A. L. B.

NEW HEAD OF HYDRAULIC PRESS BRICK COMPANY.

George A. Bass, of Philadelphia, has been elected president of the Hydraulic Press Brick Company, to succeed Mr. F. G. Middlekauff, who died May 30th. Mr. Bass has been second vice-president for a number of year, being the eastern representative of the company, with headquarters at Philadelphia. He has moved to St. Louis and taken up his duties as head of one of the largest brick concerns in the world. The other officers of the company will remain the same. They are: H. W. Eliot, chairman of the board of directors; Ralph Simkins, vice-president and secretary, and G. F. Baker, treasurer.

COST OF BRICKLAYING BY A MUNICIPALITY.

As a result of the very careful investigation of the Sewer Department of the city of Boston, Metcalf & Eddy, consulting civil engineers to the Boston Finance Commission, present in a recent report some very interesting facts regarding the cost of bricklaying by municipal employes. Comparing the smaller sewers built by the Massachusetts Metropolitan Commission with those built by the day labor force of the city of Boston, the engineers find the prices ranging from \$9.04 to \$18.34 per thousand on the day labor work by the city, whereas on the Metropolitan work done by contract the highest price was \$4.23 and the lowest \$2.77.

Based on the number of brick laid, the difference between the day labor work of the city and the contract work of the Metropolitan Board is as noticeable as is the difference in cost. These items are particularly interesting when it is noted that upon the city work, taking the average for a whole week, the number of brick laid per mason per hour was as low as thirteen, and the largest number was 242, as against ninety-four and 570, respectively, upon the Metropolitan work. The highest number per hour for the average of an entire job done by the Sewer Division was seventy-eight, whereas the lowest average upon Metropolitan work was 165 and the highest 384.

The engineers show that to a considerable extent the ex-

cessive cost under city administration was due to the fact that sufficient work was not always presented to keep the masons busy; but taking material and labor costs into consideration, it appears that the total cost for brick masonry in the sewers was \$30.75 per thousand brick and \$18.45 per cubic yard of brick work on the basis of 600 brick to the yard.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

A LONG SEASON of dry weather has enabled New York brickmakers to keep their plants in operation continuously for a number of weeks without hindrance, and the result has been a liberal output of profitable product. Along the Hudson river the plants are all in operation and the quantity turned out is steadily increasing. The situation has improved so much as compared with last season that all makers are congratulating themselves upon the opportunity to secure some profit for their work, larger than the profits obtained last year. Accordingly the situation contains a great deal that is promising and the present situation is all that might be desired by even the most exacting.

Demand continues active. Everywhere building permits are in excess of last year at this time and are increasing. More permits have been issued for the construction of brick dwellings than for many years, and this request still shows signs of further development. The brick dwelling is recognized as the most permanent and undoubtedly the cheapest, now that most building materials have advanced so considerably. Along with these numerous permits go many others which are indicative of the favorable development of building operations everywhere throughout this territory. One can not determine to what extent these operations will develop immediately, but it is understood that a number of large operations have recently been financed and work will begin shortly, while others are under consideration and further development of the office building mania is expected.

Along the Hudson river business is in good shape. The plants are turning out an excellent quality of brick and immense quantities of them are coming down the river in schooners and barges. One tow of barges not long ago had a dozen in it. The unloading docks are scenes of busy industry.

A subway has been authorized from the end of the present McAdoo tunnel at Twenty-third street to Forty-second street. It is uncertain when it will be ready for the specifications, but before very long. The other tunnels constructed by Mr. McAdoo under the Hudson are in operation or will be shortly. Contractors and those who have different classes of material to sell will be glad to know that this new work will be begun shortly and will be completed as soon as possible.

The new New York is a city of brick and clay. Fifty years ago it was all brick. Very few wooden houses were erected then and the brick ones still stand as monuments to the wisdom of those who considered burned clay a permanent building material. The conditions under which construction was carried out was different then, but in the main the effect was the same. The buildings then built have lasted until today, and many of them are doing good service still. They are not modern, so far as planning and modern conveniences are concerned, but they are solid structures and their permanency should be sufficiently emphatic to influence builders in these days to choose the same material, even more generally than they do now. It may be understood, however, that a journey through the newer portions of New York will disclose the fact that the city is being rebuilt of brick and terra cotta. All the later buildings are brick of one kind or another, and the brick which most attracts the eye is the substantial material which will last longer than any stone yet discovered, while the danger from the effects of heat, should a fire break out in or near a brick building, is so small that it is really nothing at all. It is said that the present era of brick will consume far more proportionately than the one which passed fifty years ago.

BURTON.

THE GRINDING PAN DEPARTMENT OF THE AMERICAN CLAY MACHINERY COMPANY.

Here is a photographic view of the commodious grinding pan department of the largest manufacturers of clayworking machinery in the world. It shows where the dry and wet grinding pans of this concern are made. There are a dozen pans shown on the floor in various stages of completion and in size ranging from a 5-foot up to a 9-foot. These pans are all being built on order and are not for stock. Years ago when the American Clay Machinery Company, of Bucyrus, Ohio, U. S. A., made its first pan it was in the corner of their factory, just room enough in which to set up the pan. That original pan was built on new and improved lines. It was a departure from any other appliance and it had distinc-

familiarity which their long experience has given them. This not only means a better machine for the buyer, but a better price because of the better facilities and expedition in building. It is safe to say that an American Clay Machinery Company machine is a better value at twice the price of a less carefully built machine. Clayworkers who have witnessed the construction of machinery in the plant of this company are satisfied of the value that is in the machines. Those who have operated the machines know that the value is there and that the investment pays more than the added cost there might be between a good and a poor machine. Every clayworker in the world is invited to visit this plant and see the care and system with which the machinery is built. It will do more to convince you than a barrel of printer's ink or a dozen letters. The American Clay Machinery Company, of



Grinding Pan Department of The American Clay Machinery Company, Bucyrus, Ohio.

tive features of merit. That this is true to the letter may be better appreciated when it is stated that the original pan is still in operation. From the small beginning has been built up the largest dry and wet pan factory in the world. Quality is the foundation upon which this big business has been built, and that same watchword—"quality"—has never been lost sight of in the construction of this company's long line of machinery, which includes every machine and appliance for making every kind of clay products by all processes. This pan building department is superintended by a pan expert who helped to build the first pan and has been at it ever since. He is at the head of a crew of workmen, equally capable, who have been building these pans for years. Constantly building pans has made them proficient. There is not only ability for doing things well, but the possibility of doing them quickly because of the day in and day out

Bucyrus, Ohio, U. S. A., is by far the largest concern in the world building machinery for making products from clay.

The central part in view shows a new model dry pan, which is designed for preparing clay sufficient to make from 100,000 to 150,000 brick per day. The base of the side frame is designed to set on masonry, the lower step being on the floor level, as shown in the view. This pan is being built on the order of one of the largest and most progressive clay manufacturers in the west.

MR. S. V. PEPPER BECOMES A BENEDICT.

Cards are out announcing the marriage of Miss Josephine Ethel Chandler to Mr. Samuel Vernon Peppel, of Columbus, Ohio. They are to make Cedar Rapids, Iowa, their future home.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



NEW BUILDING projects of individual importance have not been coming up quite so rapidly during June as for the month or two previous, but general conditions are favorable and increasing activity is expected from now on until late in the fall. One of the most favorable indications is the comparative ease with which money can now be secured for buildings of moderate size, the rates of interest being considerably lower than they were early in the year. Contracts have been placed in the last few weeks for several fairly large structures, in most of which brick will be the principal material used. The principal activity, however, is in comparatively small business structures, which, in the aggregate, require large quantities of material. On the whole, the demand for brick of all descriptions is rather better than it was a month ago, owing to the progress on a large number of buildings for which the general contracts had been let previously. The result is that the market is in a much more satisfactory condition. The hopes expressed last winter that this would be a big brick year are not likely to be disappointed if the present activity continues for a few months longer, as the sales made so far are well ahead of this time last year.

The flurry in common brick which took place a month ago is now a thing of the past, and for the present, at least, the common brick market in San Francisco seems to be on a satisfactory basis. Prices, which dropped from \$1 to \$2 for a few weeks, have been restored to the figure of \$9 f. o. b. San Francisco, which prevailed earlier in the year, and are once more firmly held by all manufacturers. With increasing requirements the contractors were forced into the market, and, altogether, comparatively few brick were sold at the low prices. Notwithstanding the apparently peaceful and satisfactory condition at the present time, however, the future of the market is rather uncertain. A liberal estimate of the consumption of common brick in this city is 100,000,000 a year, while the maximum capacity of the plants tributary to this market is said by well-informed persons to be about 270,000,000, and several concerns are installing additional equipment. Under these conditions some overproduction seems inevitable. A few of the plants around San Francisco will probably be kept closed this summer, but most of them are in operation, and many are running to full capacity. A return of the price-cutting policy, however, would be absolutely disastrous to many of the manufacturers, and the present prospect is that a good many kilns will be closed after accumulating a fair stock, and that the surplus will be held until it can be moved at a profit.

The demand for architectural terra cotta in special ornamental designs is quite a feature at present, and companies making a specialty of such work are having a good season. Even with the buildings now completed, San Francisco is notable for the amount of decorative terra cotta work on the large business buildings, and this summer a number of structures have been started which will require a great deal of elaborate design. Continued activity is reported in all classes of pressed and face brick, this month's sales being larger than for some time past, and a number of large sewer pipe contracts have been let.

A remarkable job of ornamental terra cotta work is being turned out at present by the large plant of Gladding, McBean & Co., at Lincoln, Cal., for the new Columbia Theater in San Francisco. The polychrome work in it is said to be as fine in style and richness of coloring as anything of the kind in the United States. The color scheme and ornamentation in general are to be strikingly typical of the ancient play-house style of architecture, and show the highest development of ceramic chemistry. The work was outlined and de-

veloped under the supervision of J. B. DeGolyer, superintendent of the terra cotta department.

N. Clark & Sons have received several new contracts of some importance this month. They are furnishing specially designed white glazed terra cotta for the front of a large seven-story hotel in this city. A bit of their work which has been most admired for its architectural beauty and excellence of execution is the architectural terra cotta set in the new Goldberg, Bowen & Co. building, designed by Meyer & Ward. N. Clark & Sons also have the contract for furnishing their special gray pressed brick for facing the ten-story Kohler & Chase building. They are furnishing terra cotta and pressed brick for the new city hall at Sacramento, Cal., and mission roof tile for the large library building at the University of California. Several large contracts for sewer pipe have also been taken recently, amounting in all to about fifteen miles of pipe.

The old plant of the Hilton Brick Company, at Hilton, Cal., has recently been taken over by a new concern, known as the Pureclay Brick and Tile Company, with headquarters at 103 Main street, San Francisco.

The King City Brick and Enamel works has been organized here by A. E. Reynolds, Wm. Casey, F. G. Vivian, J. H. McDougall and J. W. Range. The factory is to be started very shortly.

The Monterey Brick and Stone Company, operating in Monterey county, Cal., expects to remove its headquarters to Sacramento this summer.

A number of "reinforced" brick buildings are to be erected in San Francisco within the next few months, the method of construction being on a new system worked out by local builders. It is claimed that the system has many advantages, particularly that of increased strength in a given mass of masonry.

The Pacific Terra Cotta and Clay Company has been incorporated in San Francisco, with a capital stock of \$1,000,000, by H. C. Norton, T. F. Obermeyer, L. E. Burke, H. G. McKannay and W. H. McKillican.

The stockholders of the Ione Fire Brick Company will meet shortly for the purpose of increasing the capital stock to \$100,000.

The city of Seattle, Wash., has recently awarded contracts for a large amount of sewer work, one job amounting to \$534,978.

J. V. Chown has brought suit in Oakland, Cal., against W. A. Houts and the Fire Brick and Tile Company for \$50,000 damages and the return of certain land contracts and notes. The suit grows out of a verbal partnership started in 1906, by which Houts was to furnish capital and Chown experience and clay lands for a brick and tile project which was never carried out.

The Corona Pressed Brick and Terra Cotta Company, of Corona, Cal., has just installed three new kilns, and will add three more shortly. The company is now making deliveries on thirty-six miles of sewer pipe for the town of Whittier, Cal.

Contracts were recently awarded for the erection of a large number of brick buildings in the San Francisco Presidio.

The brick plant of H. H. Peterson is being removed from Holtville, Cal., to El Centro.

The factory of the California Fireproof Construction Company at Terra Cotta, near Elsinore, Cal., is now in operation, after being closed for several months.

The kilns of the San Luis Brick Company, at San Luis Obispo, Cal., are turning out about 28,000 brick a day. The plant has been closed for some time past.

The Western Building Material Company, which controls a brick plant at Richmond, Cal., has taken the contract for the large warehouse of the Mysell-Rollins Company, in San Francisco, which will require several million brick.

Considerable new development is being done in the clay beds of the Pymont Brick Company, near Lincoln, Cal. The brick plant is still a thing of the future, but considerable clay is being shipped and a lot of track is being laid to open up the deposits.

The Simon Brick Company, of Los Angeles, is making arrangements to start a large hollow tile and block factory at El Centro, Cal., next fall.

SUNSET.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

THE MONTH OF JUNE found Kansas City contractors embarrassed by a strike of the hod-carriers, which was threatened early in the year, but which was postponed when the contractors absolutely refused to consider the demands of the hodcarriers, which was for an advance of 5 cents per hour, or 40 instead of 35 cents per hour. The strike was called early in June, without any previous warning, and while some contractors were able to continue their work without loss of time, there was a good deal of trouble for others, and before the close of the month the strikers were compromised with on a rate of 37½ cents per hour. Building operations have been running smoothly since that time, and there is a tremendous amount of work in sight; at the same time it is stated that contracts are still being taken at prices which can not net the contractors very much for their time, risk and investment. Some contractors declare that work is being done here in Kansas City at this time at closer figures than in any other part of the country, and that in face of the fact that there is plenty of work.

In spite of the strike and the fact that June was a wet month for building operations, the permits taken out during the month show that the investors are just as anxious as ever to get their money into houses. The permits for June totaled \$1,481,725, showing an increase over the same month of last year of \$719,438. Of these buildings fifty-six were to be made of brick, the total value being placed at \$756,800, or nearly as much as the value of all the buildings of the same month of last year.

The semiannual report of real estate transactions in this city shows that for the six months ending July 1, the transfers amounted to \$24,981,736, or an increase of over \$9,000,000 over the first six months of last year, and nearly \$5,000,000 greater than any previous like period.

The upper house of the city council has at last passed the depot ordinance, after it had been hanging fire for several years, first delayed by one side and then by the other, but very largely by the railroads. It is thought the lower house will pass the ordinance, and that work will soon begin upon this big undertaking, which means so much to this city, for it will change the trend of traffic entirely away from the old directions, and will, of course, cause a vast amount of building to take care of the business which naturally follows a depot. The site at Twenty-second and Main streets is the best the city can offer, and much real estate has been changing hands in the past couple of years down in that direction, to be developed as soon as the depot is permanently located.

The brick factories out in Kansas, as well as those located in the city, have been active during the past month, and, as a result, the market is well supplied with brick, and there is a little weaker tendency, in fact, there can be said to have been a decline in price of from 25 cents to 50 cents per thousand, common brick, f. o. b. cars now being \$7.00. On account of the bright prospect for building, it is hardly thought that the price will go any lower this year, but brick appear to be more plentiful than was thought to be possible a few months ago, and it is evident that the good prices tempted a good many plants to open up again which had decided to remain closed down.

J. R. Ingram and others have purchased a tract of four acres of ground near Turner, the first station on the Santa Fe above Kansas City, on the banks of the Kaw river, and it is intended to establish a sand-lime brick factory at that point, to make use of the sand in the Kaw river.

Robert Nesch, of the Pittsburg Brick Company, has sold out his Leavenworth (Kas.) plant, which has been operating as the Leavenworth Brick Company, to the owners of the Atchison (Kas.) Brick plant.

The Pittsburg Brick Company has just sold the Port

Arthur Canal and Dock Company, of Port Arthur, Texas. 214,000 common brick to be used in constructing fire walls in the big warehouse being built at that point.

Walter S. Dickey, head of the W. S. Dickey Clay Manufacturing Company, has been appointed by Gov. Hadley as a member of the waterways commission authorized by the last legislature. The object of the commission is to promote navigation of the Missouri waterways.

The Interstate Construction Company has purchased of the Pittsburg Brick Company, 400,000 building brick to be used in constructing the new postoffice building in Pittsburg, Kas.

L. Crosby & Sons have placed orders with the Pittsburg Brick Company for sufficient building brick to construct a new school building in Lawton, Okla. K. A. W.

COLOMBIAN CLAY MANUFACTURES.

The following information concerning clay manufactures in, and the imports of clay goods into, Colombia is furnished by Consul-General Jay White, of Bogota:

The processes and products of Colombian clay manufacture are very varied, the latter consisting of a good quality of decorated stoneware for table service, all kinds of cooking utensils, receptacles for water, plant pots, chimney tops, floor tile, drain tile, roofing tile, ornamental, common and ordinary adobe brick.

Among the poorer classes, most of the cooking utensils consist of unglazed, ordinary red clay articles. Water is brought and kept in a vessel of the same material. In the construction of the cheaper houses, adobe brick is employed; these houses are plastered on the outside and whitewashed; in the more pretentious structures adobe brick is sometimes used for partition walls. In many parts of the country the divisions and highway fences consist of high walls built of adobe brick and capped with the ordinary unglazed burned Spanish tile. In the temperate portions of the country the same class of tile is used for roofing.

Floor tile is also employed to a considerable extent. Recently in Bogota a limited amount of brick pavement has been laid. Brick is also used for sidewalks. In the manufacture of earthenware the work is nearly all done by hand or with the aid of foot-power machinery.

The usual manner of preparing clay for brick and tile is to excavate a circular pit into which the clay is placed and a pair of oxen driven about therein, water being added from time to time until the clay is sufficiently prepared to mold well. The clay is then removed, molded, and either sun-dried or placed in kilns and burned. The pit is then refilled and the process repeated.

Roofing and drain tiles are mostly made by hand or in hand presses.

All sorts of kilns are used, including the ordinary Dutch type with furnaces, the entire kiln formed of brick to be burned, and the most elaborate, continuous, up and down-draft, modern kiln.

The number of yards equipped with machinery in Colombia is small, considering the amount of clay products used. In the city of Bogota there are very few yards with machinery. Up to the present time there has been little or no demand for clayworking machinery, but on the completion by July, 1909, of the Girardot Railway, which will connect Bogota with the Magdalena river, manufacturers of brick will be better able to import machinery, and no doubt a few sales can then be made.

The latest available statistics showing the imports of clay goods into Colombia are for the year 1905, when the total imports amounted to 1,018,555, of which 720,640 pounds were imported from Germany, and 126,854 pounds from the United States, leaving for all other countries only 171,061. Of the total imports from Germany, tableware, paving bricks and tiles composed 631,987 pounds. The imports from the United States were as follows, in pounds: Insulators, 1,579; bricks and tiles, 24,006; table service (stoneware, porcelain and earthenware), 14,876; earthen, china and porcelain ware, other than tableware, 5,140; earthen and stoneware pipes, 77,178, and apothecaries' utensils, 1,109.

[Photographs illustrating the brick and tile industry of Colombia may be seen at the Bureau of Manufactures.]

Written for THE CLAY-WORKER.

WITH THE BUFFALO BRICKMAKERS.

THE GENERAL improvement noted in the business world is being perceptibly felt in the local clay industry. The Buffalo trade reports a favorable tone to the market and seems much encouraged over prospects that indicate a most promising future. The building business in this city is brisk. An unusual number of new structures are being erected, including many new and large additions to factories and business houses, requiring clay products, which the local trade is supplying.

An ordinance, sponsored by the Buffalo Builders' Exchange and Society of Architects, to permit the use of tile in buildings of the third class, which heretofore has been prohibited, was recently passed by the Board of Aldermen. The measure is now before the Board of Councilmen, and it is said has an excellent prospect of being passed by that body. If the plan becomes effective, it is expected that many new tile houses will be erected in this city.

The Pittsburg and Buffalo Company is supplying the brick for the new Bethlehem Presbyterian Church, which is being erected at the corner of Bird avenue and Hoyt street.

"We are making large shipments of brick to New England



"Sirocco" Double-Inlet Fan in Course of Erection.

and coast cities in the east and south," said N. A. Finch, of the Jewettville Brick Company, "also to many places in the middle west and this state, and find business very good." This company, which recently bought the plant of the Buffalo Clay Manufacturing Company, of Jewettville, N. Y., is making extensive alterations on the structure and rebuilding the kilns. The plant upon completion will be under the direction of George A. Morton, one of the oldest front brickmakers in the country.

The local brick men are evincing much interest in the offer for bids which the State Good Roads Commission has advertised. The plans of the State Engineer, it is estimated, call for about sixty miles of paving brick to be used on the state roads adjacent to this city.

"Business is improving," said A. W. Candee, of the Lyth Tile Company. "We are quite busy. At the present time we are supplying the terra cotta for the floor arch and partitions in the new Onondaga hotel being constructed in Syracuse, N. Y., and a large amount of similar material for the new Nicholas school being built in this city." An addition to this company's workshop and coalsheds was recently built at their factory, which is situated in Angola, N. Y.

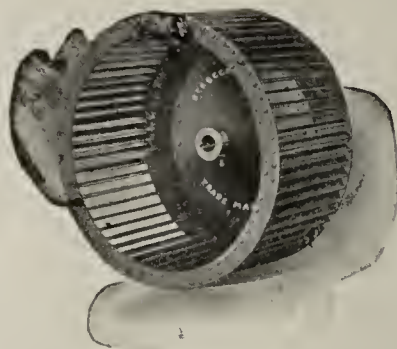
E. P. Cottle, of the Ellicott Brick Company, finds business fair and says the future outlook for an increase is very bright. His firm is supplying the brick for a new eight-story building, which, on completion this fall, will be occupied as

an addition by the H. A. Meldrum Company, one of Buffalo's largest department stores.

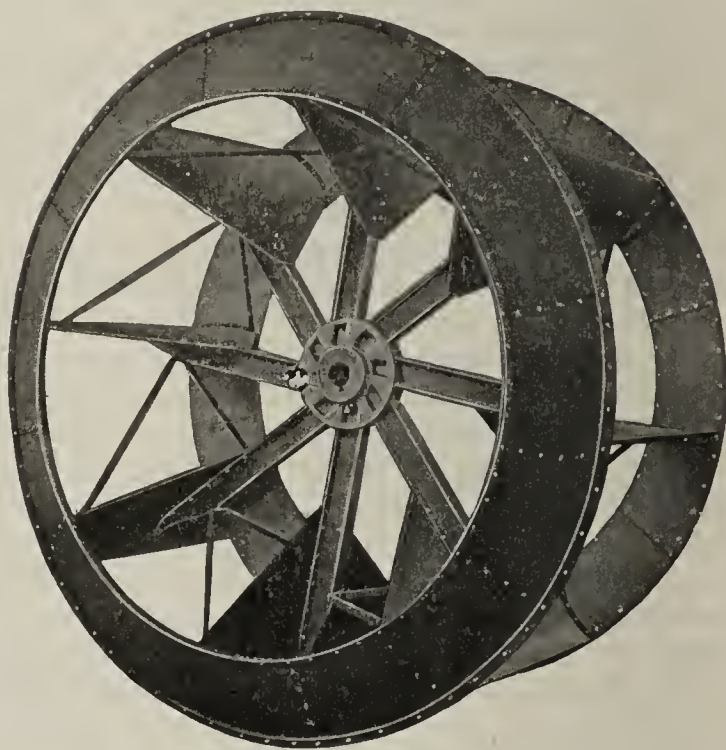
The firm of Bray & Cooper, also known as the Diamond Fire Clay Company, will hereafter be known as the Bray & Lukens Co., which filed articles of incorporation at Albany, N. Y., July 6th, with a capital of \$40,000. The officers are: President and treasurer, W. F. Bray; vice-president, J. Perry Lukens, of Philadelphia, and secretary, Wallace Thayer. The firm will deal as before, in a general line of builders' supplies, most of which are clay products.

A. Lyth & Sons are supplying hollow tile for the floors and partitions of the contagious building now being built as an addition to the Buffalo General Hospital, and for the large new residences of E. H. Hutchinson and Mrs. Dexter P. Rumsey. They are also supplying similar material for the new United States Postoffice building now in course of construction in Warren, Pa. Business is reported to be good with this firm.

"Business is improving with us and the future is very



"Sirocco" Wheel.



Former Standard Type of "A. B. C." Waste Heat Fan Wheel.

bright," said C. M. Helmer, of Hall & Sons, "as indicated by the many inquiries and orders we receive right along. The steel industry is picking up and the railroads seem to be buying more than they have for some time. This activity has a favorable effect on our business." The works of this company are now running on full time.

O. W. Weir is very optimistic over business indications, both now and in the near future for the brick trade. Mr. Weir is supplying the brick for the new Hanrahan buildings on Main, near Ferry streets, No. 111 Elm street, the Eaton building, on Spring street, and many other smaller jobs.

In the office of Commissioner of Public Works Ward, Buffalo, the following bids were recently opened: For the construction of brick sewer in Fillmore avenue, between Delevan and Kensington avenues, Spiess & Fahning, \$21,000; John Miller, \$22,000, and B. F. Spire, \$21,900.

For the construction of a tile sewer in St. Louis avenue, between Walden avenue and 230 feet south of Genesee street:

Dark & Co., \$1,430; George W. Moore, \$1,530; Spiess & Fahn-
ing, \$1,540; B. F. Spire, \$1,395, and John Miller, \$1,664.

For the construction of a tile sewer in north side of Doat
street and west of Jahle street, between Persia street and
Scajaquada creek: Dark & Co., \$792; George W. Moore,
\$735; John Miller, \$985; B. F. Spire, \$674, and Spiess & Fahn-
ing, \$750.

Business was reported to be fair at the offices of Samuel
McCutcheon, the Lancaster Brick Company, the Queen City
Brick Company, and John H. Black. The latter is supplying
the front brick for the new eight-story building now being
erected at the corner of Washington and Mohawk streets,
to be owned and occupied by the large local wholesale milli-
nery firm of Sinclair, Rooney & Co. KNICKERBOCKER.

THE "SIROCCO" FAN AS ADAPTED TO BRICKYARD USE.

FANS AND BLOWERS are not new articles for the
brick and clay industry, as they have been used in
connection with steam and waste heat dryers, as
well as for forced or induced draft for brick kilns, for many
years.

No step ever taken in the history of the blower business
will approach in importance the recently announced con-
solidation of the American Blower Company, the leading

In 1903 they were introduced on the American market by
the Sirocco Engineering Company of New York.

In granting the basic patent the Board of Examiners-in-
Chief of the United States Patent Office said:

"The fan has been proved to be very largely more effi-
cient and much less noisy than fans of other types of the
same size. We are disposed to allow all claims which indi-
cate the distinctive features and functions of the fan in
order that the patentee may have a standing in court which
will call for a determination of the most extreme breadth
of his invention."

The "Sirocco" fan has gained a very prominent position
by reason of its low cost of installation, low power consump-
tion and low maintenance charges, showing at the same
time a high efficiency whether used for large or small vol-
umes, at high or low pressures.

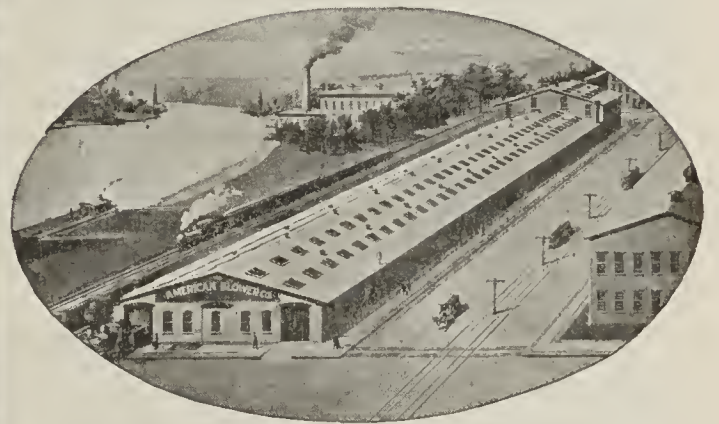
Briefly, the distinguishing features of the "Sirocco" fan
reside in its blast wheel or runner. This is of drum form
with a large inlet chamber enclosed by numerous blades
which are very long, axially, but narrow, and are curved
forward. Instead of having eight to sixteen blades, it usually
has sixty-four, and these blades are generally from six to
nine times as long as they are wide.

The results of these changes from former accepted stand-
ards are radical, and are best illustrated by comparison.



The Home of the American Blower Company, Detroit, Mich.

Troy (N. Y.) Works



Where "Sirocco" Blowers
Are Built.

interest in that line of manufacture, with the Sirocco Engi-
neering Company.

"Sirocco," according to dictionary and cyclopedia mean-
ing, is "a hot, relaxing wind which rises in the Sahara,
then blows across the Mediterranean, where it occasionally
becomes filled with moisture, etc."

"Sirocco," in its commercial meaning is an expressive,
selected trade mark name for certain patented apparatus,
chiefly for producing positive circulation of air and gases,
known and used extensively all over the world. But the
word "sirocco" has acquired still another meaning. It has
come to be regarded as a guarantee of highest efficiency
when used in connection with heating, ventilating, cooling,
and mechanical draft apparatus.

From its first entry on the British market, the history of
"Sirocco" has been one continuous and rapid advance, and
in spite of the bitter competition from all blower manufac-
turers, each placing themselves on the defensive, "Sirocco"
fans have won their deserved place into many important
installations, and have in all points made good.

About 1897, S. C. Davidson, Esq., invented this radically
new type of centrifugal fan. The "Sirocco" fans were pat-
ented in England in 1898, and in the United States in 1900.

The "Sirocco" fan occupies one-half the space, saves one-
third the weight, saves one-fifth the power, and does its
work silently.

Having a very high mechanical efficiency, the fan is
economical in power. The speeds are suitable for direct
connection to reciprocating engines, steam turbines or elec-
tric motors. The size of "Sirocco" fans can be adjusted to
almost any requirement of volume, pressure or confined
space.

It was only in keeping with the up-to-date policy of the
American Blower Company that the adoption of these "Si-
rocco" fans should have been brought about. The manufac-
turers refer with pride, however, to the products of their
past development, and will continue to manufacture on a
large scale the "A. B. C." eight-blade fans for waste heat
or steam drying, and mechanical draft for brick kilns.

"Sirocco" blowers are built at the Troy (N. Y.) plant,
herein illustrated. We also illustrate the principal offices
and main works at Detroit, Mich.

Prosperity may come to the undeserving man now and
then, but there is some doubt about its staying long unless
he realizes his responsibility and bestirs himself.

Written for THE CLAY-WORKER.

LEGAL ENTANGLEMENTS OVER THE QUESTION OF BRICK, INVOLVING SMALL AMOUNTS.

BY OTTO C. LIGHTNER.

THAT SCARF WHICH the Goddess of Justice always wears over her eyes when on duty must be accepted as a manifestation of shrewdness unusual among her sex. For, if that upright young lady ever allowed herself one good look at the follies committed in her name, she would in all probability throw down her scales and sword, and resign on the spot.

Brick manufacturers and builders have been involved in numerous incidents with each other and outsiders over small amounts, and each side fought for the "principle" of the thing. Evidently, it must have been "principle," for, so far as money was concerned, there was none in sight for either winner or loser.

Sued for \$6.80.

A builder in a Kansas town, noted among his acquaintances for his "general cussedness," contracted for 20,000 brick. When payment was due he put in a claim of shortage and deducted the amount he thought right from the bill. The manufacturers refused to accept his check as full payment, claiming that they had shipped the full amount in good faith, and immediately filed suit for the sum of \$6.80. The builder thought the suit was only a bluff and did not appear on the day set for trial. The plaintiffs were accordingly awarded judgment for \$6.80, and when, a few days later, a constable appeared at the builder's office to collect the judgment, he became enraged and telephoned his attorney to take charge of the case. The attorney gave notice of appeal, and after a number of years in court and a cost of several hundred dollars, including court costs and attorney's fees, a decision was handed down in favor of the defendant, he having substantiated his claim of shortage.

Another Question of Discounts.

The court records at Atlanta, Ga., show that the contractor who built one of the city's largest hotels became involved into a lawsuit over the question of discounts. He had bought brick from a certain manufacturer for several years, and invariably in paying his bills he deducted 3 per cent. for cash. The manufacturers accepted his checks as only part payment, claiming that they could not afford to allow a discount on the bills, as the brick were sold too cheap. Finally, the contractor found where he could buy brick cheaper, and gave his orders to the underbidder. In the meantime the discounts had accumulated to a sum something like \$2,000. For this amount the manufacturers filed suit. The case was fought through several courts, reversed, appealed, and finally taken to the Supreme Court of the State, where a decision was handed down in favor of the plaintiffs. In the meantime, however, court costs and attorneys' fees which the plaintiffs had to pay had amounted to more than the original claim, and the manufacturers found that they would have been several hundred dollars better off if they had never filed suit at all; and the contractor would have been considerably better off if he had settled the case, as it cost him several weeks' time and several hundred dollars to defend his case, besides having to pay the judgment.

Paid for a Victory.

In West Virginia a small brickmaker by the name of Rapp found himself in trouble with one Legg. Said Legg had bought several lots of brick from Rapp, and on one occasion said he found them short. Rapp refused to make good, so Legg publicly accused Rapp of being a swindler. Whereupon Rapp sued him for damages, claiming Legg had wilfully and maliciously injured his character and business. Legg

didn't give a "rap" about Rapp's suit, but Rapp took a different stand on Legg, and marched him into court to pull him for wounded feelings and loss of business. Legg kicked around in court, keeping Rapp's attacks off for nearly ten years. During this time court and attorneys' expenses had run up to over \$800. When the Court of Appeals, sitting at Dogfall, awarded Rapp judgment for \$1, Rapp's lawyers refused to accept the judgment, and asked for an appeal to the Supreme Court of the United States. Legg's attorneys claimed the case was ended and objected to another appeal. This brought on a heated argument, which ended in a personal mixup between Rapp and Legg. Rapp was twisting Legg's leg unmercifully while Legg rapped Rapp repeatedly, while the array of lawyers and court officers screamed with laughter. Finally, when order was restored, the court insisted the case was ended and dismissed both parties, with \$1 coming to Rapp. But it was more of a Waterloo than a dog-fall for both of them. It had cost Rapp nearly \$1,000 to get the \$1 damages from Legg, and it cost Legg over \$500 to defend himself against Rapp, besides the plunk he had to pay Rapp. So, in the end, Rapp received a pretty severe jolt and Legg was pulled severely—all over a few bricks.

Father and Son Quarreled.

A few years ago, John Hobb and his son had a brickyard in an Ohio town. They quarreled continually and finally agreed to dissolve partnership. In this they also quarreled. The son entered suit against the father and fought the case bitterly, until the presiding judge took the case in his own hands, divided it as he thought right, and told both parties that they must either accept his decision as final or go to jail. They accepted.

To those of our readers who contemplate going to court to settle small differences, we would say—don't do it. The wise man will stay out of legal entanglements, especially when he comes to realize that there is all to lose and nothing to gain.

NEWS FROM THE PHILADELPHIA TRADE SCHOOLS.

The Philadelphia Trade Schools, located at Twelfth and Locust streets, Philadelphia, Pa., will open new classes in September, which will include architectural and mechanical drawing, carpentry, electrical construction, patternmaking, plumbing and printing. These courses are open to all young men who have finished the work of the eighth grade or who, if fifteen years of age, are able to take up the work of the school. The courses cover a period of three years, and include instruction in English grammar, reading and composition, history of industries, commercial correspondence and commercial law, shop mechanics, including arithmetic, mensuration, algebra, geometry, trigonometry and bookkeeping, physics, electricity and magnetism, the study of materials and industrial chemistry, drawing, freehand, designing, mechanical and architectural, shop work, including general wood and metal work in the first year and special work in the trade selected in the second and third years. Half the school time is spent in shop work and half in the study of the academic branches. The evening Trade School No. 1 reopens Monday evening, October 4, at 7:30, affording free instruction in architectural and mechanical drawing, bricklaying, plumbing, carpentry, printing, electrical construction, steel metal working, patternmaking and house and sign painting. Classes will be opened in English, mathematics and drawing, so that men in the trades may study those branches as they are related to their work, and so fit themselves for the jobs higher up. Certificates of credit will be issued to all who finish any branch of work. Plans are being considered by which any student may be graduated from the evening school after he has earned the required number of credits.

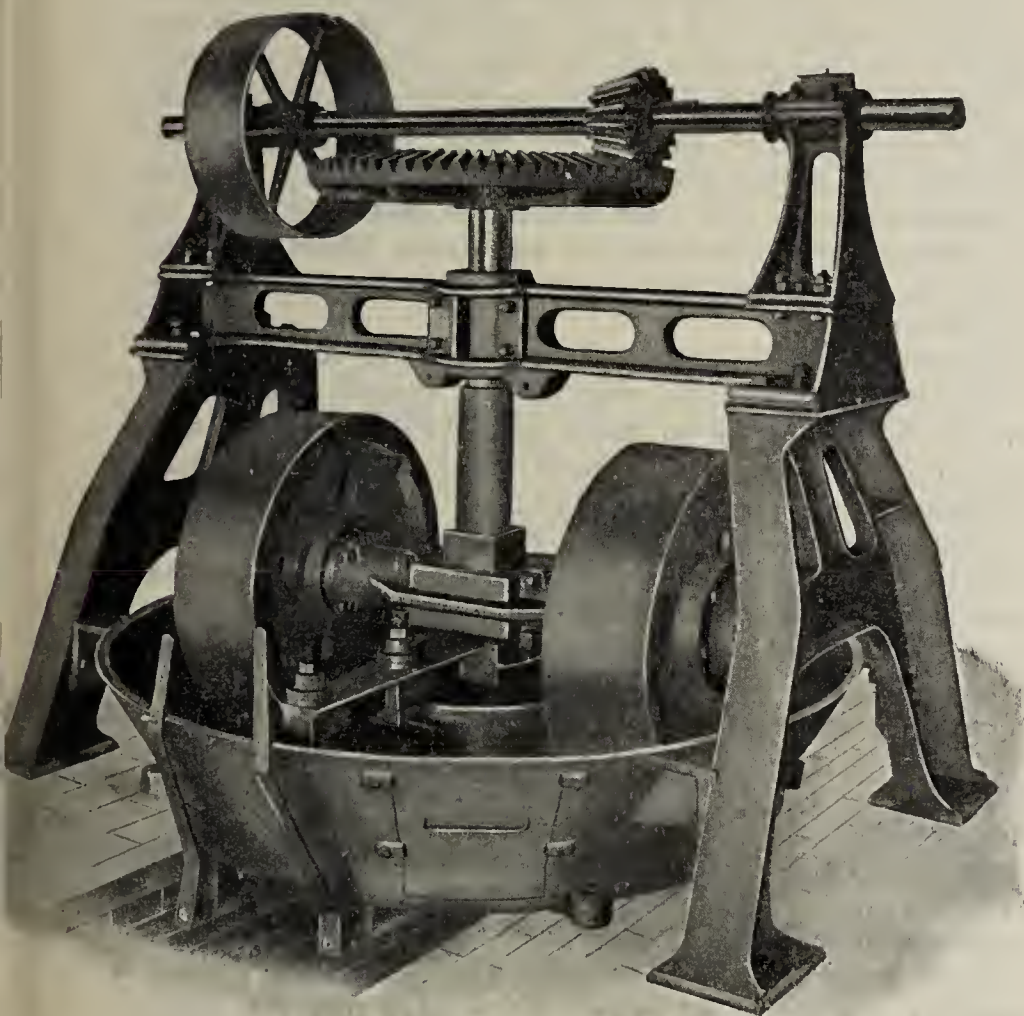
The school held its first commencement exercises Thursday, June 24th, graduating twenty-five. A very interesting program was rendered on this occasion. Mr. Murrell Dobbins, member of the board of public education, and one of the active workers for the upbuilding of this school, presented the graduates with their diplomas.

MARTIN IMPROVED WET PANS.

ONE OF THE special features of the modern Martin pan grinders, as shown in the illustration, is that in which the two mullers are caused to travel around in the pan by the yoke connecting them. This yoke embraces the upright shaft, which is square at that point and sufficiently smaller than the encircling yoke to allow it and the mullers to rise and fall.

Securely clamped to the shaft is a heavy beam extending across the pan and carrying the mixing blades or plows which travel ahead of the mullers, bringing the material directly in their path and arranged so as to discharge the material automatically through a hinged door in the bottom of the pan locked by means of levers, with cleaning doors also provided in the sides.

The arrangement of the details largely overcome excessive wear and the thorough practical arrangement, substantial construction and low price enabled the Henry Martin Brick Machine Manufacturing Company, of Lancaster, Pa., to re-



The Martin Wet Pan.

cently put out several of the largest and heaviest wet pans that they have ever built, shipping several to one of the big steel foundries for grinding and mixing their sand and grog.

BUILDING BRICK IN FAVOR.

"Brick building is in higher favor in Greater New York than ever in its history," says the Construction Record. "In the past year 513 brick dwellings were erected at an estimated cost of close to \$4,000,000 in the Bronx alone, and over \$9,000,000 was invested in brick tenements in that borough. In each case the expenditure was more than \$1,000,000 in excess of the year before. More brick dwellings and brick tenements were planned during the year.

"As a result more than one-half of the construction of the year was devoted to these two forms of building. Brooklyn last year put up brick dwellings and tenement houses at an estimated cost of \$22,000,000. Possibly \$2,000,000 worth of

miscellaneous structures were built in Brooklyn during the year besides those mentioned.

"Terra cotta construction is a big factor in New York building. Its advantages as construction material is the ease with which it is molded into any desired architectural or sculptural form and indefinitely repeated, its durability, its lightness, its cheapness and its strength."

SPECIFICATIONS FOR BUILDING BRICK.

The American Society for Testing Materials held a meeting in Atlantic City the last of June and discussed many important questions. The only one of interest to the clayworkers, however, was a report of a committee suggesting a set of specifications for building brick. These specifications will be sent out for criticism as soon as printed and will come up for adoption one year hence. The committee presenting the set of specifications consisted of L. W. Page, Washington, D. C., chairman; E. W. Lazell, Wilmington, Del., secretary; I. H. Woolson, New York; A. N. Talbott, Urbana, Ill.; Edward Orton, Jr., Columbus, Ohio; W. D. Richardson, Columbus, Ohio; A. V. Bleininger, Pittsburg, Pa., and D. E. Douty, Washington, D. C.

Written for THE CLAY-WORKER.

UNIFORM PATENT LEGISLATION.

For some years past the country at large, and inventors in particular, have been facing the serious drawback of nine possible courts of patent appeal, with a possibly similar number of diverse opinions. To the end of overcoming this, it is now proposed to establish a United States Court of Patent Appeals, to be a court of last resort on all appeals in patent cases.

From the year 1793 down to and including the year 1891, the Court of Claims passed on these matters, but by the latter date the growth of the country had been so rapid, and the introduction of patent appeals so large, that it was found to be impossible to dispose of these cases, the terms of which are of limited duration, which were running out while the cases were standing undecided upon the docket of the court, and was so manifestly unjust, both to the owners of the patent and to the people, that relief became necessary in some direction. This led to the creation of the United States Court of Appeals, with the right of a final appeal to the United States Supreme Court if the latter thought the case worthy of review. This, for the reasons already stated, has not been found entirely satisfactory, due in a large part to the diversity of opinions that have occurred. Many cases have arisen in which a patent has been sustained in one Court of Appeals and has been vacated in another, while there are cases in which the Supreme Court may and does reconcile these differences, yet there has been many in which it has not worked that way.

The only solution of all this vexed problem seems to be in the establishment of a Court of Last Resort, to deal entirely upon these matters. It is believed that this plan, if carried into execution, will have the result of unifying the patent laws of the United States, of reviving the good results which flowed from the disposition of all patent cases by the Supreme Court so long as that court heard and determined all patent cases, and of creating a single tribunal in whose hands the patent law of the United States may grow and develop, as the necessities of the future may demand, into a great, consistent, harmonious, wise and satisfactory body of rules which will be of equal value to inventor and public.

From either one of the two standpoints—that of the inventor who is interested in having his rights quickly determined and adjudicated, so that, if he is entitled to control his invention, he shall know it as soon as possible. Likewise from the standpoint of the public, for if the patent is invalid the public is entitled to know it in the shortest possible time, so that they may be relieved of the restraints imposed upon them by the patent. This bill would appear to be the solution of the problem.

It must be borne in mind that every man, woman and

child in the United States is interested in every patent, and it is of the highest importance to the people of the United States that they shall know, as soon as possible, exactly what the meaning of the patent is, and whether it is a good one or not, and what does and what does not infringe it. A United States Court of Patent Appeals, when established, would simplify and settle the law so as to greatly reduce the number of void patents issued.

The court, as the bill now stands, would consist of five judges—a chief justice to be appointed by the President, and four other judges to be appointed by the chief justice.

Written for THE CLAY-WORKER.

GOOD ADVERTISING.

"Good advertising is plain salesmanship intensified," says John E. Kennedy in *Advertising and Selling* for July, in an article on "Intensive Advertising." There is quite a lot of spice and ginger in the article, but one point in particular that might be taken home by both the brick manufacturers and dealers who desire to push brick as a building material, is contained in his reference to a keg of nails.

"A keg of nails," he says, "may be just a keg of nails to a mere order-taker, but to a real salesman a keg of nails bristles with characteristics. To him the nails are made of a certain kind of material by a certain kind of process and will do certain things better than any other nails on the market at the same price. Moreover, he can tell you why they will do these things better, and other facts about them that an order-taker never dreamed of."

Just so with brick. Brick may be brick to a man who is not alive to his subject either in advertising or in soliciting orders. Just brick with a few distinctions as to grade and color. And just so long as they are merely brick with no peculiar individual characteristics to the man advertising or selling them, just so long he will continue to present them without live and appealing features. The only thing he can appeal to the trade on is price.

The product of every brick manufacturer certainly has an individuality of its own and by careful study and comparison with other products from other manufacturers, these individual characteristics can be located and should be made to do service both in advertising and in salesmen's talk.

It is not meant by this that only the manufacturer who has something superior to everybody else, either in superior points of manufacture or in the clay that can be pointed out, can do this kind of advertising. There is a need for every kind of brick that is made, and the first duty is to find out where your particular make of brick will give the best service and what individualities qualify it for certain work, then feature these individual characteristics both in advertising and in selling.

Sometimes it may be a matter of price, sometimes a matter of color, sometimes a matter of burning, sometimes one point and sometimes another, but there are always points and good talking points, too, about every kind of brick manufactured. It naturally follows, therefore, that the first duty of a brick manufacturer or dealer is to study his product and get these points strongly in mind before starting into his campaign of advertising, then make them do service.

Some men may say: "Oh, we have just a common building brick and a few that will do for front brick now and then, but nothing fine about them to feature, especially along side of some offerings of fine repress stock for face work." There is where many a mistake is made, in assuming that because somebody else has a superior article to you that there is no chance for you to put up a strong advertisement to help sell it.

Make a study of some of the big stores and their advertising and you will find that while they advertise silks and various high-priced dress goods, they also have others of more common fabrics and a cheaper price, and in many localities there is so much greater quantity of the lower-priced

goods sold that it amounts to more in the end than that in the silk class. Something of the same thing is true of brick, and, just as a store can advertise to advantage its calicoes as well as silks, a man making common brick may find good advertising points and get trade just as well as the man making the highest grade of front brick.

Written for THE CLAY-WORKER.

TO MY AMERICAN BROTHERS IN REGARD TO COLORED DRY ENAMELS.

Colors to Be Put On Building Brick as a Dry Enamel.

DRY ENAMELS can be put on any kind of clay and by the use of these enamels inferior clays can be made into the best of goods, and I am sure that these goods will in time be very much called for, as they make a very much finer face brick, a brick that can not be beat in appearances.

If you need a red brick you can get one that will be uniform in color, not several shades of red as they will come by using the clay alone, but a good, even red. If you need the shade darker or lighter, it can be made to meet the demands of the customer. If there is a demand for any shade, black, buff, cream, white, or, in fact, any color, you can get same by putting the enamel on to suit the color wanted. All that is necessary is to mix your enamel to suit your clay, so that it will vitrify itself on the clay used. Then you have a building brick that can not be equaled by the ordinary clay alone.

These colors will soon be largely used in America, and are coming in use down west at the present time. The best method by which to make these brick is with a stiff mud wire-cut machine. Repress them, dry them before enameling, as by drying them you get the face as perfect as it can be made. If made by the semi-dry process, they need to be burned twice, as the clay being porous in the body of the brick, it takes the water from the enamel too quickly and causes the brick to crack, also the enamel. This, of course, would not do, so a second burning would have to be given and that means double expense, and that is a big item. It is always good business to see that the cost in labor is low as it is possible to get it, to make both ends meet.

The dipping process; you get your brick perfect by drying them, have your enamel ready, mixed and well sieved, which should go through a lawn sieve, as the finer the enamel the better the face of the brick. Then you want a large sponge and a bucket of water. Dip sponge into the water, pass it over the part of the brick to be enameled, dip that part into the enamel and let it stand until the enamel is settled, which will take about a half a minute. Then reverse and dip again; two dips is all that is necessary.

The enamel should be weighed and average 27 ounces to the pint. Now the red and blue black can be made the same color right through the brick. By the same process all kinds of terra cotta can be colored to match. These goods can be burned in any kiln, but the best in my opinion is the round down-draft kiln, and they can be built to burn cheaply. The kiln I would prefer myself is the round down-draft, 22 feet across inside, with a 3-foot loose perforated bottom, as the depth of the bottom will do away with all soft-burned brick. The kiln should be built 5 feet to spring of arch or dome, giving the arch or dome half circle; that would mean 11 feet rise. This will hold from 47,000 to 50,000 American size brick, as they hold 34,000 English size, and they will burn wire rough slack, say twenty-four to twenty-five tons. That would mean about half a ton per 1,000. These kilns properly handled are the best kilns in the trade for burning all classes of best goods, and can be burned in from three days and two nights to three days and three nights after smoking, which can be done in forty-eight hours.

This means if the brick are set perfectly dry. The bottom eleven brick want setting the ordinary way, then the enamel brick should be set four deep on the flat, so as to keep the face from touching one another, and the faces want to face each other. The open fire won't damage this kind of enameled brick as it would the glazed enamel. When the brick are set within four courses from being high enough, set the last four courses the ordinary way, so as to make a covering for the enameled brick. This will do away with the hardest of the brick, and you get the enameled face brick as nearly as possible all first-class; in fact, they should come 95 to 98 per cent. best out of all kilns set with these goods. Set this way and by this process you get all colors one shade; if making red they come the same shade; the same is true of the black, cream, buff, green, bronze; blue colors come out the same shade they were set for.

When the kiln is closed down and wickets built up, the fire wants to be put to gently for the first forty-eight to fifty hours, with as much draft on the kiln as there can be put on them. The draft wants checking until it just clears itself, then leave until the kiln is finished. Don't move the dampers after they are regulated when kiln has been on fifty hours, for moving dampers up and down often does more harm than good. If there is enough draft to clear fire in the kiln, that is quite enough. Burn with plenty of air passing along with fire, as air gives a hardness and clearness to brick.

I have given my American brothers an idea how these facing brick are made and they won't cost a great deal more than ordinary facing brick and will sell at nearly double. They are taking well down west where they are made. I will give the names of the minerals most needed for this work: Ball clay, china clay, oxide of iron ore, manganese, chrome green, cobalt blue, or matt blue, zaffer, crocus, red ochre, yellow ochre, feldspar and kaolin. These are the most important minerals needed for black, white, red, blue, green, buff, cream and bronze.

Now I hope this will give my American brothers plenty to study over, as this is a method by which fronts of buildings can be beautified. I have given all that I can spare time for this time. Trusting that my American brothers in the clay trade may have success and prosperity in the clay trade, believe me, I remain, always the same, willing to help a friend,

H. W. HARDY.

TRADE LITERATURE.

"HISTORY OF THE CLAYWORKING INDUSTRY IN THE UNITED STATES" is the title of a very recent volume published by John Wiley & Sons, New York City. The authors, Mr. Heinrich Ries and Henry Leighton, have handled the subject in a most interesting manner, giving the history of the various clay industries in the United States from early days to the present time, showing the rapid development due in no small way to the introduction of clayworking machinery and improvements in same. The subject matter is divided into two parts, the first a resume of the clayworking industry by products and the second a history of the clayworking industry by states. Every progressive clayworker should have this volume in his library. It contains 270 pages of information, is bound in cloth and retails for \$2.50.

THE GENERAL DESCRIPTIVE CATALOG of the Williams Patent Crusher and Pulverizer Company, St. Louis, Mo., contains a wealth of information relative to this well-known firm's many products. It is a 10x13½ sixty-eight-page catalog, with nearly 200 illustrations of their pulverizers, crushers, granulators, separators, mills, grinders, shredders, motor belt drives, hoppers, discharges, pulleys, car pullers, extractors, combined screen and mixer, elevators, portable clay mixers, hammers, cages and transmissive machinery. On the front outside cover page are five views of factories built in 1846, 1869, 1882, 1901 and 1909, showing the Williams evolution. Facing this is a page of nine portraits of the officers and agents of the company. Eight pages are devoted to an alphabetical index showing partially the various kinds of materials which have been operated upon successfully by the Williams grinding principle, while the remainder of the

book is devoted to cataloging the Williams products. It is an interesting fact that this company has secured seventy-three patents since 1896, and has published more than that number of catalogs and circulars pertaining to their various patented machines. Any clayworker not informed as to the merits of the Williams machines, should write them for their catalog. Their ad appears on page 13.

"STAND BY THEIR COLORS."

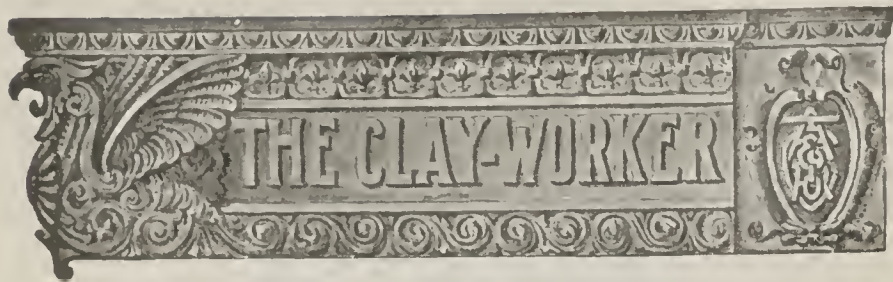
In good brick work, granting that the brick themselves are of the most perfect type, no feature is more essential than fresh and clean-cut appearing mortar joints. Mortar that grows shabby and fades will destroy the beauty of the finest architectural creation. This fact is but one of many, equally important, which the owners of the Ricketson Mineral Paint Works, Milwaukee, Wis., have borne in mind during the twenty years of their manufacturing experience. The result is that Ricketson mortar colors are today handled in all the large cities of the country. For coloring clay and sand-lime brick, mortar, cement building blocks, tinting walls, etc., the verdict has been unanimous as to their durability and the rich, even color produced. The shades handled are red, brown, buff, purple and black, and the company's strong and talismanic guarantee is that "they never fade."

NEW YORK CITY'S BUILDING CODE.

It seems that after much travail a new building code has been adopted by the officials of New York City having the matter in charge. From the comments of the local press, we judge that the new code stands for safety and stability in structural work in a larger measure than has heretofore prevailed. The fact that the new code is not wholly satisfactory to advocates of cinder concrete, and similar substitutes for real fireproof materials, may be taken as an evidence that the officials having the matter in hand have erred on the safe side, if they have erred at all. The accompanying cartoon from the New York World aptly illustrates the attitude of the concrete advocates, who now claim that through the undue influence of certain municipal officers typified by Mr. Murphy, the Tammany chief, the manufacturers of hollow tile have been favored in the code specifications. From our viewpoint it would seem that the merit of the material itself has been the deciding factor, and the result will be beneficial to the builders of the metropolis.



THE BUILDING CODE.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LII.

JULY, 1909.

No. 1.

CURRENT COMMENT.

Are you pushing along that good thing called brick?

* * *

Fish stories are more cheerful than tariff talks, anyway, and probably contain as much truthfulness.

* * *

And now they are talking about bringing up a Pure Shoe Bill. Gee, wouldn't that make a small, barefooted boy jump into the river?

* * *

It may be a good thing to convert the heathen Chinese, but it is rather a dangerous pastime for good-looking American girls to play at.

* * *

It is a pretty good idea to get the advice of your patrons; get as much of it as you can and invite it at all times, and then use your own judgment instead of the advice.

* * *

If you have a boy that would rather talk than work, don't worry, but give him a course in a law school. And if he doesn't make a lawyer he may make a good railway president.

* * *

There are two methods to follow in making friends in the world; one is to select your own friends and cultivate them, and the other is to let your friends select you. Which way do you think looks best?

* * *

This has been one fiscal year in which we have heard very little complaint about car shortage and freight moving slowly. Probably there is another car shortage crop due with the return of prosperity, but again maybe prosperity will return without it.

* * *

The brilliant advertisement writer helps things considerably, but he would be a much more useful member of the industrial world if he lived up to some code of ethics that prevented his lending talent to assist in promoting fake schemes and unworthy propositions of one kind and another.

Good talent should be applied in good enterprises, not in false promotion.

* * *

Lumber got a little piece cut off its tail by the tariff machine, but not enough to keep it from wagging.

* * *

Sometimes we are inclined to think that a few of the bright lights that give business advice in the magazines are better at giving advice than they are at doing real business.

* * *

On the basis of that old theory that a good corn crop is followed by an abundance of marriages, the Old Maid Society should begin celebrating, because we have got the biggest acreage in corn ever, and the condition so far is fine.

* * *

Is the moving picture show trying to replace the illustrated weekly? It's certainly going some in the way of portraying in pictorial form recent happenings of prominence. Many of the pictures and settings are "faked," but even at that it is not so far off the path of the "illustrateds."

* * *

"Sow a thought, reap an act; sow an act, reap a habit; sow a habit, reap a character; sow a character and reap a destiny," is pretty good advice. The trouble is we sow a multitude of varying thoughts, reap a number of conflicting habits, which, when sown, bring a character of many parts and a destiny uncertain as a spring day.

* * *

Just think, the Government has to set up in type and print all the different things said by our senators and congressmen, and a whole lot that is not said except in type. There is one refreshing thing about it all, however; they may print the speeches and send them to us, but the lawmakers have forgotten to pass a law forcing us to read them. Maybe they will think of that next session. If they do, they will have to cut the speeches shorter or there will be an uprising.

HAVE YOU READ IT?

There is a little booklet gotten out by the Clay Products Association of America, entitled, "Getting Together." Did you receive one and have you read it? If not, take it to a cool spot with you when your mind is free from business details and not only read it, but carefully digest the ideas and suggestions contained therein. It covers the plan of good work, but the exact amount of good that may be done and the extent to which the work may be carried and the measure of results to be had therefrom, depend as much on you as on anyone else. So, as the book says, in conclusion: "It is up to you." Read it and make up your mind what you will do, since it is up to you, then write the secretary, J. Parker Fiske, Flatiron building, New York City, and tell him about it.

HARNESSING LIGHTNING.

It is befitting to recall in this day of electric transmission and of airship sailing, that Franklin, one of the pioneers in electric research, was fond of flying kites into the air with the object of drawing down and studying some of the electrical forces in evidence there. One of the favorite pictures of Franklin shows him standing out during a thunder storm with a kite string and drawing lightning from up in the air. We have since his day learned to harness and make use of electric energy. That is, electric energy that we have generated ourselves either by friction or by battery. The next step should be to go a little further and strive for ways and means to gather in and harness the electric energy going to waste in the air during thunder storms, or, for that matter, practically all the time. It is pretty generally admitted there is enough electric energy about us in

the atmosphere to drive all our industries. Possibly there is enough to supply all the heat and light, as well as the power, required in the world, if we could but harness it up and make use of it. Then, turning from purely electric for a minute, we find extensive development these days in efforts to navigate the air both with balloons and flying machines, and that is why it is a fitting time to recall Franklin and his kite. When we get far enough along with these air navigating machines that they do not require practically all the attention themselves, they should furnish wonderful opportunities for studying electric conditions in the atmosphere, and, in the course of a few years, we might be enabled through these studies to devise some practical means of harnessing and utilizing at least part of the electric energy going to waste in the atmosphere.

UNCLE SAM'S EXPENSE ACCOUNT.

When one forgets personal inclination and individual financial interests and studies Uncle Sam's expense account with an open mind, there is no trouble about understanding why the tariff question gives Congress and the Senate lots of worry. It really isn't the tariff question after all; it is the question of raising money to meet expenses, and the tariff is so far the big source of revenue. The annual expenses of Uncle Sam's affairs amounted last year to \$659,552,124, while the total receipts for the same time were approximately \$600,000,000. In other words, Uncle Sam overdrew his balance last year to about \$59,000,000. Nor is this the worst of it, but the present indications are that for the year ending with June, 1909, instead of making up the shortage there will be added to it possibly \$70,000,000 more of deficit.

The receipts with which to meet these expenses come from two main sources. The biggest source is that of customs brought about by tariffs, which last year amounted to \$285,680,653. The total from the internal revenue department, which is the other important source, amounted to \$250,714,208. To this was added several million from miscellaneous sources, but the tariff and the internal revenue are the main sources from which we gather funds to meet Uncle Sam's large expense account. It happens, too, that last year the income from these sources dropped off, just like the income in many an industry, because of the hard times.

The dropping off in the custom receipts was about \$50,000,000, which illustrates a complication likely to arise at any time. When times are dull people buy fewer diamonds and other luxuries, buy less even of the necessities from abroad, consequently, there is not so much custom receipts. In the internal revenue department there has been loss because of the prohibition movement partly, and no doubt part of the loss there is due to hard times, just the same as the loss in custom receipts. The loss is heaviest though in the whisky end, while on beer there actually seems to be a gain. Anyway, the total loss from internal revenue was only about a third the loss from customs. But if the prohibition wave continues, eventually we will have to devise some different means for raising whatever revenue is lost on spirits. Also, if we turn about some day and reduce the tariff receipts, which we probably will, in the course of time, when we get to seeking outside trade through reciprocal means, then there will be the problem of replacing it by some other means of taxation. It is likely that eventually some better means will be devised than either the tariff or internal revenue as it is today for raising the funds necessary to maintain the Government. But to effect a change, even if a better means is found, is not so easy. There is never a change made or even talked of in connection with the tariff or internal revenue, but that it raises a storm of objection and protest of one kind and another. People seem to forget or lose sight of the fact that there is a real problem before Congress and the Senate, as well as a desire to humor their constituents. The real problem is to raise an enormous amount of revenue in the easiest and most practical manner, and yet be absolutely sure that it will be forthcoming in sufficient quantities to meet the demand.

It all makes a more complicated job than most of us realize, and though we may feel peevish over it and think

that some silly arguments are advanced and useless crooks and turns made in the tariff, it is a whole lot easier to see these faults and pick at the men doing the work than it would be to take their places and work out the problem in a rational and sane manner and get the solution accepted by the public.

PROMOTING BRICK HOME BUILDING.

There is a good work being carried on by the Brick Builder at Boston along the line of promoting interest in brick homes instead of the frailer and frequently fully as expensive frame residences. It is a competition in plans for a brick house, the house not to exceed \$10,000 in cost. For the best plans there is a prize of \$500, and a second prize of \$250 for the next best; a third prize of \$150, and a fourth prize of \$100. The competition summarized calls for a charming brick house of moderate cost. The competition ends September 15, 1909, and all the plans must be in the Brick Builder's office on or before that date. It seems to be open to everyone and there are no strings attached to it, and we hope it will not only meet with response, but will bring out lots of different ideas in planning brick homes of moderate cost. If there is anything that branch of the clay-working industry catering to building brick needs more than anything else, it is getting before the public more plans for modest homes. This has been referred to in these columns before. It has been pointed out how carpenters' papers and lumber papers are continually placing before prospective builders, plans of a great variety and number of houses from which they can select, together with estimates of cost, and there is no doubt but what these do a lot toward inspiring the building of new homes and toward shaping the selection of material. The same idea carried out in connection with brick construction has a better opportunity to bear fruit than in connection with frame houses, because through this means the brick man may remove false ideas of the excessive cost of brick homes as compared to frame. There is a sort of family tradition that only very wealthy people can afford brick houses, and comparatively speaking, this was true in the earlier days when timber was plentiful and lumber cost but very little. Now, however, the margin of difference between the cost of brick and lumber construction in anything like a good home is so small that if many builders had their attention called to it, they would build with brick instead of lumber. There is, really, way down deep in the average mind, the same kind of longing to have a brick home that there is to have mahogany furniture, and when this average mind is awakened to the fact that the brick home is within reach of anyone prepared to build a new home, it should greatly stimulate the use of brick and the construction of more permanent and better homes. It is an idea that the brick manufacturers themselves should not only lend a hand to the general promotion of, but should take it up in their own territory and do a little promoting of their own to help their local trade by the use of building plans and details of comparative cost, etc.

MUST THERE BE A SHAKE-UP?

There is contained in the American Industries for June, 1909, some pretty hot shot from President John Kirby, of the National Association of Manufacturers, directed at John Mitchell, the well-known leader of union labor. The article is inspired in part by information of an article by John Mitchell, in which he demurs to and misrepresents some things said by Mr. Kirby in his speech accepting the presidency of the National Association of Manufacturers. The article is too long to give in detail, but here is a fragment or two that will give an idea of its flavor:

"Mr. Mitchell says that I suggested 'the use of cannon as a means to disperse the working men.' He might as truthfully have said that I believe all the working men should be sent to the penitentiary because I approve of his own imprisonment, that of Sam Parks and of 'Skinny' Madden, or the punishment of Cornelius Shea, sentenced to six months in jail for non-support of his wife, and who is now in prison charged with inflicting twenty-five knife wounds on the

person of his paramour. Shea, when president of the International Brotherhood of Teamsters, during the teamster's strike in Chicago, issued the famous order: 'To all pickets: Let this wagon pass from Montgomery Ward & Co. to the Second National Bank; it contains Government money.'

"Think of a condition under civilized government, where, in a city of 2,000,000 people, the only man who could be relied upon for the safe passage of that wagon, from one point to another, was the president of the teamster's union, who, during that same strike, said: 'I do not consider anything a violation of an agreement that is done to uphold the principles of trades unionism.'"

It is a matter of serious regret to any rational, public-spirited man that prosperity must bring with it wrangles between employer and employe. We are already getting a little of the advance guard of it. A little news here and there of strikes threatening, and actually bobbing up, are sure signs of the return of prosperity, but a matter of regret that prosperity can not return without them.

It looks like there must be trouble one way or another. Either there are dull times and not enough work to go around, so that both working men and employers suffer, or prosperous times, when employers and employes wrangle over the division of returns for their efforts. Some day maybe we will shake most of this combative spirit out of the industrial body, but first it looks like it will be imperative to shake out a few unprincipled agitators.

"ALL THE BRICKS"

O'erburdened and begrimed, in chorus sighed
And as one brick, 'Upon my cubical
Content, and by our common mother, I
Had rather shine, a shard of chaos, set
In Saturn's glistening rings, the exquisite
Enigma of the night, than be the unnamed,
Unthought of copestone or foundation stone
Of any merely world distinguished street.'

Applauding the ambition of the bricks,
I felt, I also, I would rather share
Dazzling perdition with material wreck
Suspended in majestic agony
About the withered loins of some undone.
Wide circling planet for the universe
To see, than live the dull life of a baked
Oblength of tempered clay, year in, year out,
Unnoticed in a murky, mundane street;
But, recollecting that the bricks were bricks,
And not a planetary wonder, what
Event so'er awaits the world and time,
I reassured them: 'Gallant souls,' I cried,
'Noble and faithful bricks, be not dismayed!
I hear the shapeless fragments that make up
Esthetic marvel in Saturn's girdles sigh
Disconsolately, as they chafe and grind
Each other: Such an enviable fate
As that of any single solid brick
In Fleet street, London, well and truly laid,
A molded, tempered, necessary brick,
In that most famous faubourg of the world,
Exceeds our merits! Could we but attain
The crude integrity of common place
Cohesion, even in the most exhausted, most
Decrepit, ruinous, forgotten orb,
In some back alley of the Milky Way,
How happy we should be! Remember, bricks,
Neither success nor failure envy spares;
Use envies art; art envies use. These moods
Will come, but regular bricks like you transcend
Them always. Be courageous; be yourselves,
Be proud of your telluric destiny.'

With that the bricks took heart: 'Why so we are,
They said, 'the ear of England! Let us be
Old England's ear!' And revolution beat
In smothered cries and muffled fusillades
Upon the trembling tympanal; empires
At war thriddled the sounding labyrinth
With cannon; loyal peoples through the sea
And through the air beat auditory nerves.
Electric from the quarters of the earth
And from a hundred isles, their homage sent.
With whispered news of aspiration, deeds
Achievements to the Mother of Nations, she
Whose ever vigilant, clairaudent ear
Is Fleet street."

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 80.]

FOR SALE, WANTED, ETC.

WANTED

Salesman familiar with selling to municipalities. Good salary to right man. Must be experienced. Address **BOX 100,**
7 3 d **Care Clay Worker.**

FOR SALE—Complete outfit of sand-mold brick machinery; capacity, 30,000 per day. Will furnish list. All nearly new. Will sell cheap. **L. J. PALDA, JR.,**
7 1 cm **Minot, N. Dak.**

WANTED—First-class sewer pipe pressman; must be capable of looking after press. Wages, \$2.75 per day to start. Transportation will be advanced if references are satisfactory. Address

CANADA,
6 1 c **Care Clay-Worker.**

For Sale, Wanted, Etc., Ads Continued on
Pages 83-85.

THE
AMERICAN
MACHINERY



FOR THE
CLAY-WORKERS
OF THE WORLD

The World's Best Standard



The standard of excellence of our line of Clayworking Machinery is world wide. The extent of our line, the excellence of the design, care of construction, superiority of material and workmanship have made a reputation for the "Built Right Run Right" line of Clayworking Machinery not equalled by any other line. We court comparison, we invite investigation, we challenge competition, feeling confident that the quality which we know our line possesses will meet every requirement. We build every machine and appliance required by the Clayworker and every one of "Standard" quality. Write us.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

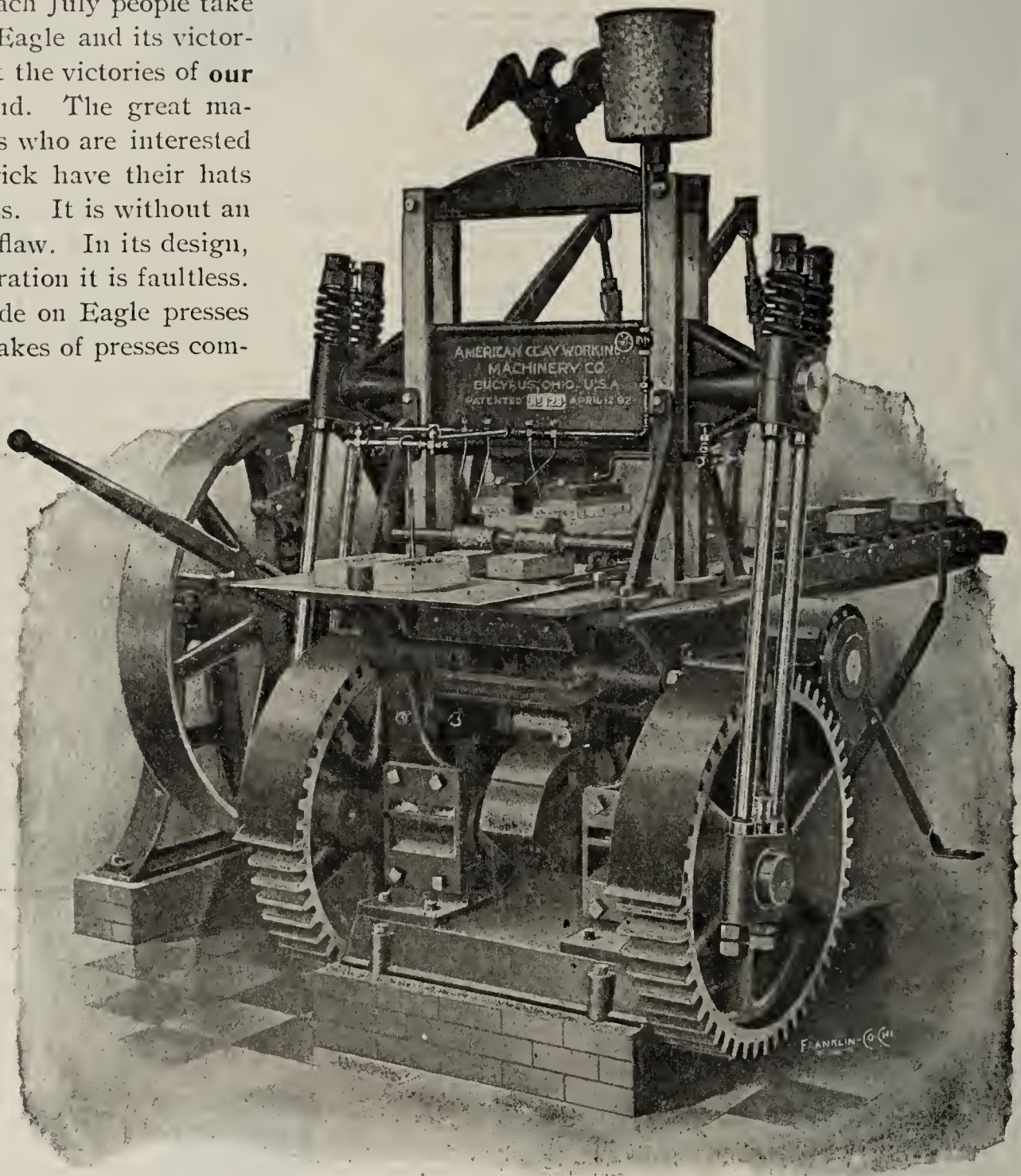
A Nation's Pride In Represses



On the 4th of each July people take off their hats to the Eagle and its victories, but we talk about the victories of **our** Eagle the year around. The great majority of Clayworkers who are interested in making paving brick have their hats off to the Eagle Press. It is without an equal and without a flaw. In its design, construction and operation it is faultless. More pavers are made on Eagle presses than on all other makes of presses combined.

"There's a reason" and that reason is that the Eagle is far and away the best press built. It's a money maker and a repair saver. Let us tell you of the virtues of the Eagle and refer you to those who are using it. Twenty in operation in the Purington Paving Brick plant alone. We build every machine and appliance used in clay plants of all kinds.

We are by far the largest manufacturers of Clayworking Machinery in the World, as well as the **Only** builders of a complete line of machinery for the manufacture of every class of Clay Products from the Clay Bank to the Shipping Shed.

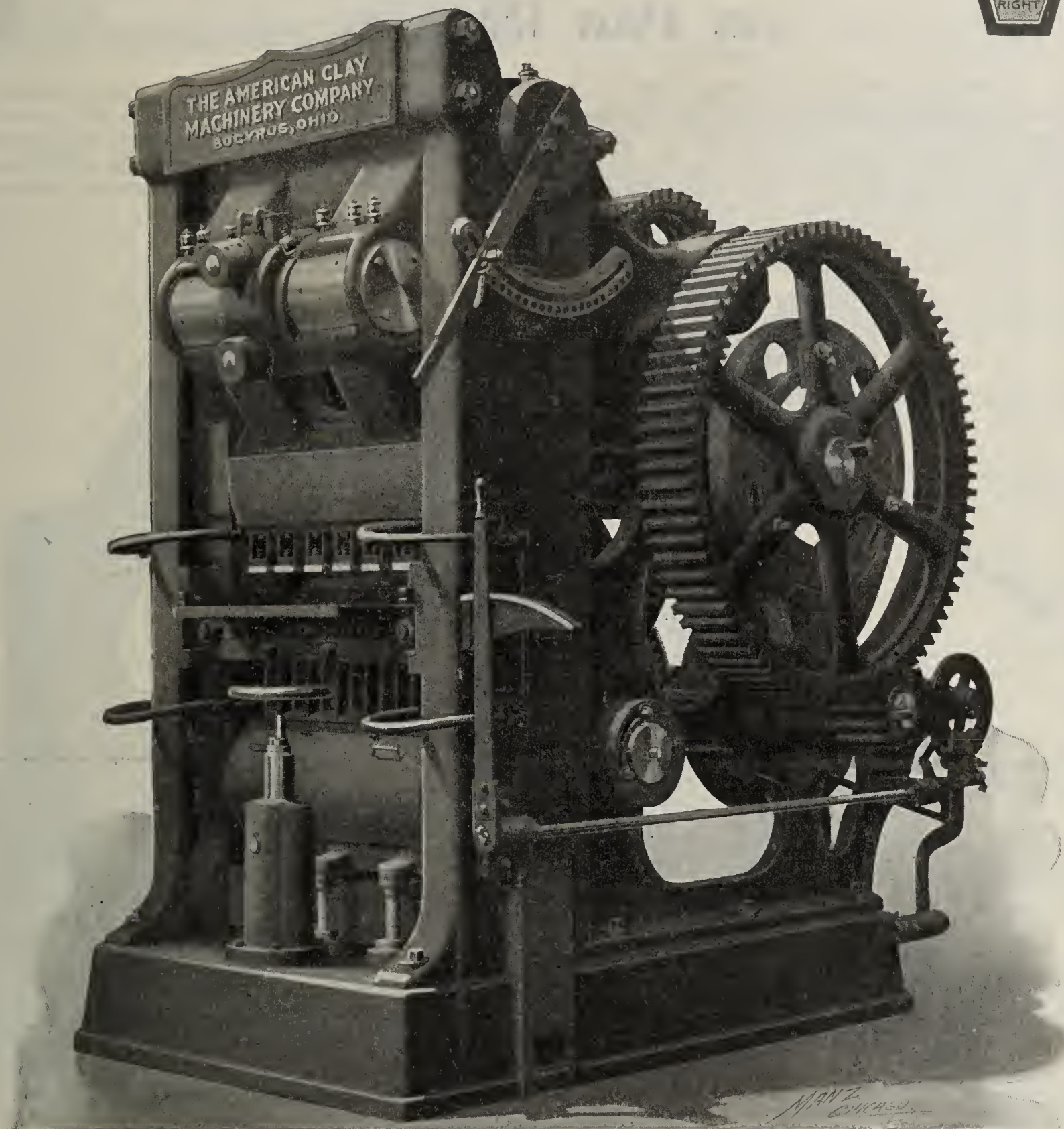


The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



A Press to be Proud of



This Press has great weight, great strength, rigidity and accuracy. The massive side frames, securely tied together, make a frame in every way ample.

The shafting is of forged steel, made in our own forging shops.

The bearings are long and carefully made. The gearing is heavy and strong.

The feed is adjustable. The pressure mechanism is designed to give a long dwelling pressure. There is no press of better quality or that will produce more or better brick.

Full description upon request. We also build a complete line of machinery and appliances for manufacturing every class of Clay Products by all processes.

Being the Largest Manufacturers of Clayworking Machinery in the World we are better equipped than others to supply your every need, in every line of Clay Manufacturing.

The American Clay Machinery Co.,

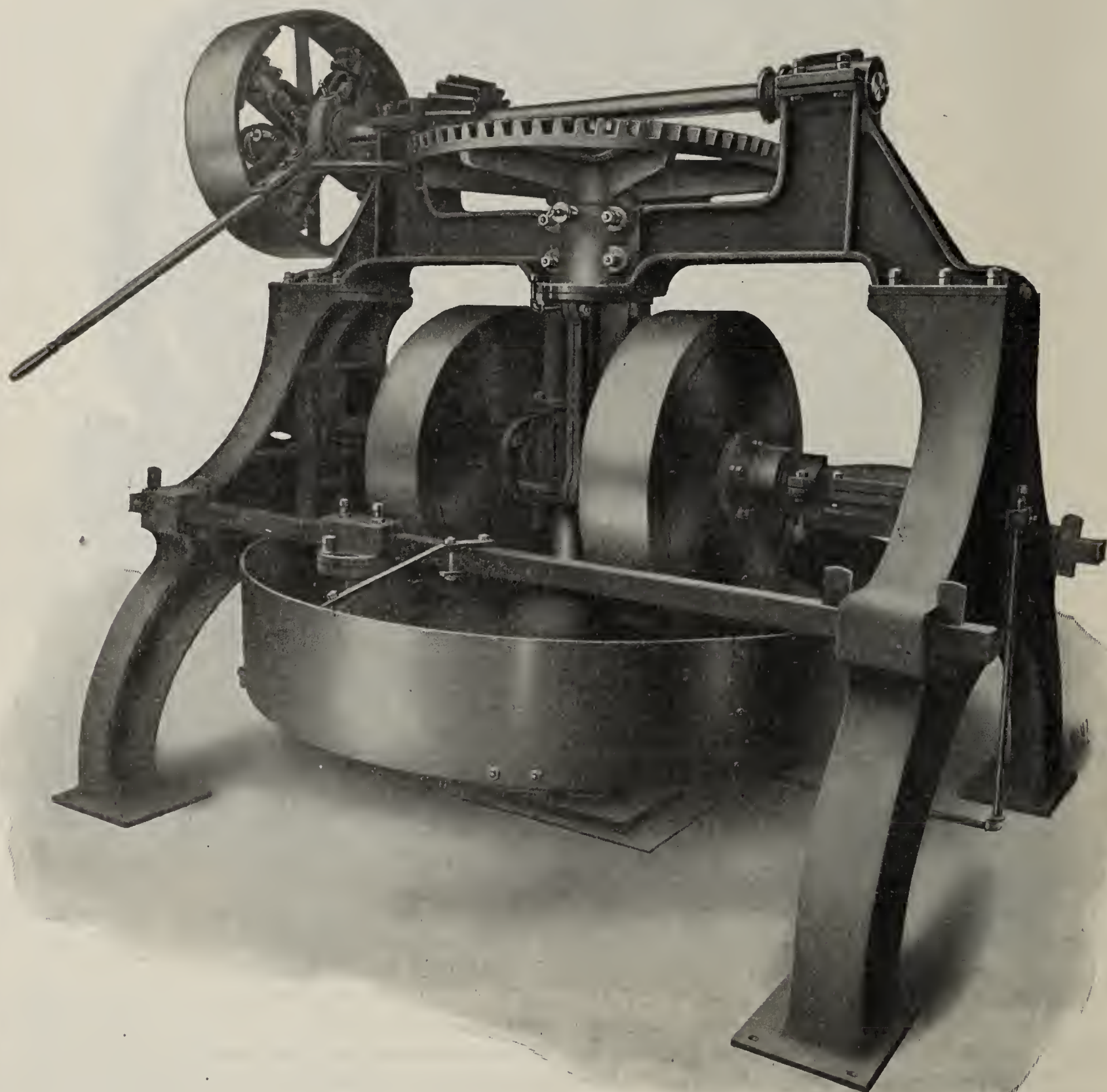
Bucyrus, Ohio, U. S. A.



Declaration of Independence on Pan Repairs



The Declaration of Independence 1776 affected the whole nation. Our Declaration of Independence on Pan Repairs affects the whole Clay Trade using pans. The accompanying cut shows our seven foot Dry Pan, one of a long line of Dependable Pans. Every pan built in a substantial wear resisting manner, with large screening and grinding capacity. Long bearings, muller sleeves, removable shaft, removable muller tires, divided screen plates, improved step, removable scraper blades, forged steel shafting and other excellent features, which determine the life and usefulness of a pan.



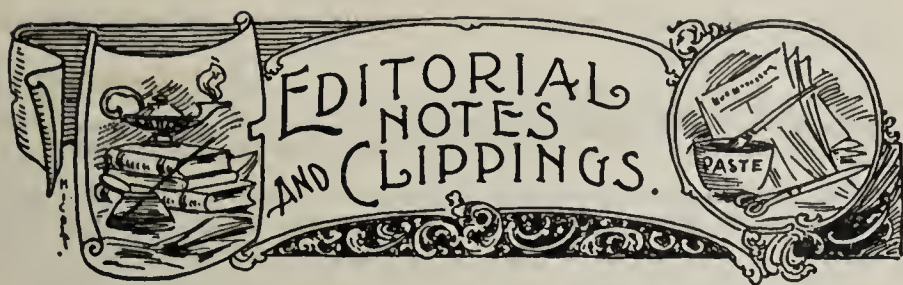
We build all sizes and capacities of Pans. We are by far the largest manufacturers of Clay Machinery in the world and make every machine or appliance needed in the Clay Trade. Write us.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Be sure and mention THE CLAY-WORKER in answering ads.



D. G. Heiser will locate a brick and tile plant at Chatfield, Ohio.

W. C. Cockran, of Chanute, Kans., is at the head of a company that will build a brick and tile plant of 125,000 daily capacity at Tulsa, Okla.

The plant of Michael Gayner, Thirtieth and Morris streets, Philadelphia, Pa., was slightly damaged by fire recently, which started in the kiln sheds.

The Burnt Knoll Brick and Coal Company has been organized at Boulder, Colo., to manufacture high-grade red and buff brick and fire brick, and to mine their own coal.

Kanne Brothers, of Peoria, Ill., recently booked a contract for one building calling for over 1,000,000 brick. This helps quite a little in keeping their plant running full handed.

Robert Bremmer, employed at the Terra Cotta Brick Works, at Georgetown, Ont., Can., was almost instantly killed by becoming tangled in some of the heavy machinery. He leaves a wife.

The Bloomdale Tile and Brick Company, of Bloomdale, Ohio, capital stock \$15,000, has been incorporated by Ross M. McPherson, Martin M. Wisely, Orrin F. Campbell, John M. Sticker and Daniel R. Good.

Page & Joyce, proprietors of the Chicago Sewer Pipe Company's plant, at Brazil, Ind., are overhauling their factory and getting it in shape to operate. New machinery is being added for the manufacture of sewer pipe and drain tile.

The Ardmore (Okla.) Brick and Tile Company's plant is running to full capacity and have all they can do to fill their orders for fine pressed and common building brick. If the demand increases any they will have to enlarge their plant.

The Ivie Brick Works, at Kirksville, Mo., has been purchased by D. and E. D. Reed, S. L. and Frank Eggert and R. S. McKeehen. The plant will be equipped with new machinery and additional kilns will be built in order to increase the capacity of the plant.

The Kentucky Unit Brick and Tile Company, of Louisville, Ky., has filed articles of incorporation, naming a capital stock of \$90,000. The company will manufacture bricks and tiles for various purposes. S. D. Adkisson, I. R. Jeffers and D. Price Van Arsdall are the incorporators.

The Fee Fee Brick Manufacturing and Investment Company, of St. Louis, Mo., was incorporated recently with a capital of \$100,000, 60 per cent. paid up. The incorporators are: H. F. Rodgers, William C. Burke and William L. Rodgers, of St. Louis, and Eben Rodgers and C. A. Caldwell, of Alton, Ill.

Work will start at the rebuilt plant of the Streator Clay Manufacturing Company, Streator, Ill., about August 1. The buildings are all completed and the machinery has been installed so that everything will be in good shape by that time. The company expects much activity in the drain tile business and will be ready to meet the demand.

After three years of inactivity, the plant of the Leeds Brick Company, at Leeds, Iowa, is to be put into operation. The concern has passed into the hands of A. L. Stetson, now of Los Angeles, and his interests are being looked after by Mr. H. D. Brown. The work of overhauling the plant has been done by C. Nelson, who will have the management of the plant, which will have a capacity of 25,000 per day to start with.

John Donaldson, formerly of Minneapolis, Minn., now of Denver, Colo., and Willis W. Case, Jr., of Denver, have purchased a controlling interest in the Denver Fire Clay Company. Mr. Case has been elected president and manager and Mr. Donaldson secretary and treasurer. W. W. Case, Sr., who has been the company's president for years, retired and will devote his time to his private interests. He still holds stock in the company. Willis W. Case, Jr., the new president of the company, has been its manager for about a year, during which time he has increased the business greatly. About

three months ago he opened a branch house in Salt Lake City, which he made a financial success from the start.

The LaRue Tile Company, of LaRue, Ohio, has been incorporated with \$50,000 capital stock by C. M. McAlister and others.

The Reynolds Tile and Drainage Company has been organized at Greenville, Miss., by T. P. Reynolds, W. A. Everman and Frank Binder.

G. W. Oaks is enlarging his brick and tile plant at Columbus Junction, Iowa, and building an additional kiln, in order to meet the increased demand for his product.

George M. Hooper, a wealthy brick manufacturer of Bridgewater, Mass., died at his home in that town July 3, in his seventy-first year. Five children survive.

Murrell Dobbins, for so many years one of Philadelphia's foremost brick manufacturers, is a candidate on the Republican ticket for treasurer of the Quaker City. Success to him.

The plant of the Stegmayer Enamel Brick Company, at Perth Amboy, N. J., which has been idle for two years, is being overhauled preparatory to running it full time once more.

The Empire Brick Company, of Olean, N. Y., of which Henry Hasbrouck is secretary, has been incorporated for \$150,000. The other incorporators are: F. L. Bartlett and H. S. Startwell, of Olean.

The A. C. Ochs Brick and Tile Company's plant at Heron Lake, Minn., was considerably damaged by a heavy storm recently. The roof was blown off the engine house and one wall was also blown down.

The Corning Brick, Terra Cotta and Tile Company, Corning, N. Y., has purchased a large farm near their plant containing valuable shale deposits, which they will use in the manufacture of their products.

M. J. Lee, the drain tile manufacturer, of Crawfordsville, Ind., has purchased the Reichard brick and tile plant at Paola, Kans. The name of the company will be changed to the M. J. Lee Drain Tile Company.

The Fire Stone Brick Company has been granted a charter to manufacture building and paving brick, drain tile, etc., at Lexington, N. C. Those interested are: J. T. Gumer, J. M. Pugh and S. E. Williams. The company is capitalized at \$50,000.

The Pittsburg (Kans.) Vitrified Building and Paving Brick Company has landed a large contract to furnish paving brick to the city of Lincoln, Neb. That city is doing a lot of street paving this season and the contract amounts to 2,000,000 brick. It will require 300 cars to ship them.

The brick plants at Hastings, Neb., are all busy, running to full capacity. The Western Brick Company employs 100 men; Polenske, Schellak & Co. employs about ninety men, and the Hemple yard the same number. The season has been very good, and the prospects are for still better business as the fall season approaches.

The Kittanning Fire Clay and Brick Manufacturing Company, of Kittanning, Pa., employing 400 men, has been compelled to go on double turn to fill its orders. The Cook and Pennsylvania China companies, of the same place, employing more than 1,000 persons, have enough orders on their books to keep the plant running until next January.

The National Fireproofing Company, of Pittsburg, Pa., has announced that it will start at once one of its New Jersey plants, which has been idle for some time, and put 600 men to work. The resumption is due to a contract recently closed for the fireproofing of the Gimbel Brothers' store at Broadway, Sixth avenue, Thirty-second and Thirty-third streets, which calls for 500,000 square feet of hollow tile blocks. It is said to be one of the largest fireproofing contracts ever made.

The Crown Point Brick Company, of Salt Lake City, Utah, has been chartered, with \$100,000 capital stock. They have taken over the entire property of the Hatch Brick Company, and in addition purchased one hundred and twenty-six acres of excellent clay land, new machinery has been purchased and the plant will be thoroughly overhauled. The officers of the new concern are as follows: A. M. Wrench, president; H. S. Stowe, first vice-president; Parley E. Hatch, second vice-president; E. B. Palmer, secretary; L. C. Riter, treasurer, and W. S. Elton, manager. Parley E. Hatch, man-

(Continued on page 76.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

ager of the Hatch Brick Company, will remain with the new concern.

The Rainier Face Brick and Clay Company has purchased a tract of land at Rainier, Ore., on which they will erect a plant of 100,000 daily capacity.

The Carrollton Brick Company has been incorporated to manufacture brick at Carrollton, Ky., by Harry Stanley and Gus Grobmeyer. The capital stock is \$60,000.

The Improved Brick Company is the name of a concern recently incorporated at Evanston, Wyo., with \$200,000 capital stock. F. A. Druehl, of Salt Lake City, is one of the principal owners.

George B. Sanders, J. B. Steele and A. M. Farson have organized the George Brick Company, at Georgetown, S. C. A plant will at once be built in West Georgetown. The company is capitalized for \$10,000.

Abdoo Simon, administrator of the estate of Hassian David, has brought action in common pleas court, suing the Osnaburg Brick and Tile Company, of Osnaburg, Ohio, for \$10,000. David was killed in a clay bank owned by the defendant company, November 6, 1908.

Noah Allen, Dr. George D. Fairbanks, Edward Van Antwerp and H. H. Banker have formed a company and will install machinery for manufacturing brick, building blocks, drain tile, etc. The plant will be erected on their property at West Brownsville, Texas, and when completed will have a daily capacity of 100,000 brick.

A new company has been organized at Hennessy, Okla., to be known as the Hennessy Brick and Tile Company, to take over the plant of the Lane Brick Works. The new company has been capitalized for \$25,000, most of which has been paid in, and will be spent for machinery and other improvements. The officers of the company are: A. E. Lane, president; B. Thorne, secretary, and John Smith, treasurer.

The Royal Brick Company's new plant, at Connellsville, Pa., is fast nearing completion, and they expect to having it running by the middle of August, turning out brick at the rate of 60,000 brick per day. The members of the firm are: C. W. LaClair, of Uniontown; E. L. Sherric, of Connellsville; F. M. Richey, Jr., and E. J. Richey, of Pennsville; Thomas Jones, of Mt. Pleasant, and Geo. W. Hattfield, of Connellsville.

John George, one of the pioneer brick manufacturers of Denver, Colo., died recently from heart failure. Mr. George was eighty-seven years old, and had lived in Denver since 1879, at which time he engaged in the manufacture of brick with his son, Herbert George, and was still actively identified with the business at the time of his death. Until the time of an accident in May, he had never been ill and had hopes of passing the century mark. A widow and six children survive.

The Virginia State Corporation Commission has granted a charter of incorporation to the Alexandria Repress Brick Machine Manufacturing Company, of Alexandria. The capital stock is to be not less than \$10,000, nor more than \$25,000, and the officers and incorporators are: Edwin L. Cockrell, of Woodbridge, Va., president; David N. Rust, Jr., of Braddock Heights, Alexandria county, Va., vice-president and treasurer, and William R. Stone, Jr., of Braddock Heights, secretary and general manager.

The engine room, boiler room and dry sheds of the W. G. Bush Brick Manufacturing Company, North Nashville, were almost totally destroyed by fire recently, entailing a loss of about \$15,000. The blaze was discovered shortly after 1 o'clock, and it was thought that a spark from the furnace room caused the fire. The company carried no insurance, but the ruins were hardly cold before they had men at work clearing away the debris preparatory to rebuilding. The work on the new plant will be pushed as rapidly as possible.

The Bartlett Brick Company, owner of two large brick-yards, one at Hudson, N. Y., and the other at Roseton, and considered one of the largest firms in the business, having been distorted by internal dissensions for some time, has at last gone into receivers' hands, Judge Keogh having appointed Seward H. Round and Edward J. Collins receivers. The appointments were made on the application of Mr. Frederick W. Bartlett and there was no opposition. Of the capital stock, Mr. Bartlett and his friends own 1,465 shares,

and 1,535 shares are held by Senator Rose, Everett Fowler and their friends.

The Blackwell Brick, Tile and Gas Company, of Blackwell, Okla., has been incorporated by J. W. Beatty, W. H. Thompson, Z. A. Harris, N. B. Kistler and W. M. Vickery.

The Wilkes-Barre (Pa.) Cement and Brick Company has started rebuilding its plant, which was destroyed by fire some time since. The plant will be modern throughout.

The Deckman-Duty Brick Company, Cleveland, Ohio, is making extensive improvements at its Collinwood plant, including the rebuilding of the engine and boiler rooms. They will spend \$30,000 on the work.

The plant of the Rome Brick Company, at Rome, Ga., was almost completely destroyed by fire July 15, entailing a loss of \$50,000, on which there is an insurance of about \$30,000. This plant will probably be rebuilt. R. Rounsaville is the manager of the concern.

The plant of the Fremont Brick Company, just south of Fremont, Neb., was recently damaged to the extent of \$25,000 by fire, which is thought to have started from sparks from a passing locomotive. The plant was too far from the city limits for the fire department to be of any assistance in putting out the fire. The company carried \$15,000 insurance.

Major John M. Osborne, for many years a well-known brick manufacturer of Mt. Union, Pa., died suddenly at his home in that city. Together with Scott Dibert he was owner of the Mt. Union Silica Brick Company, and had been active in his duties in connection with the plant up until a very short time before his death. One son and a daughter survive.

The New York Pressed Brick Company, at Canandaigua, N. Y., will reopen its plant in the near future and employ a large force of men. The management of the works will be under U. J. Mattson, who will hold the place of superintendent. Considerable additional capital has been obtained for the factory, and the company will spread its work to the manufacture of tile roofing, which will be made from local clay and will be carried on quite extensively. The manufacture of all kinds of pressed brick will be continued as before the plant shut down about a year ago.

Hollidaysburg, Pa., is destined to have a modern silica brick manufacturing plant in the near future. J. A. Mattern, of Gaysport, has optioned to a party of capitalists from Pittsburgh and Chicago, a plot of twenty-five acres of ground lying west of the Pennsylvania Railroad. A \$250,000 steel structure will be erected on this land, devoted to the purposes of a modern silica plant, modeled after the Mt. Union brick works, and will give employment to a force of about 200 men. The works will probably be built this summer.

Seattle, Wash., is to have one of the largest sewer pipe plants in the country. Construction work will begin on the same within thirty days, and the plant will be ready for operation January 1. Wm. M. Colby, of Mason City, is at the head of the company, having been elected president; S. L. Boal, of Minneapolis, is secretary, and W. R. Flemming, treasurer. All of the gentlemen are experienced clayworkers. Ten carloads of pipe per day will be the capacity of the plant, which will be equipped for the making of all sizes of sewer pipe and drain tile, as well as a general line of clay products. The company has purchased 160 acres of land, on which there is a large deposit of clay that has been thoroughly tested.

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING NEWS.



CLEVELAND is enjoying a building boom which bids fair to break all records. Reports compiled by the building inspector's office for the first six months of the year indicate that the record is well up with that of 1906, and way ahead of last year's work. The total for the first six months of this year was \$6,667,014, as against \$4,080,079 for a similar period in 1908. The building record is held by the year 1906, when the total for the first six months reached \$7,374,977. In June of that year the value of buildings for which permits were issued was \$1,476,000. For the month of June of this year the total was \$1,349,000. During June of last year the value of permits issued only reached \$692,000.

This prosperity is plainly making itself felt in the brick industry. All of the plants in this locality are working to capacity. The paving brick manufacturers report an unusually busy season, a great deal of paving being under way. The common brick plants are far from being idle, a great deal of it being utilized in foundation work and for interior walls. Although no new common brick plants are being established, most of those now in existence report a good line of trade.

A number of new building projects have been launched during the month which will affect the brick dealers. The Hotel Hollenden has had plans prepared for a \$95,000 addition, to be of red pressed brick to conform with the rest of the building. The addition will go up nine stories and will face on Vincent avenue. The building will be built fireproof throughout.

Excavations have begun for a fine edifice for the Euclid Avenue Presbyterian Church, to be built on Euclid avenue, near Ford place. The structure will cost \$250,000, the exterior being of stone and the foundations and interior walls of brick and tile. The church will be ready by September of next year. A residence for the pastor will be erected later on. The builders aim to make it one of the finest religious edifices in Cleveland.

J. Milton Dyer, of Cleveland, has been chosen as the architect for the new 325,000 clubhouse for the Cleveland Athletic Club, to be built on Chestnut avenue, just east of East Ninth street. The building will be of brick and terra cotta. One of the novel features will be the placing of the plunge bath on the fourth floor. It is expected actual work on the construction of the building will begin within a few weeks, just as soon as the detailed plans are gotten out by the architects.

The new four-story store being erected on West Twenty-fifth street for the John Meckes Company is well under way. The general contract for this structure is held by L. Dautel & Son. The Cleveland Worsted Mills Company is erecting another six-story factory building on Broadway, to be 90x170 feet in size. It will be of red pressed brick and fireproof throughout. The Geo. S. Rider Company, engineers, have prepared the plans for the structure.

A new Masonic Temple is to be erected at Dover, a small town on the outskirts of Cleveland, from plans prepared by Architect Frederic W. Striebinger. The new building, which will be of red pressed brick, will be ready for use some time next fall.

The contract for the superstructure of the twelve-story building erected for the Brotherhood of Locomotive Engineers has been let. The structure will go ahead just as soon as the foundations are completed. The building will not be finished before the end of next year.

The general contract for the fine new five-story building being erected by John Anisfield, at East Ninth street and Huron road, has been let to Chauncey Griffin. The building will cost about \$200,000 completed. Foundations are now being set. The structure is to be ready for occupancy some time next fall. The building occupies one of the best corners in the retail district of the city.

Work is scheduled to begin on July 15 on the new \$125,000 building for the Cleveland Elks, which will be constructed of brick.

Preparations are being made in the city of Akron for the

erection of a \$315,000 hotel on the site of the Empire hotel, the second largest in the city. A syndicate will lease it for thirty years. Fred W. Rockwell, manager of the Ten Eyck hotel of Albany, N. Y., is behind the movement.

The fine brick pavements of Cuyahoga county and Cleveland will attract the annual good roads convention of the American Automobile association this fall. The National Grange will hold its good roads convention here at the same time. Brick roads will be given the biggest kind of a boost, with actual demonstrations of their utility for city or country use.

The board of directors of the Builders' Exchange has accepted the application of the Hunt-Queisser-Bliss Co. as a member of the organization. This is the new supply company recently formed in Cleveland. All three were formerly connected with the Cleveland Hydraulic Press Brick Company.

Apropos the Hydraulic Company, F. H. Chapin, who came from St. Louis to take charge of the local office and plant, is gradually rounding the affairs of the concern into shape. F. C. Strayer, formerly with a big china concern at East Liverpool, has been made manager of sales and has taken active charge of the work.

The Bloomdale Tile and Brick Company, of Bloomdale, Wood county, Ohio, has been incorporated under the laws of Ohio, with a capitalization of \$15,000, by Ross M. McPherson and others for the manufacture of tile and clay products.

Another new supply company entered the local field during the past month under the name of the Lake Erie Supply Company. Robert L. Beck, for ten years manager of the brick department of the Cleveland Builders' Supply Company, has accepted the position as manager of the new concern, which has opened offices in the Citizens' Trust building. The company will open several supply yards in various parts of the city and will represent some of the big out-of-town brick companies.

Another contract has been let for a section of the big 13-foot intercepting sewer. William Lehman has been given the contract for the section between Marquette avenue and East Sixty-first street, his bid of \$47,168 being the lowest. Other sections are to be let within the next few weeks. The interceptor is being built of brick set in great rings, the excavation being made by a hydraulic shield which presses its way through the earth.

John Woodhouse, a well-to-do resident of Cleveland for the past thirty years, is dead. In his early days he was regarded throughout Ohio as an expert in the classification of fine clays used in china and pottery making. He was born in England and came to Ohio at an early age.

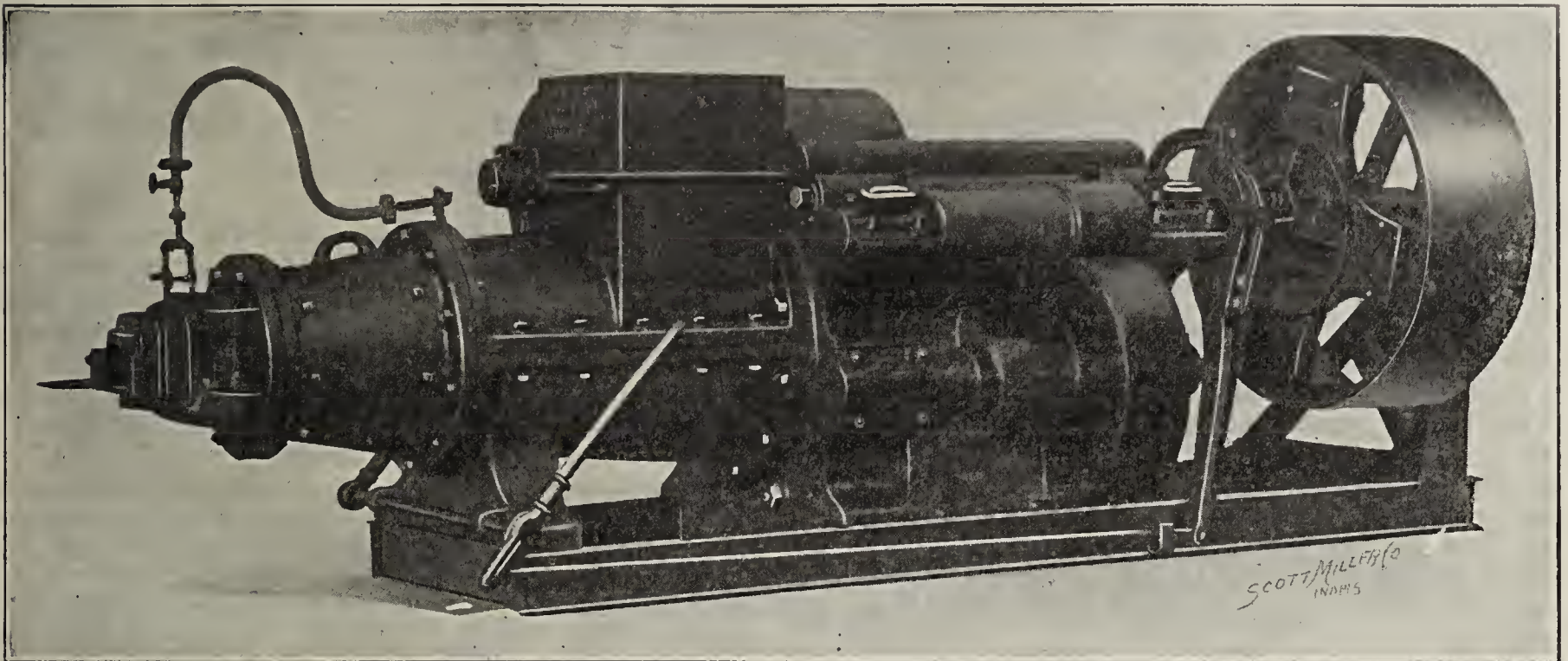
One hundred and five members of the Cleveland Builders' Exchange held their five-day outing at Lake Harbor, Mich., June 29 to July 3, and had a magnificent time. Had the building boom been less apparent the attendance would have been even larger. The time was spent in fishing, boating, bathing and other sports.

Although it has been established only one month, the new Contractors' Supply Company, with offices at 854 Rose building, has already made a good record. It has acquired agencies for seven brick companies and sold half a million brick on various jobs. The supply company now represents the Iron Clay Brick Company, of Columbus, Ohio; the Columbus & Hocking Coal and Iron Co., of Columbus, Ohio; the Everhard Brick Company, of Massillon; the Wadsworth Brick Company of Wadsworth, Ohio; the Federal Clay Products Company, of Mineral City, Ohio; the Advance Brick Company, of Canton, and the Forest City Brick Company, of Cleveland. Among the big jobs on which brick has been supplied is the new Collinwood school, 180,000; the Longwood school, 160,000; the Stearns Apartments, and six private residences averaging 30,000 apiece. George E. Andrews, for four years with another brick concern in Cleveland, has been engaged to take charge of the company's rapidly increasing brick interests. The same supply company is now Cleveland agent for the Conkling-Armstrong Terra Cotta Co., of Philadelphia.

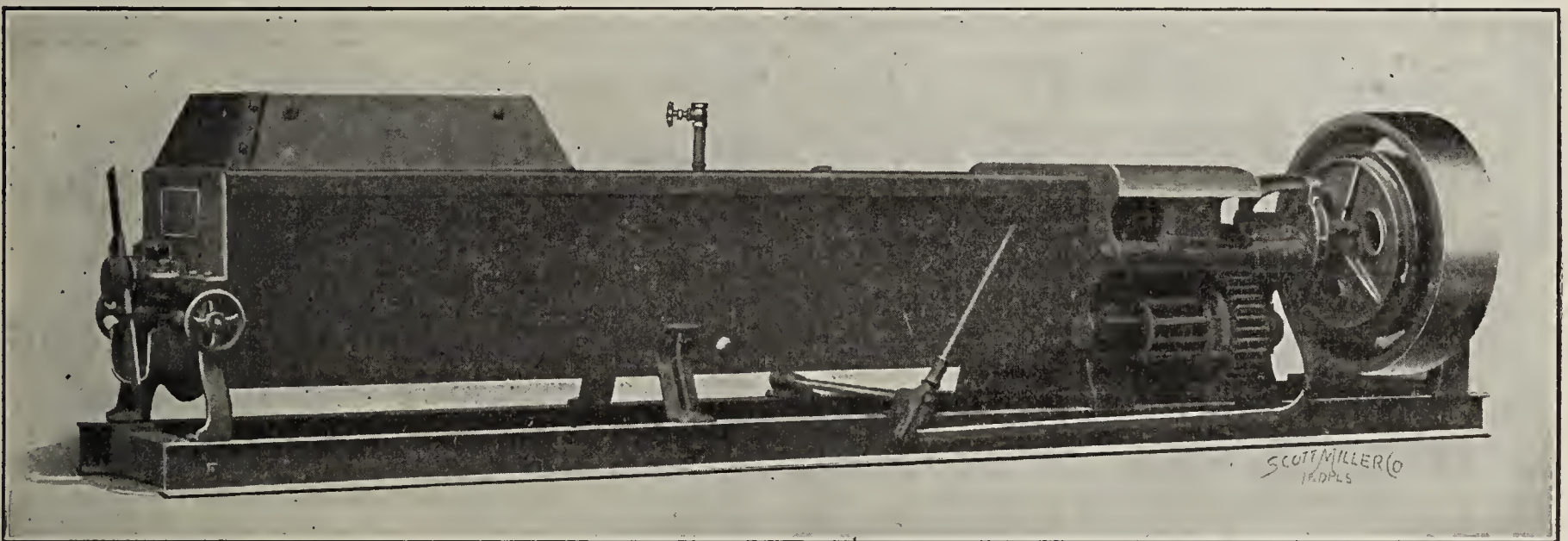
Cleveland will probably have a permanent exposition hall as the result of its Industrial exposition held in June. The show had a surplus of \$30,000, which is to be applied towards the project. A committee of the Chamber of Commerce is considering plans for the raising of funds with which to build the structure, which will be gone on with when funds are available.

BUCKEYE.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

(Mention The Clay-Worker.)

Galion, Ohio.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKYARDS.



OUR GOOD FRIEND, William Conway, when seen at his plant, Fifty-eighth and Walnut, replied to our inquiry in his usual gentle and cheerful manner, that they are so busy they scarcely know where to turn, and their supply is all sold up to sixty days.

They are serving brick for eighty-one two-story houses at Fifty-eighth and Market streets, requiring 2,500,000; six four-story houses, and very handsome ones, at Forty-sixth and Walnut streets; an apartment house at Forty-third and Chestnut, and another on Forty-sixth street, below Chestnut street.

There are five rows of houses to be built at Sixtieth and Locust, about 128 in all. A number of the manufacturers are in on this contract, as no one yard is carrying brick enough to fill it. Wm. Conway's plant is serving about twenty-five of the houses. Completing the list of Mr. Conway's contracts are two schoolhouses, one at Bala, and another on Monument road; a piano factory for the Cunningham Piano Company, and an ice plant at Fifty-second and Jefferson streets.

The Equitable Brick Manufacturing Company has undergone some little change since the demise of Mr. Kimball some time ago. Mr. Kimball, president, still retains his same office, but his son is now secretary and manager, in place of his deceased uncle. Truly, as one walked along the path from Sixtieth street and saw the office, the warmth of the red bricks cooled and refreshed by the green ivy and green bushes placed with such good taste around the building, we could barely realize that it was a brick manufacturer's plant. Then, too, within a stone's throw of a little stone church. Well, if anyone in that office should ever tire of "waiting at the church," he can hurry to the office and keep his eye on the church (?) while wading through work—for work there is always at this plant. Just now they are working on one contract and supplying brick for some thirty odd two and three-story houses, requiring from 500,000 to 600,000 brick. Also one for 500,000 for a number of two-story houses, and finally, a contract for twenty-four houses at Conistoga and Cedar avenues requiring 500,000 brick.

Brick are bringing better prices up town than down. The people downtown were not expecting such a great demand and are unprepared for it, consequently we hear of them rushing here and there to buy brick, only to meet with the same difficulty in these self-same yards.

Webster & Keyser report that they might be busy could they get wagons to haul their brick. During the hard winter many of the men sold their wagons, and now it seems to be a general question among the brick manufacturers where to get wagons. This yard is supplying brick for houses at Forty-first and Springfield avenue and Fifty-second and Locust street, the former calling for 1,000,000 and the latter for 400,000 brick.

D. C. Murtha, Sixteenth and Butler streets, is serving brick for a large operation requiring 1,500,000; a Philadelphia warehouse requiring 2,000,000 brick, and a contract not closed yet, for a Philadelphia concern, that will call for 500,000 brick. Mr. Murtha has a right to be the optimist he is. He has had a good year, 100 per cent. better than last, with a promise of a good fall season.

McAvoy & Morris say they are literally head over heels in business. They are serving brick for the Wanamaker operation, Thirteenth and Market streets, and 200,000 to 300,000 for the Mallard Construction Company. They are busy, also, on three operations in West Philadelphia—410 two-story houses, and altogether are most sanguine over the outlook, present and future. With plenty of minor operations in the surrounding locality, they have all that they want to do, and, like other brick manufacturers in Philadelphia, would have more if the yard held the brick.

Many of the West Philadelphia builders have been turned down by the scarcity of brick.

T. J. Rose reports business good; the demand is good, but the prices are low and they are playing a waiting game on the tariff question. With many contracts to keep them busy, they have no cause for worry.

Peter Byrne & Son are swimming along easily, meanwhile supplying from 500,000 to 600,000 brick for two-story houses. With the present brisk business and future good prospects, they confess themselves well satisfied.

M. E. LOCKINGTON.

SPANISH ROOFINGS.

Practically all dwelling houses in the larger centers of population in Spain are constructed with a flat roof garden, or "terrado," the flooring of which is made of bricks or tiles, rarely of cement. By far the most popular material used for roofing is tiles, other materials being galvanized zinc, slate (used in the north of Spain), and so-called "carton piedra" and "carton cuero," mixtures of pasteboard and stone, and pasteboard and leather, respectively.

Tiles used for roofing are generally about 12 inches square and are of two sorts. The "teja plana," a flat tile, now given the preference, costs \$24.12 per 1,000 unglazed and \$60.55 glazed. The "teja antigua," a curved tile, formerly more used than at present, costs about one-half the above prices. Building tiles used in the region of Barcelona are for the most part made there, the soil being specially adapted to their manufacture. Carton piedra and carton cuero are used in sheets of about one-fifth inch in thickness as a roofing for temporary buildings.

The only kinds of roofing for which imports are shown in official Spanish statistics are glazed and unglazed tiles, quantities imported being insignificant; in 1907, \$6,574 worth of unglazed and \$10,207 worth of glazed tiles, chiefly from Belgium and France.—Construction Record.

The Richardson-Lovejoy Engineering Co.

Consulting Engineers and Factory Architects.

We make geological surveys of properties, test the materials, investigate manufacturing propositions and advise regarding products, design plants and superintend construction, modernize old plants for economical operation and devise cost systems.

**Expert service for special cases or
by the year at moderate prices.**

TECHNICAL BUREAU FOR CLAYWORKERS

Send for Pamphlet
"Ceramic Engineering."

Schultz Bldg., Columbus, Ohio.



AUGER BRICK MACHINES

Chambers Brothers Co., Philadelphia, Pa.

Los Angeles,
California.

Four Prominent
Manufacturers of

Paving Brick and Block

located at widely different parts of the country have recently equipped their factories for the end-cut method of manufacture. They were previously side-cut disciples exclusively, and were all moved by a determination to improve their product—make a block that would stand better and test better.

Not one of them could be classed as a "Four Year Old."

They are men of experience who observed and studied the problems of their business, and each one deliberately placed his order for the

Thurber,
Texas.

Streator,
Illinois.

Des Moines,
Iowa.

Chambers End-Cut Auger Brick Machinery

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE KENTUCKY METROPOLIS.



WITH THE BUILDING prospects still increasing, and the brick and other lines active, there is really a very pleasing report in this locality. With the advancement of the summer months there is a like advance in the number and size of the buildings to be constructed, and this is the best news that the brick people have to make public at this time. It is said that there is some price-cutting, which is probably true, because there are always some who prefer to cut under the market in order to get business.

A new building ordinance has just been passed here by the council, which, it is said, is in every respect a model one, embodying the latest and best ideas obtainable from all cities. It is the work of Building Inspector Marshall Morris, who is fully capable of doing this work. It is believed that the new ordinance will do much to improve conditions in the matter of building in this city in the future.

Work on a number of new buildings has been started here, including some good-sized operations.

Charles W. Thatcher, the "Apostle of Good Roads," was in the city several days ago, where he addressed the members of the Louisville Automobile Club on good roads. This is a theme that has not been considered as carefully here as it should have been, particularly in the light of vitrified pavements for streets, and roads as well. Too much consideration has been given to other paving materials, with the result that the annual costs for repairs is very great. It seems strange that in surfacing a street with asphalt, that the sides or gutters are paved with vitrified brick. This seems to be the most conclusive proof that the brick will give the best wearing surface. However, the time will come when these lessons will be learned by hard experience, just as other cities have learned them.

The West Point Brick and Lumber Company, at West Point, Ky., will make some decided improvements to their plant during the early fall months which will greatly increase their present capacity. They recently completed some improvements, and are still unable to meet the growing demand made upon them for building brick. They are operating at full capacity and believe that there will be a good business this summer and fall.

Mr. M. J. Bannon, of the P. Bannon Sewer Pipe Company, says that there has been some increase in the sewer pipe demand this summer, and that there is about as much business now as they can hope for. With their plant operating at full capacity, there is nothing to complain about. He hopes for a still better business this fall.

The Kentucky Fire Brick Company, at Haldeman, Ky., has been able to do a pleasing business in fire brick in the last month or so. With their modern equipped plant they are able to meet the demands of all classes of trade, and are pleased with the way that the orders are coming in.

There is no complaint at the office of the Louisville Brick Company. The fact that they have been disposing of all their brick readily is the best evidence of the way that the demand has held up with them in the hot months. With the prospects for building continually increasing, they feel that there will be a continued increase in the demand for building brick.

The newly completed plant of the Louisville Fire Brick Works, at Highland Park, Ky., is operating at full capacity now, though there is no dearth of orders at this time. The fact that there are encouraging indications for business later in the year seems to offer a hope that is making them feel that there is something to look forward to, at least. They are accumulating stock so that they will be enabled to meet the demands with promptness.

The Hydraulic Brick Company are not particularly rushed with orders for building brick, but they are able to keep things moving along in a way that is pleasing to them.

Mr. T. Bishop, of the Southern Brick and Tile Company,

says that they are very busy on building brick, having on hand now a nice lot of orders for brick which include some large orders. He feels pleased at what he considers a very favorable indication for the future in both brick and tile lines, and while in the latter there is not at this time very much demand, the season will soon arrive when they will be rushed. They are now operating both plants at capacity.

The Kentucky Vitrified Brick Company, while not as busy as they could wish to be, are noting some increase in the general demand for paving brick throughout the south. There has not been as much street building this year as was counted on, and for this reason there has been a slowness in ordering.

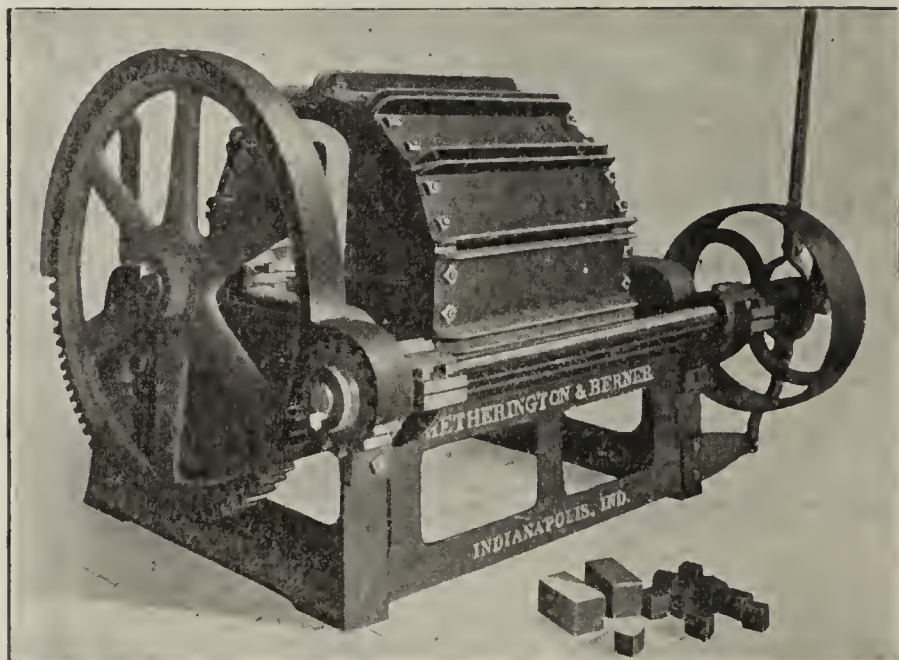
The Louisville Pottery Company are able to do a very fair business, though a recent decision requiring them, as well as all potteries, to crate their shipments, is working a hardship on them. It has been hurting business in some respects also, and naturally increases the cost of shipping for them. They say that this has been effected by the railroads covering all southern points.

Mr. C. O. Smith says that there has been a good demand for many kinds of brick with him. He has made a number of good sales lately, and while it has been a somewhat difficult thing to do, has been increasing his orders considerably in the past few weeks.

The Burrell & Walker Clay Manufacturing Company say that there is a little increase in the general demand for clay goods with them, but that the improvement has been slow. Mr. Frank Burrell says that he has found the situation to be better than it was, but that there is still a chance for a better demand. He hopes that this will soon materialize, as the conditions are ripe for an increase. COLONEL.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—An experienced and reliable tileburner for down-draft kilns.
CORWITH BRICK AND TILE WORKS,
7 2 d Corwith, Iowa.

FOR SALE—One Drake stiff mud machine; one Fate hand, side-cut cutting table; one 10x24 engine, price, \$300 cash.
J. H. FRANCIS,
7 2 cm Peoria, Ill.

WANTED—Master mechanic for brick plant. Man who is familiar with all classes of brickmaking machinery. Salary, \$100 per month. Only practical man need apply.
BURKE BRICK CO.,
7 2 d Ft. Smith, Ark.

WANTED—POSITION.
Can you use a good brick superintendent, one who can deliver the goods? Now employed, but for good reason want to change. References. Address
REX,
7 1 c Care Clay-Worker.

FOR SALE.
Small old-established fire brick and china clay company in Cornwall, England. Price, \$16,000. Apply D. M. F.,
Care Keymer's Advertising Agency,
3 Whitefrair's st.,
7 1 d London, England.

CASH FOR YOUR PLANT OR BUSINESS.
No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address
FRANK P. CLEVELAND,
965 Adams Express bldg.,
5 tf d Chicago, Ill.

WANTED—Eight brickloaders, Bohemians or Polanders; \$1.75 per day; work year around. Will pay 30 cents per thousand for loading wagons, or 35 cents per thousand for loading cars. Only practical brickyard men need answer.
BURKE BRICK CO.,
6 2 d Ft. Smith, Ark.

FOR SALE.
One two-mold Simpson dry press machine.
One three-mold Andrus dry press machine.
One E. M. Freese & Co.'s board delivery cutting table.
DUNLAP MFG. CO.,
5 tf L Bloomington, Ill.

FOR SALE CHEAP.
A three-brick Andrus steam press complete, in first-class condition, together with a Williams disintegrator, sieve, belts, shafting, pulleys and elevator, ready to run. Will be sold at a sacrifice. Address
THOS J. ROSE BRICK MFG. CO.,
Erie ave. and G st.,
5 3 c Philadelphia, Pa.

FOR SALE—Brick plant, consisting of sixty acres of land; 20,000 capacity. Machinery in good condition. Both surface and fire clay right at hand and no mining. This plant has paid as high as \$7,000 per year. Big demand for product. Only plant in city of 12,500. Address
H. H. BANKS,
6 4 cm Columbia, Mo.

WANTED—Foreman for stiff mud face brick factory in Pennsylvania. Address, giving references and stating salary expected,
X. Y. Z.,
7 1 d Care Clay-Worker.

WANTED—Sorter for stiff mud face brick factory in Pennsylvania. Address, giving references and stating salary expected,
BOX 121,
7 1 d Care Clay-Worker.

WANTED—Situation as superintendent of either paving or fire brick plant. Twenty-five years' experience. Strictly temperate and best of reference. Address
C. E. F.,
1 tr Care Clay-Worker.

WANTED—At once; burners competent to remodel round down-draft kilns and burn same. Applicants send references and state experience with applications.
LaRIVIERE BRICK CO.,
7 1 1p LaRiviere, Mani., Can.

FOR SALE.
One Adrain No. 4 brick and tile machine. Will make tile up to 18-inch; tile dies from 3½-inch to 8-inch. In good working order. Must be sold at once and will go at a low price. A. FRIES & SONS,
6 2 d Connersville, Ind.

DRYER CARS.
We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,
2 tf L Cleveland, Ohio.

WANTED.
Position as superintendent or manager by a German brick and tilemaker of fourteen years' practical experience. Familiar with every kind of machinery, expert burner in either down or up-draft or continuous kilns, with wood, coal or gas. Best of references. Address
OTTO,
7 1 d Care Clay-Worker.

FOR SALE—Fifty h. p. piston valve engine, 60 h. p. O'Brien boiler, two steam pumps, Hercules, Sr. soft mud machine, disintegrator, Wellington sander, hoister, cable, track, dump cars, belting, shafting, elevator, trucks, steel tank, wheelbarrows and some 35,000 wood pallets. A rare opportunity if sold within sixty days. Address
I. C. WHEELER,
6 2 d Carthage, Mo.

FOR SALE.
One 8-foot Taplin, Rice, Clerkin Co. wet pan.
One 40-inch Taplin, Rice, Clerkin Co. sewer pipe press, including multiple tile dies and hollow block dies.
One clay feeder.
One wet clay elevator.
The above machinery has only been used sixty days, and is in first-class working order. Will be sold cheap if sold at once. Address THE WADSWORTH BRICK AND TILE CO.,
7 tf d Wadsworth, Ohio.

FOR SALE.
One hundred and twenty-six-acre factory site, centrally located, containing all the requisites for the manufacture of all kinds of clay products. Tested for sewer pipe, pavers, etc. Good vein fire clay. Two trunk lines on the land; 6-cent freight rate to Chicago. Plentiful supply of operatives. A priceless site to the parties who can make use of it. Plans, surveys and farm crop thrown in. On account of permanent breakdown in health of owner, will sell at a bargain. Address
JOHN H.,
6 tf dm Care Clay-Worker.

FOR SALE—New brick and tile plant in northern Ohio; best clay and can dispose of output at home. Sickness cause for selling. Address
OAK,
7 1 1p Care Clay-Worker.

FOR SALE—One 14-foot single-g geared Bonnot pug mill with friction clutch, as good as new, and one 30 h. p. portable boiler, Atlas make. Address
INDIANA DRAIN TILE CO.,
7 1 c Brooklyn, Ind.

FOR SALE—One hundred and twenty acre factory site containing requisites for all kinds of clay products. Tested for sewer pipe, pavers, etc. Good vein fire clay. Two trunk lines with 6-cent rate to Chicago. A bargain. Address
JOHN H.,
7 tf d Care Clay-Worker.

YOU ARE A LIAR
if you say these pallets are not cheap at \$12 per thousand; 15,000 pallets, 10x32; ¾ to ¾ thick; cleats, 1x1¼; 2 feet 5 inches between cleats.
THE ELLIS BRICK CO.,
6 3 c Toledo, Ohio.

FOR SALE.
Four-mold Boyd press, Grath Special hand-power press with octagon and radius dies. Chandler & Taylor engine, 11x14, 60 h. p., 7-foot pan, pulleys and shafting. All in first-class condition. Inquiries solicited. DILLONVALE BRICK AND TILE CO.,
5 3 dm Dillonvale, Ohio.

AN ATTRACTIVE OFFER.
We would accept a reliable associate on a liberal proposition in the conduct of a well-established soft mud brick plant. Must be experienced and competent to take entire charge and operate the business. Plenty of business and no competition near.
BIG HORN BRICK CO.,
7 1 1p Cody, Wyo.

FOR SALE—MANUFACTURING PLANT.
Complete equipment for brick machinery and brickyard supplies or any iron or wood-working business. About four acres land, brick buildings, railroad siding, foundry cupolas, cranes, etc. Machine and wood shops with machinery and tools. Will be sold separately or as a whole. Send for detailed list and description of property.
W. E. MALIN, Receiver for
THE HORTON MFG. CO.,
7 2 dm Painesville, Ohio.

BRICK PLANT FOR SALE.
One of the most complete stiff mud brick plants in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address
S. C.,
5 tf d Care Clay-Worker.

FOR SALE.
Brick and tile plant; coal and potters' clay mine; all combined in active operation; new machinery, none better; coal and clay, unlimited quantity; superior in quality; suitable for fire brick, enamel brick or fine face brick, terra cotta, tile, sewer pipe, stoneware, and all high refractory material. As to proportion of strata used, it is 25 feet thick rock top and easy to mine. Clays burn white, buff, gray, brown, and also make a fine speckled manganese brick. As to proportion of clay used—best clay in Illinois. Railroad runs direct through center of 900 acres; direct to St. Louis and Chicago. Reason for sale, owner crippled; will sell on easy payments, trade for good real estate, or lease to good, experienced men with capital to operate and increase business. Address
MAC,
7 1 cm Care Clay-Worker.

Continued on next page.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
2 tf L Richmond, Va.

TILE FACTORY FOR SALE OR EXCHANGE—Tile factory and ten acres of clay ground in Huron County, Ohio. Price, \$8,500. Will exchange for farm or timber land.

FOR SALE—Controlling interest in complete, modern money-making brick plant located in Pottawatomie County, Kans. Fine opening for practical brickmaker; \$35,000 required.

FOR SALE—Modern brick plant located in Muskingum County, Ohio. Capacity, 40,000 pavers per day. Fine shipping facilities. Price, \$70,000, or will sell half interest to practical brickmaker.

FOR SALE—A small block of 7 per cent. preferred stock in large Ohio brick company. Fine investment. Write for particulars.

If you want to buy, sell or exchange any kind of business or real estate, anywhere, address

FRANK P. CLEVELAND,
965 Adams Express Bldg.,
6 2 d Chicago, Ill.

REBUILT ENGINES AND BOILERS.

The cleanest and most thoroughly rebuilt. All our own and in stock. Not scattered everywhere and merely listed.

ENGINES—

Corliss: 20x48 Wheelock, 20x42 Allis, 18x42 Hamilton, 16x42 Lane & Bodley, 14x36 Lane & Bodley, 14x24 Wright, 12x30 Allis, etc.

Automatic: 16x32 Buckeye, 15x14 Erie, 14½x16 Buckeye, 14½x14 Ball & Wood, 13½x15 Taylor, 13x16 Erie, 12x14 Green, 12x12 N. Y. Safety, 10x10 Fisher, 9½x12 Leffel, 8x10 Allfree, etc.

Throttling: 18x24 Erie, 16x20 Chandler & Taylor, 16x18 Erie, 14x24 Atlas, 13x16 Chandler & Taylor, 14x14 Lewis Vertical, 10x16 Owens, Lane & Dyer, 10x12 Industrial, 9x12 Ajax, 8x12 Climax, 7x12 H., S. & G., 6x8 Clark, etc.

BOILERS—

Stationary: 72x19 High Pressure, 72x18 Standard, 72x16, 66x16, 60x20, 60x16, 54x16, 54x14, 54x12, 48x16, 48x14, 44x14, 40x12, 40x9, 36x16, 36x10, etc.

Fire Box: 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h. p., etc.

Vertical: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 h. p., etc.

HEATERS—

All sizes, Open and Closed.

PUMPS—

All sizes, Single and Duplex.

SAW MILLS, LATH MILLS, EDGERS, CUT-OFF SAWS, TANKS, ETC. Write for list.

Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS and JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers st., Cincinnati, Ohio.

WANTED.

Situation as superintendent. Have a practical knowledge of the manufacture of clayware in all branches, enamel ware, salt ware, glazes, stoneware, flooring and roofing tile. Also all kinds of kilns and the setting and burning of same. Also familiar with the manufacture of paving brick. Address
5 tf d ENGLAND,
Care Clay-Worker.

FOR SALE.

An up-to-date tile and brick plant. Oldest and best in southern Iowa. Incorporated in 1884. Reason for selling, death of head of firm and to settle estate. Splendid shipping facilities. Home trade alone will take all tile. No better opportunity for good, live, up-to-date brick and tile man can be found. Address

6 3 cm T. J. BROWN,
Crawfordsville, Iowa.

BRICK and MORTAR COLORING

For thirty years "COLORIFIC COLORS" have steadily grown in favor of Brick Manufacturers and Builders.

FREE SAMPLES ON APPLICATION.

JAMES M. WELLS CO., Ogdensburg, N. Y.

MANGANESE.

BEST QUALITY MANGANESE, CAREFULLY AND UNIFORMLY PREPARED FOR BRICKMAKING. WRITE US FOR SAMPLES AND PRICES.

NATIONAL PAINT AND MANGANESE CO.,
LYNCHBURG, VA.

MINERS AND GRINDERS.

MANGANESE

For All Purposes, Ground or Lump.

Also Large Quantities of Rich Manganese Dirt.

For samples and prices address

Martin Manganese and Mining Company, Inc.
ROANOKE, VA.

Mines in Independence and Izard Counties, Ark.



Our Special
Brick Yard Shovel

Our Scientific
Round Point

Two of Our Special Makes

Of the Mikola Patent Shovels

... 70 STYLES AND SIZES ...

Especially designed for handling shale, crushed stone, iron ore, clay, etc. Save time, labor and money by using shovels made just for your line of work. Write us about your needs and for Catalog Department A.

Shovel Specialists

CONNEAUT SHOVEL CO. = = = Conneaut, Ohio

\$2.00

THE CLAY-WORKER
ONE YEAR (IN ADVANCE)

\$2.00

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use

Cutting Wires For Brick Machines

CHAMBERS BROS.' CO., Philadelphia, Pa.

ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

Brickmakers Having Trouble

with old kilns, and those contemplating new ones, will do well to ask for particulars relative to the

IMPROVED FLUE SYSTEM KILN.

Absolute Draft Control. Fuel and Time Economy.

This kiln has **PROVED** its worth with all kinds and grades of material, and **IT IS MAKING MONEY** for all those operating it—**IT WILL DO THE SAME FOR YOU.**

You Owe it to Yourself to Investigate.

We invite correspondence and will cheerfully mail booklet and full information.
Kiln and Yard Rights, with working plans, license, etc., sold at very reasonable rates. Address

GEO. E. SNOWDEN & CO., New Cumberland, W. Va.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

Mershon, Eddy, Parker Co.,

Saginaw, Mich.

PHILLIPS & McLAREN CO.

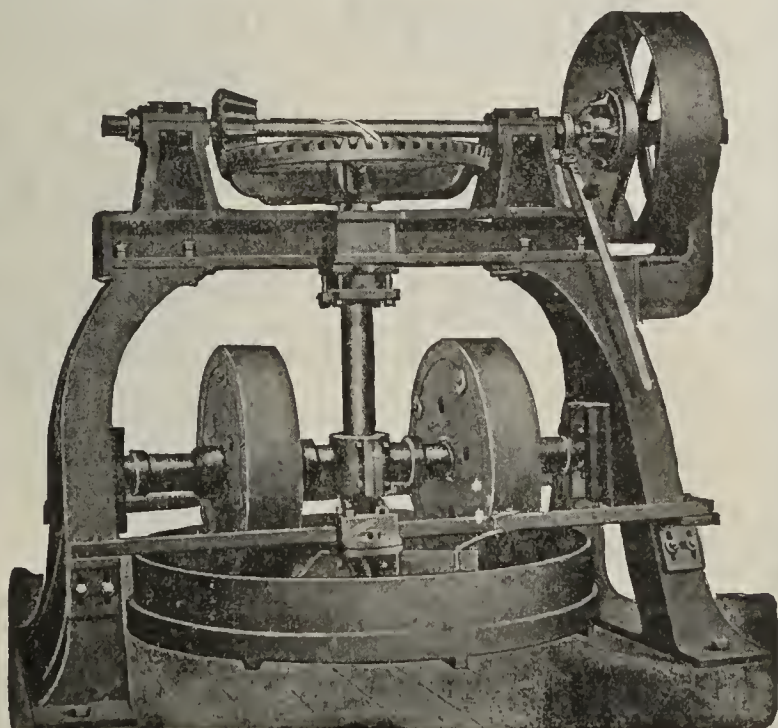
PITTSBURG, PA.

Builders of
Pittsburg Standard
Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
Refractories, etc.

Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.



FOR SALE.
One 9-foot dry pan, iron frame.
One revolving screen.
T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
4 tf d Zanesville, Ohio.



SWITCHES FOR SALE.
Right and left-hand one, two and three
way switches of various gauges, radius and
weight rails at special prices.
THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

See additional ads under Table of Contents.

The Department of Clayworking and Ceramics

Established by the Legislature
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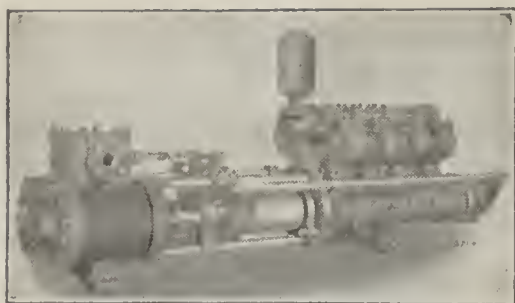
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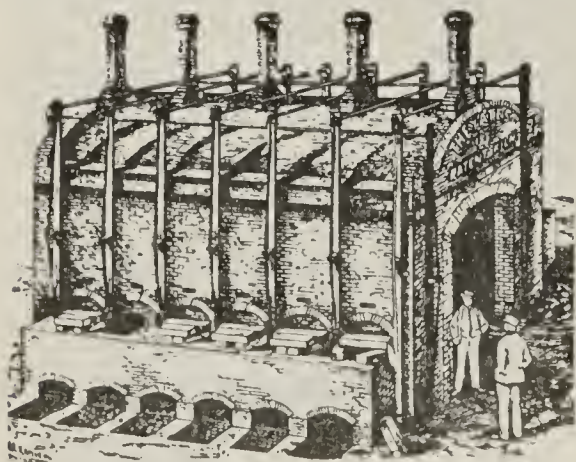
Down-Draft Kilns

for

Brick and Tile.

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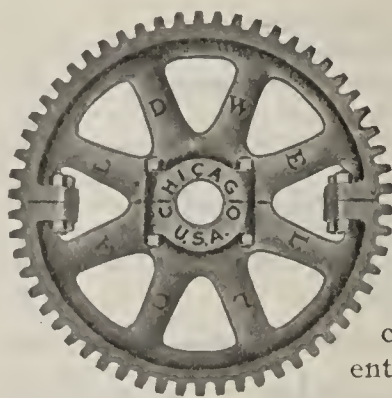
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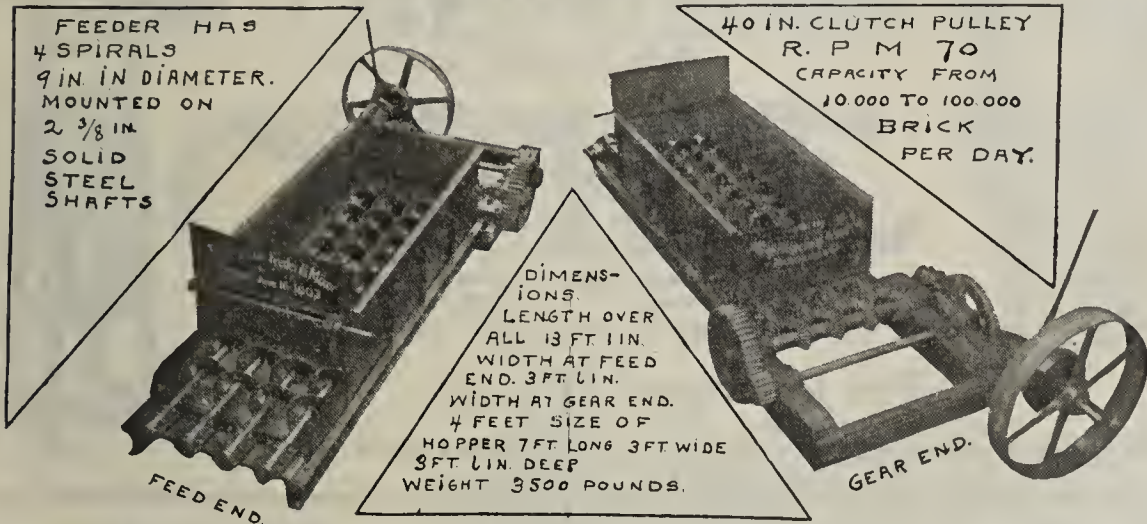
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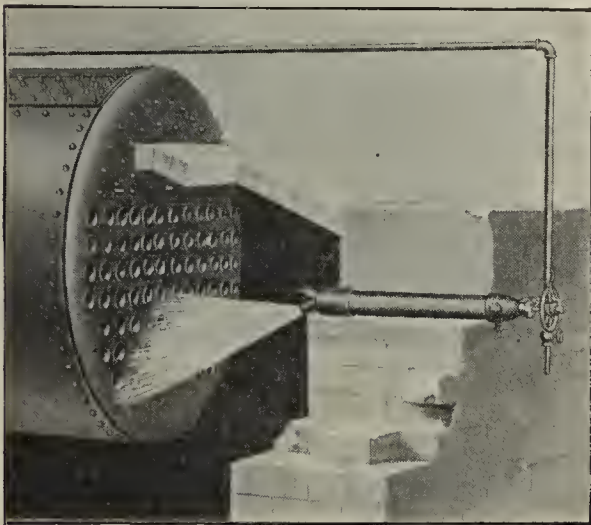
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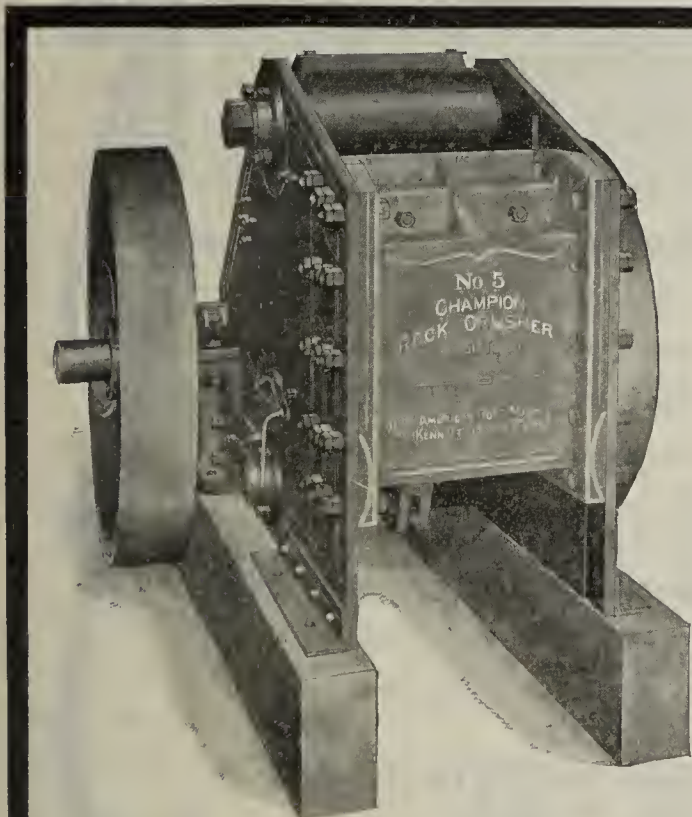
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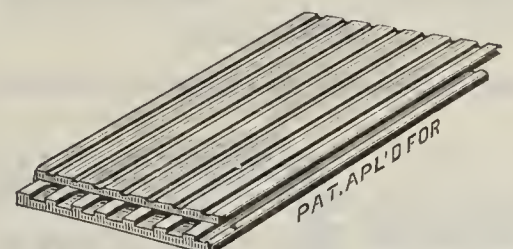
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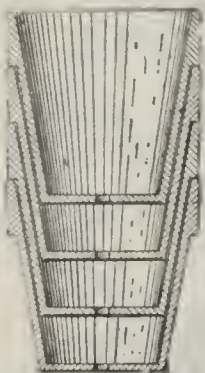
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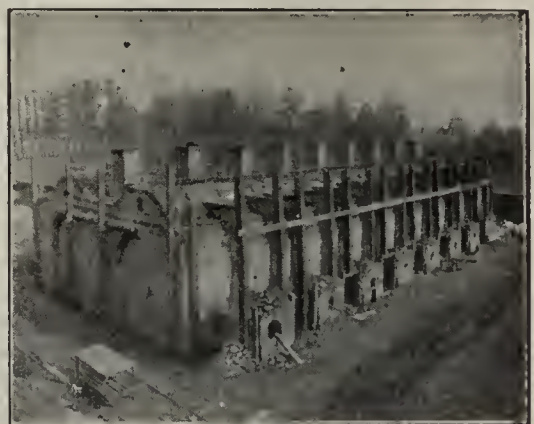
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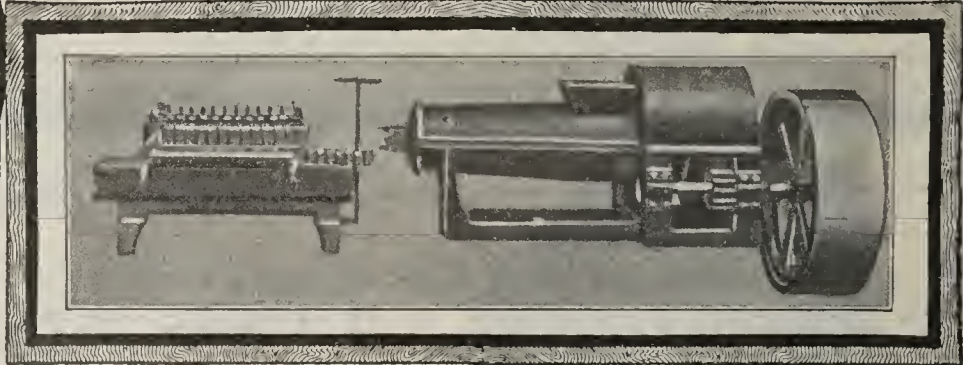
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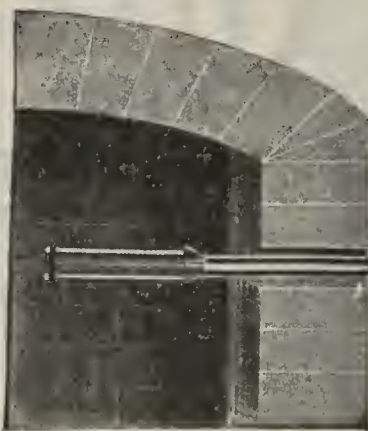
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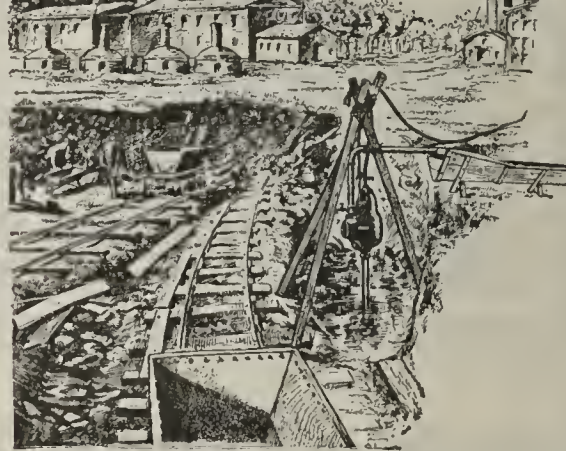
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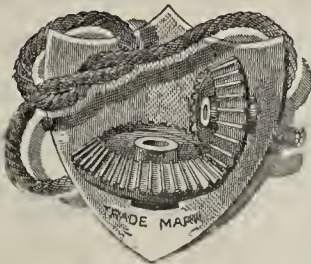
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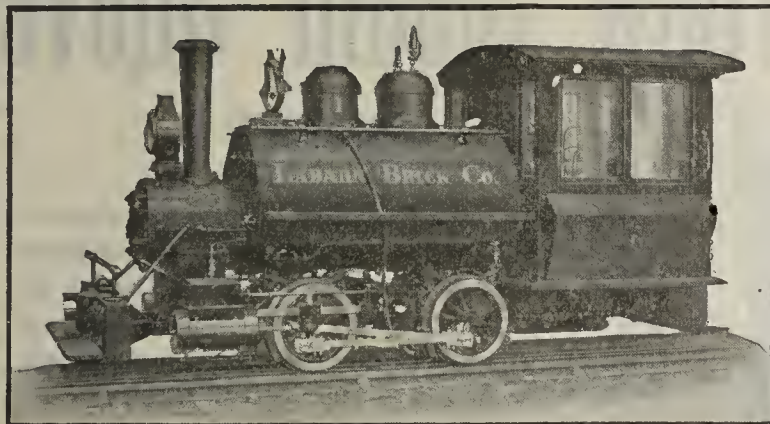
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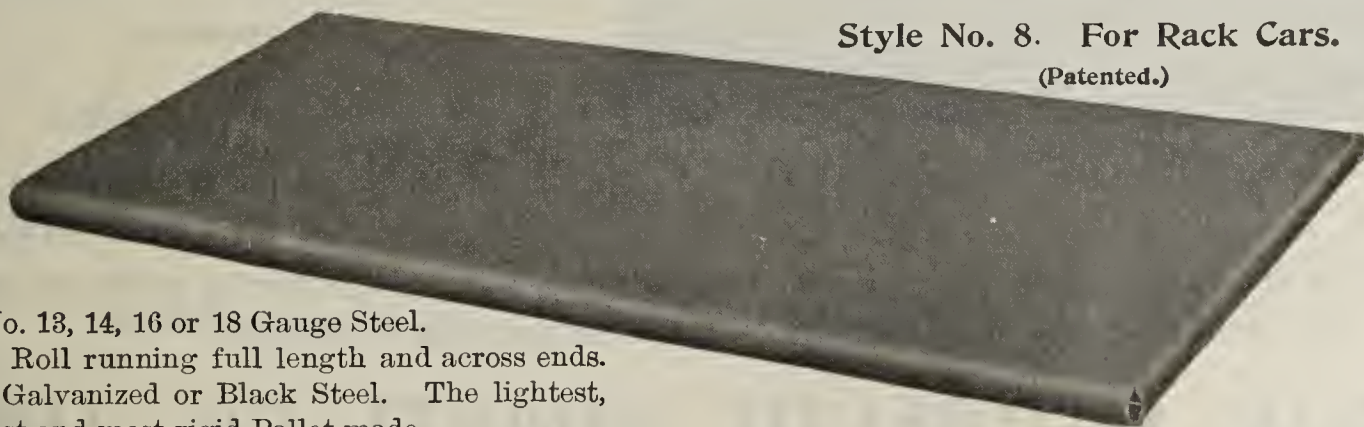
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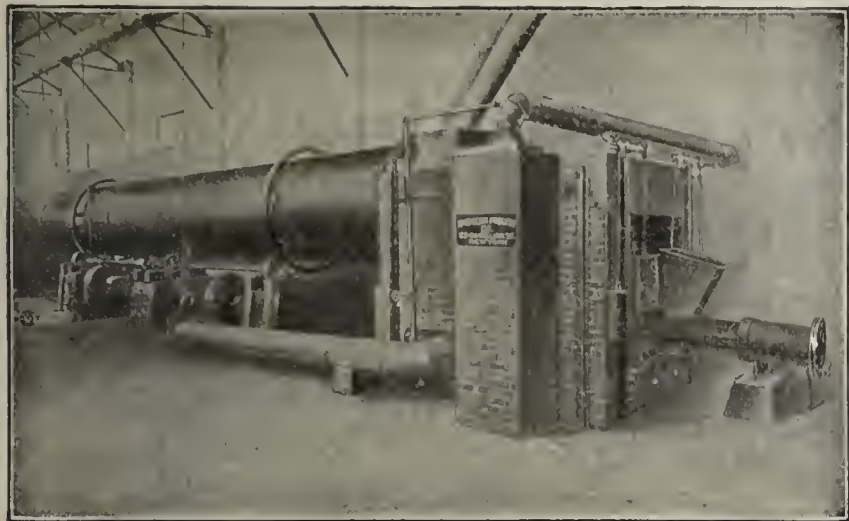
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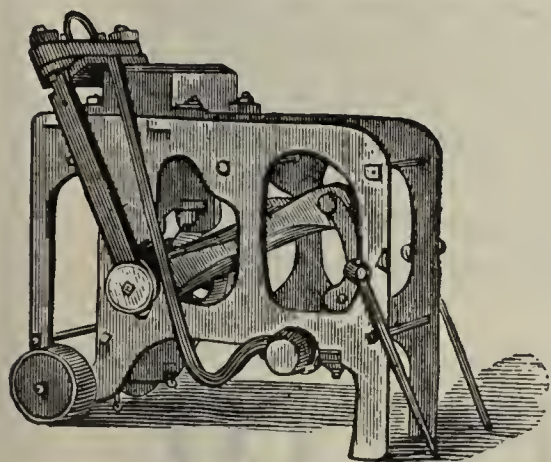
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Send for Catalog "C. B."

AMERICAN PROCESS CO.,

68 William Street, New York.

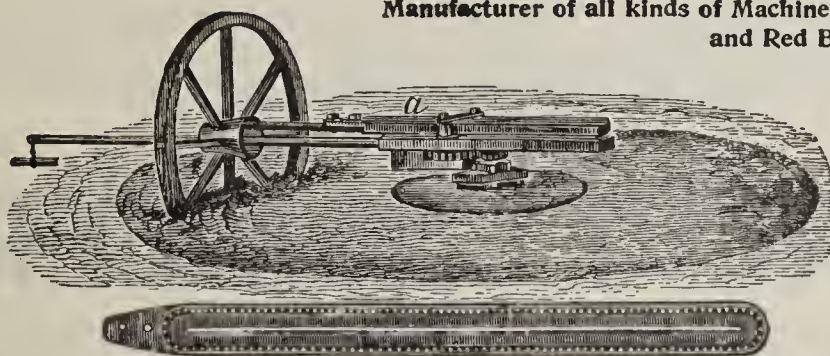


RED BRICK PRESS

Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price-List.

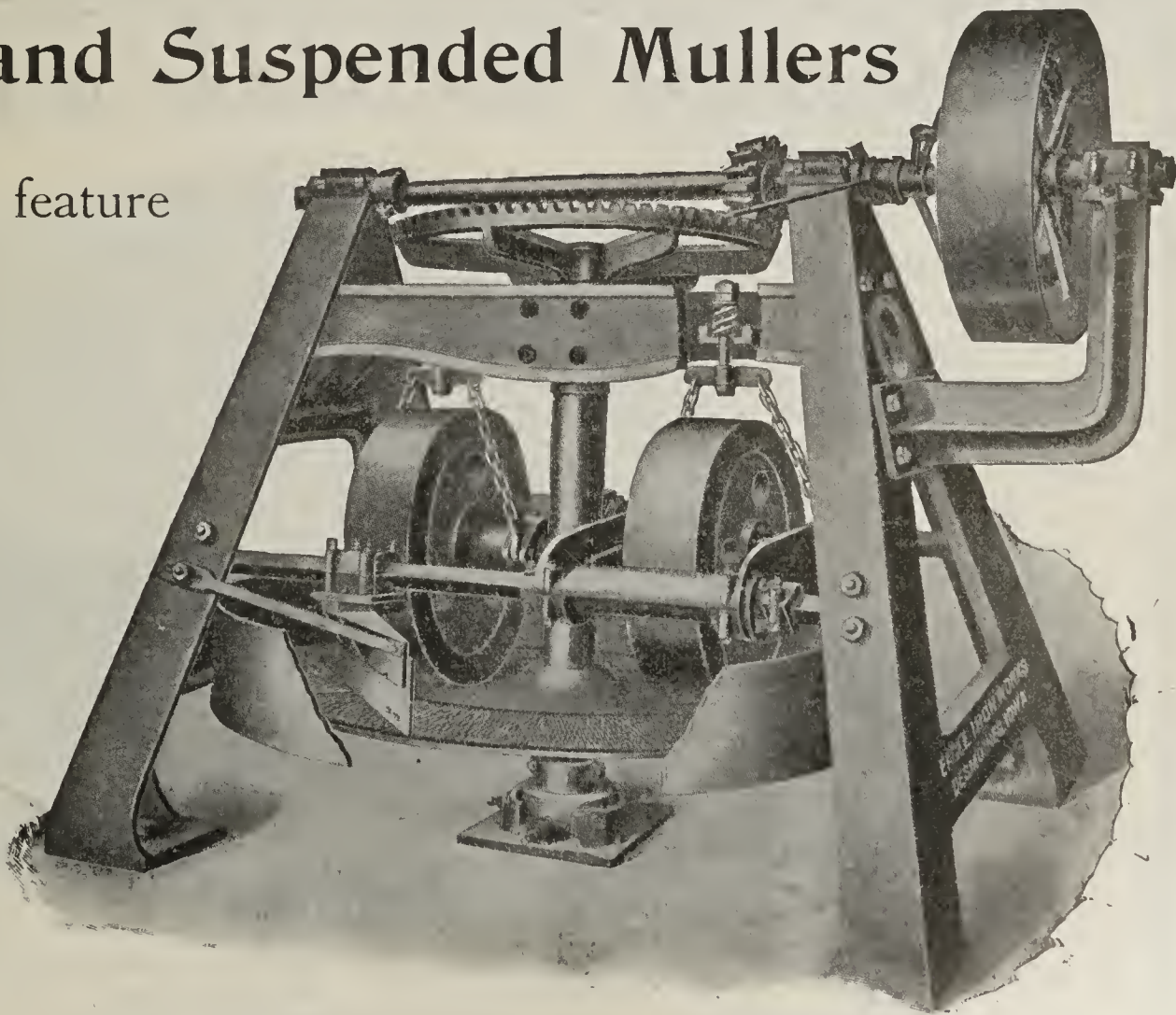
GEORGE CARNELL, 1819, 1821 and 1823 Germantown Ave. and Fifth St., PHILADELPHIA, PA.

Independent and Suspended Mullers

the distinguishing feature
of our

DRY PANS.

Other valuable features which our catalogue fully describes.



EAGLE IRON WORKS, Des Moines, Ia.

Some Interesting Facts Relating to Drying Clay Products.

Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

The Original ^{EXHAUST STEAM} Dryer is the National.

The Beaverville Brick and Tile Company.

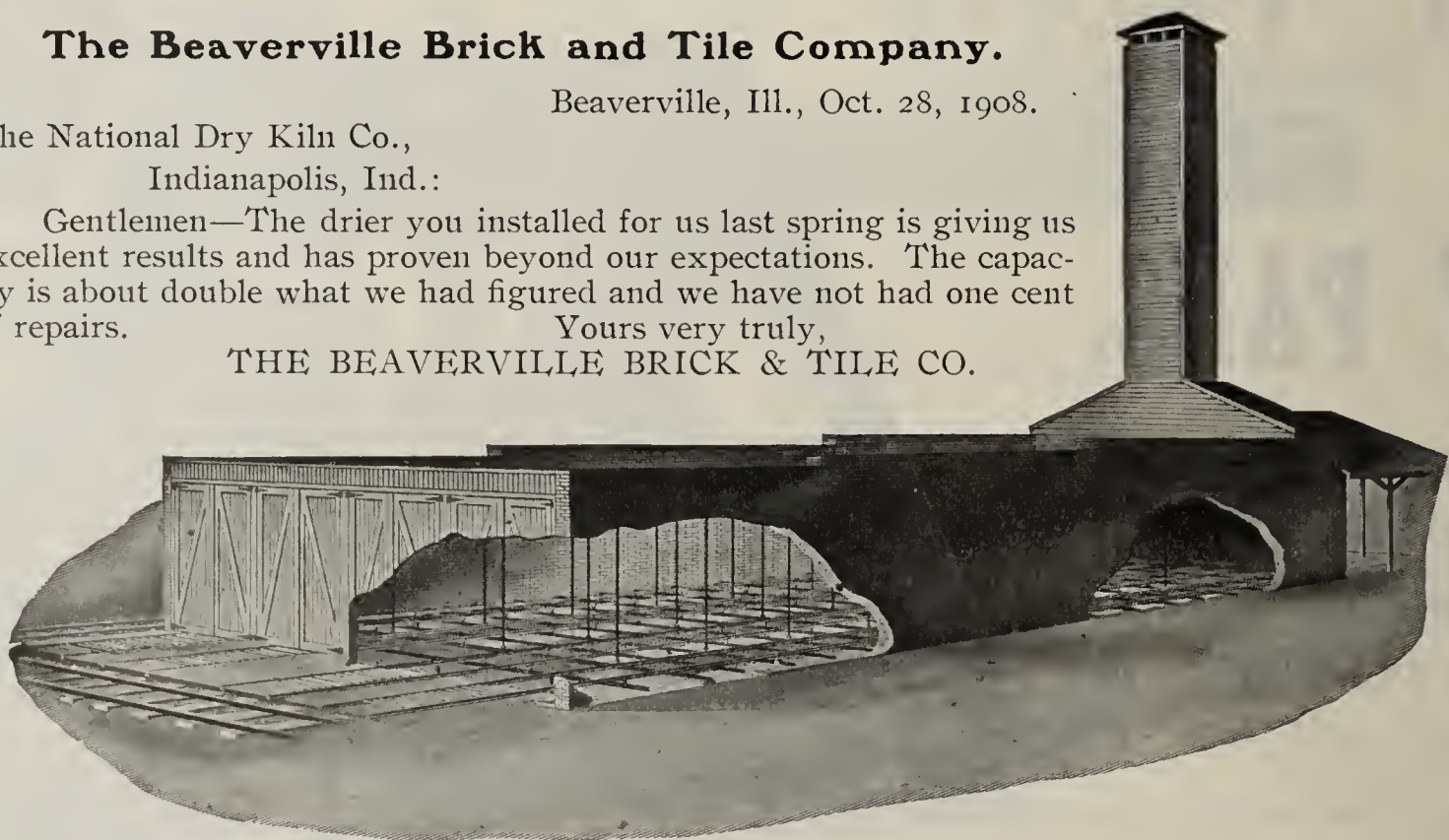
Beaverville, Ill., Oct. 28, 1908.

The National Dry Kiln Co.,
Indianapolis, Ind.:

Gentlemen—The drier you installed for us last spring is giving us excellent results and has proven beyond our expectations. The capacity is about double what we had figured and we have not had one cent of repairs.

Yours very truly,

THE BEAVERVILLE BRICK & TILE CO.



No Fan.

Steel Roof Supports.

No Engine.

Steel Roller Bearing Cars, etc.

No Fire Danger.

Steel Foundations.

Ask for Cat. 200

The National Dry Kiln Co., Indianapolis, Ind.

HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
 Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
 Paving and Common Building Brick,
 AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Under-
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 half the fuel and half the labor used on other kilns. Specially adapted for Utilizing
 Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

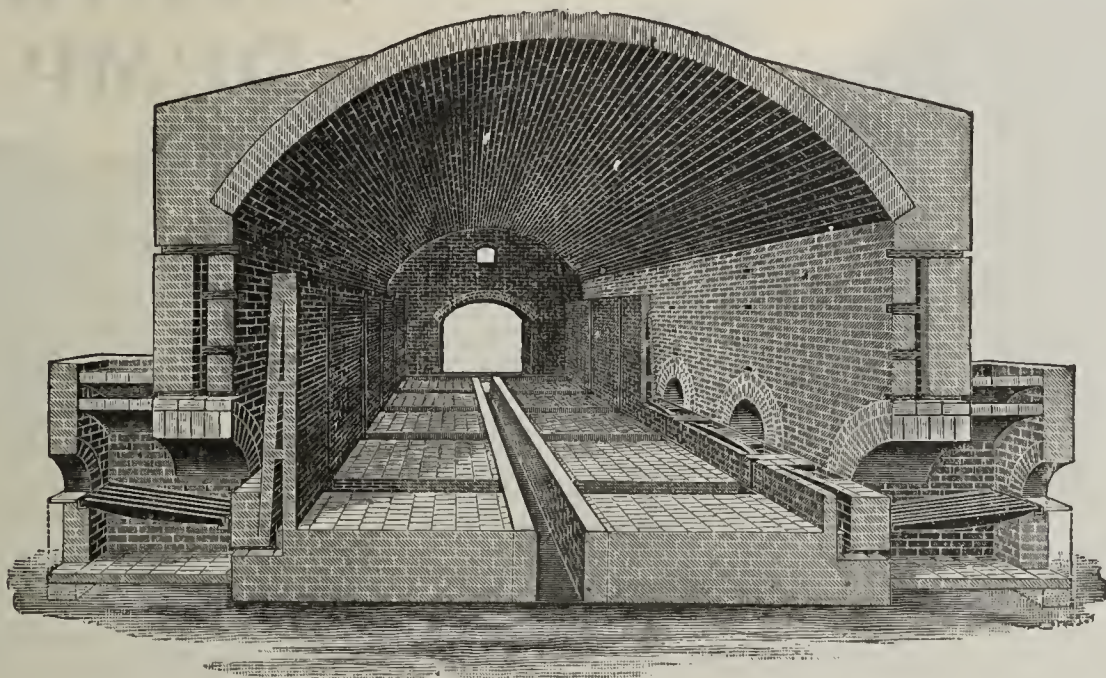
Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
 particulars
 address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.

The EUDALY DOWN DRAFT KILNS

STEAM and AIR BLOWER and HOT AIR DRYING SYSTEM



These kilns are built round or square and of any size to suit the kind of wares, and daily capacity of the plant. Burns uniform and all hard. Economical in construction and operation.

The Eudaly Combination Furnace burns any kind of fuel. This is the best furnace known for burning wood, coal, slack coal, or wood and coal combined.

The Eudaly Adjustable Steam and Air Blower is something new and is especially adapted to the burning of culm or coal dust economically.

The Eudaly System of utilizing the waste heat from cooling kilns is one of the greatest fuel savers known.

W. A. EUDALY, 509 Johnston Bldg., Cincinnati, Ohio.

Mention The Clay-Worker.



Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

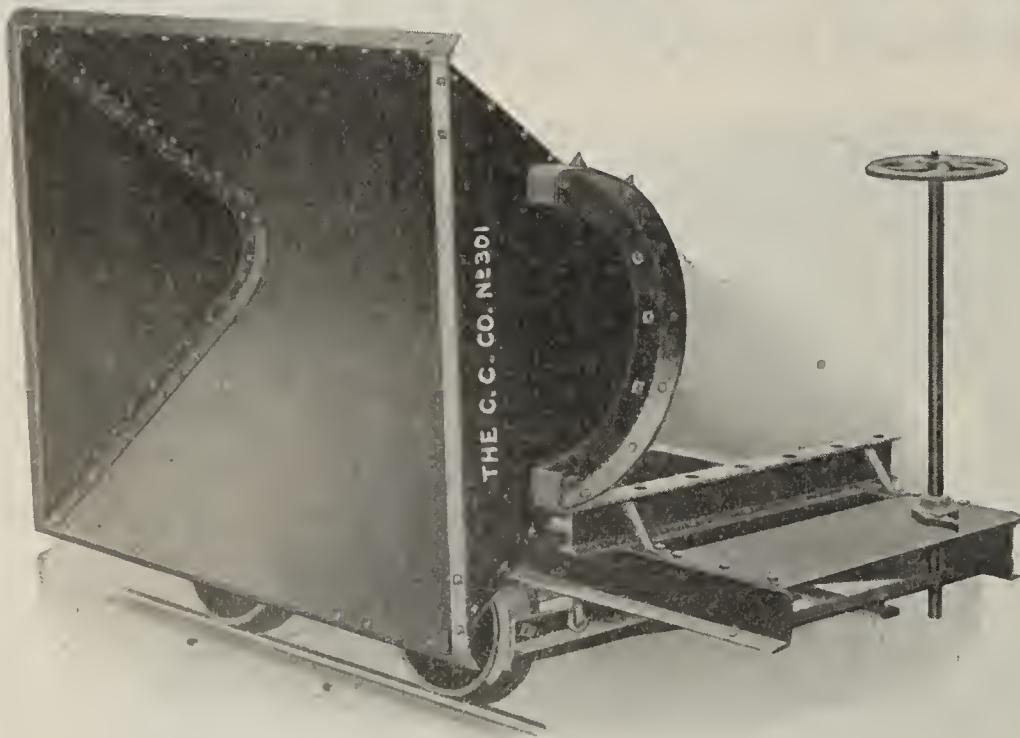
Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
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NO. 301 ROCKER DUMP CAR.

CLEVELAND DUMP CARS ARE RIGHT..

We can convince you of that
fact without difficulty through
a trial order.

Many satisfied users will also
corroborate this statement.

These cars are properly bal-
anced, strongly constructed,
run easily and clear the load
thoroughly.

Note these features carefully
in purchasing your equipment.

The Cleveland Car Co.

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Manufacturers of Industrial Railway Equipment for all Classes of Service.

We manufacture a complete line of

BRICK MACHINERY

and make a specialty of equipping yards.

REGULAR BRICK BARROWS.

The best built. Price \$6.50 each.

Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)

There's a fine LEG.
Never can be broken.
Shoes that do not mar
the yard and that slide
easily.

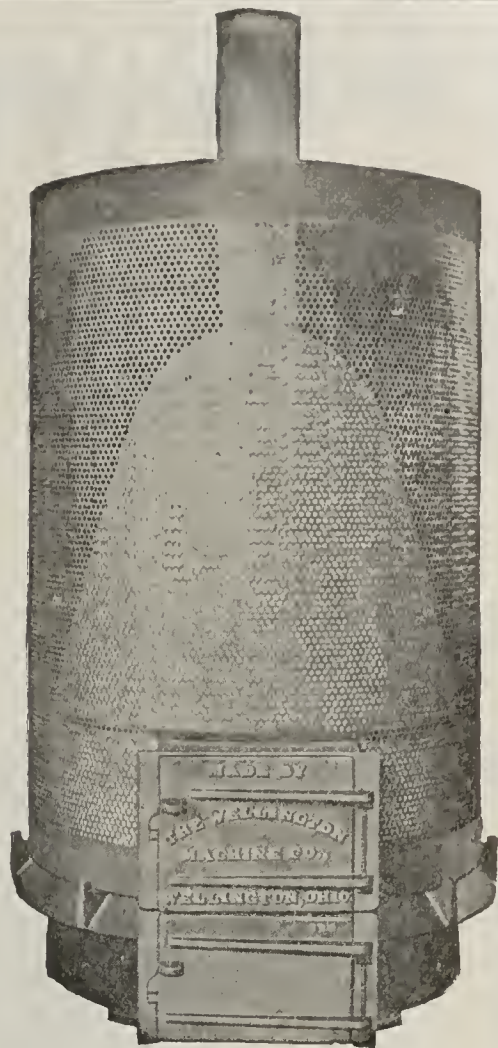


For catalogue and any further information address

James W. Hensley,

Successor to S. K. Fletcher.

Indianapolis, Ind.

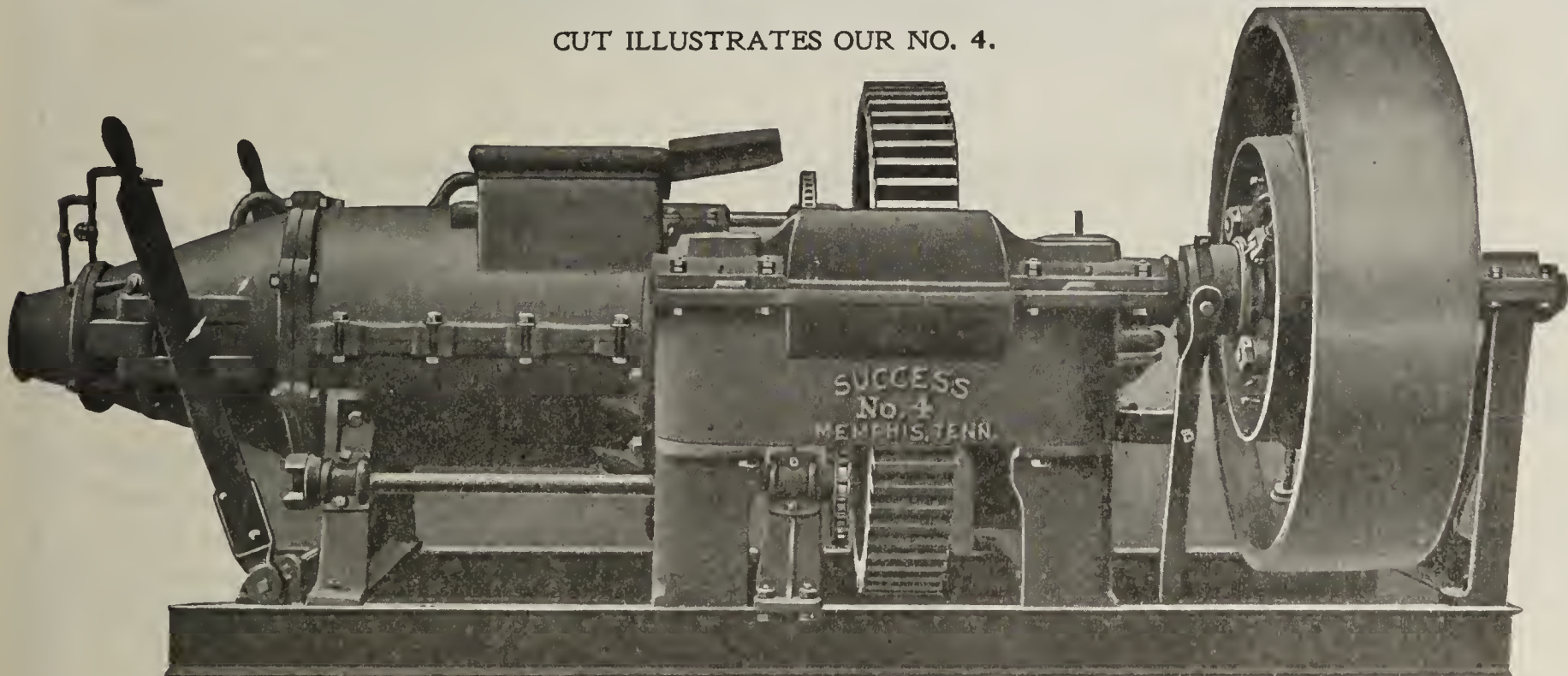


SAND DRYER.

Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height, 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for ; write us.

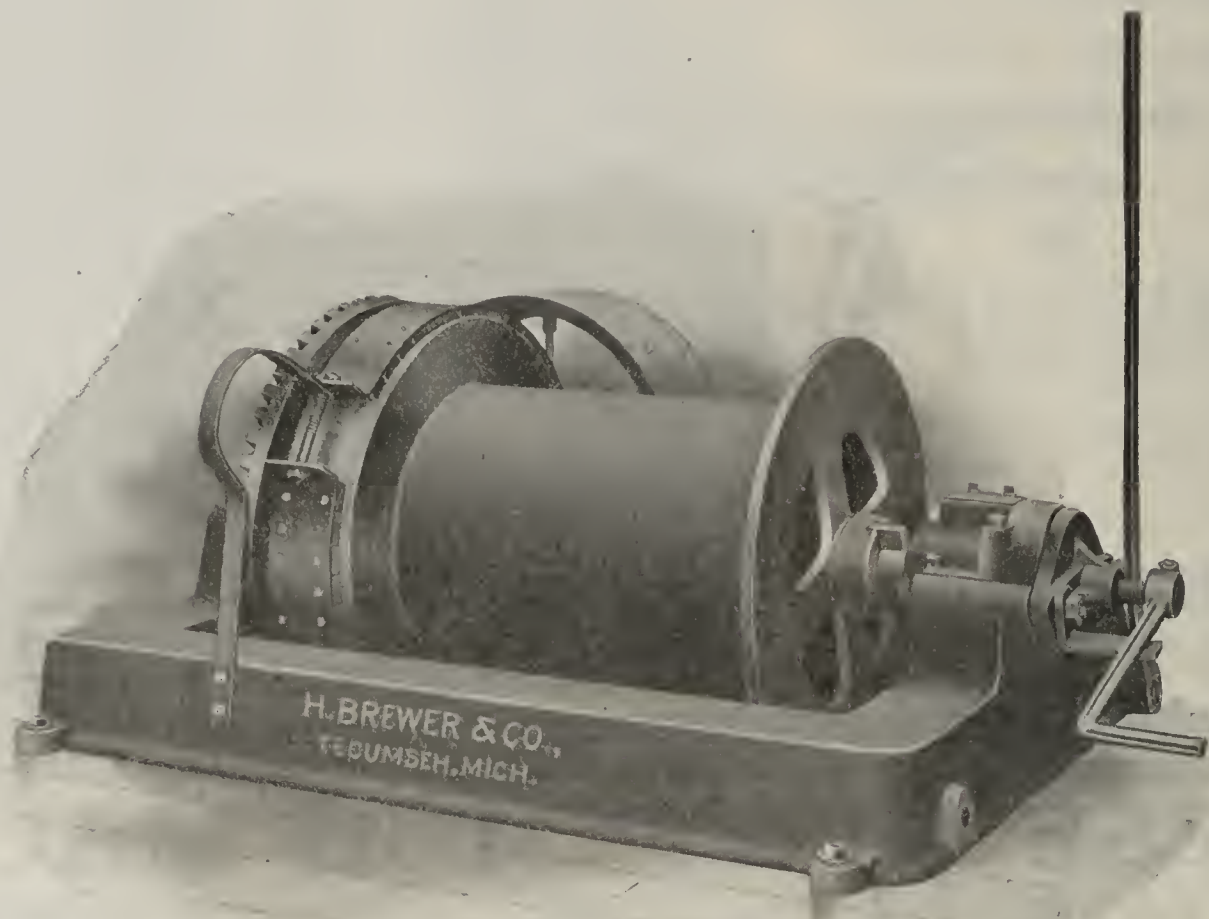
Success Brick Machinery Company,

Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

504 Goodwyn Institute, Memphis, Tenn.

CLAYWORKERS' HOISTS.

The Brewer line of Clayworkers' Hoists comprises spur-gearred, bevel-gearred, spur-friction and bevel-friction patterns; large and small sizes. All kinds of good Hoists but no light, weak-backed affairs which yield to a little extra load or a little abuse.



This is a Heavy Bevel Geared Pattern.

Weight, 3,000 pounds. Drum, 20-in. diameter, 28 in. long. Flanges, 30 in. diameter. Frame cast in one piece. Drum, friction head and brake wheel cast together in one piece. Bearings, self-oiling. Brake band, 5 in. wide. It is big, strong and heavy enough for anybody.

Complete Catalogue for the asking.

If Marked



It's Good.

H. BREWER & CO.,

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If Marked



It's Good.

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These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

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An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

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With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

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A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

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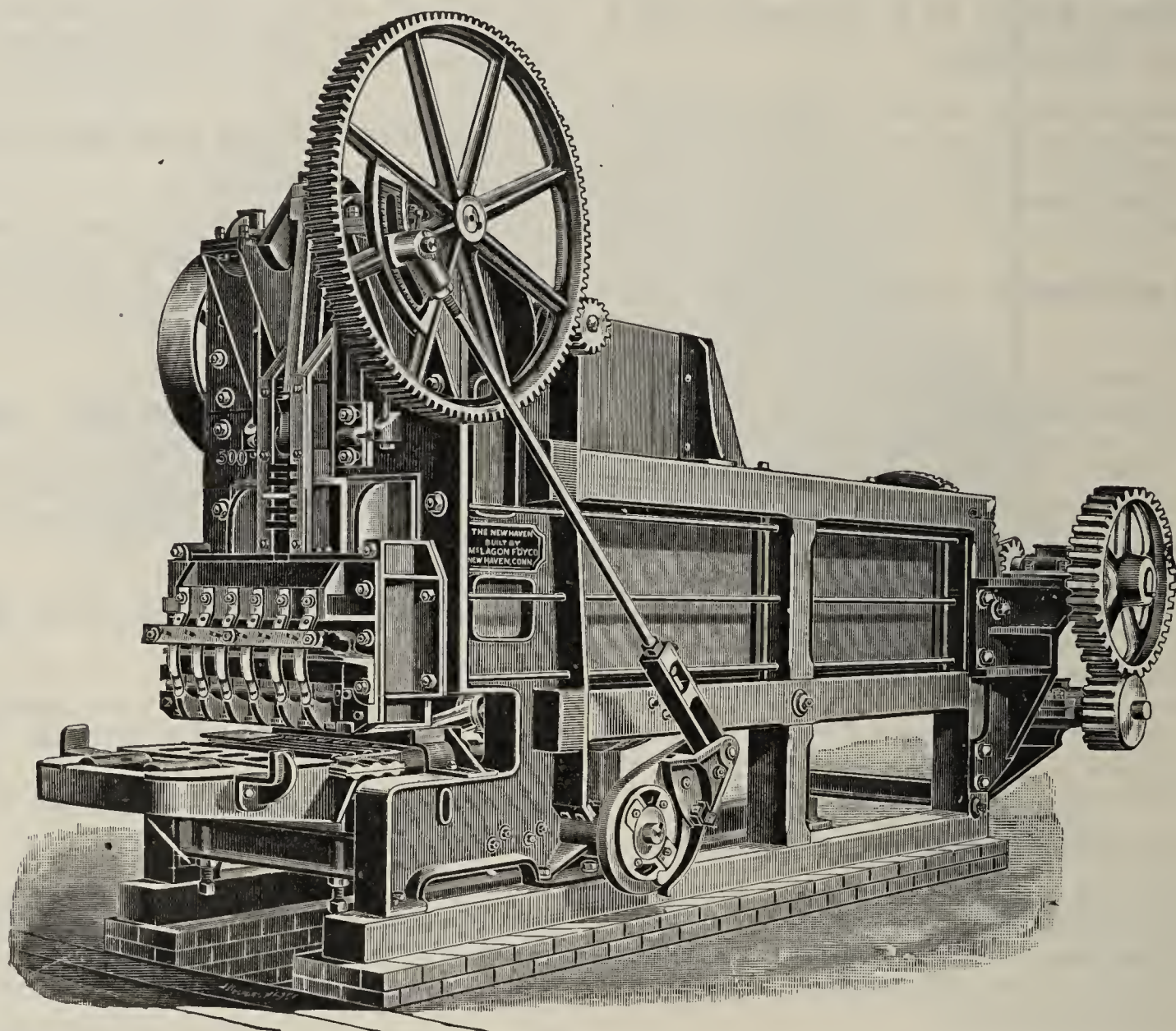
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Soft Clay Brick Machines

Are the only kind we build, and it is our aim to BUILD THEM WELL. IF NEW HAVEN Brick Machines were built just to sell, they might be built cheaper, and for awhile more be sold. INSTEAD, they are built to DO THE WORK, and they do it.

Stout Shafts, long bearings, large oil holes, strong gears, steel liners and other details in proportion. They are the kind

THAT DON'T BREAK DOWN EVERY DAY.



"New Haven" Horizontal Brick Machine.

"ENDURANCE THE CROWNING QUALITY"

of the New Haven Brick Machines. Their economy does not begin and end with their purchase. It lasts as long as they are in operation. It is not in low first cost, but in efficiency, durability, economy in operation and lack of necessity for repairs. They earn a dividend every day.

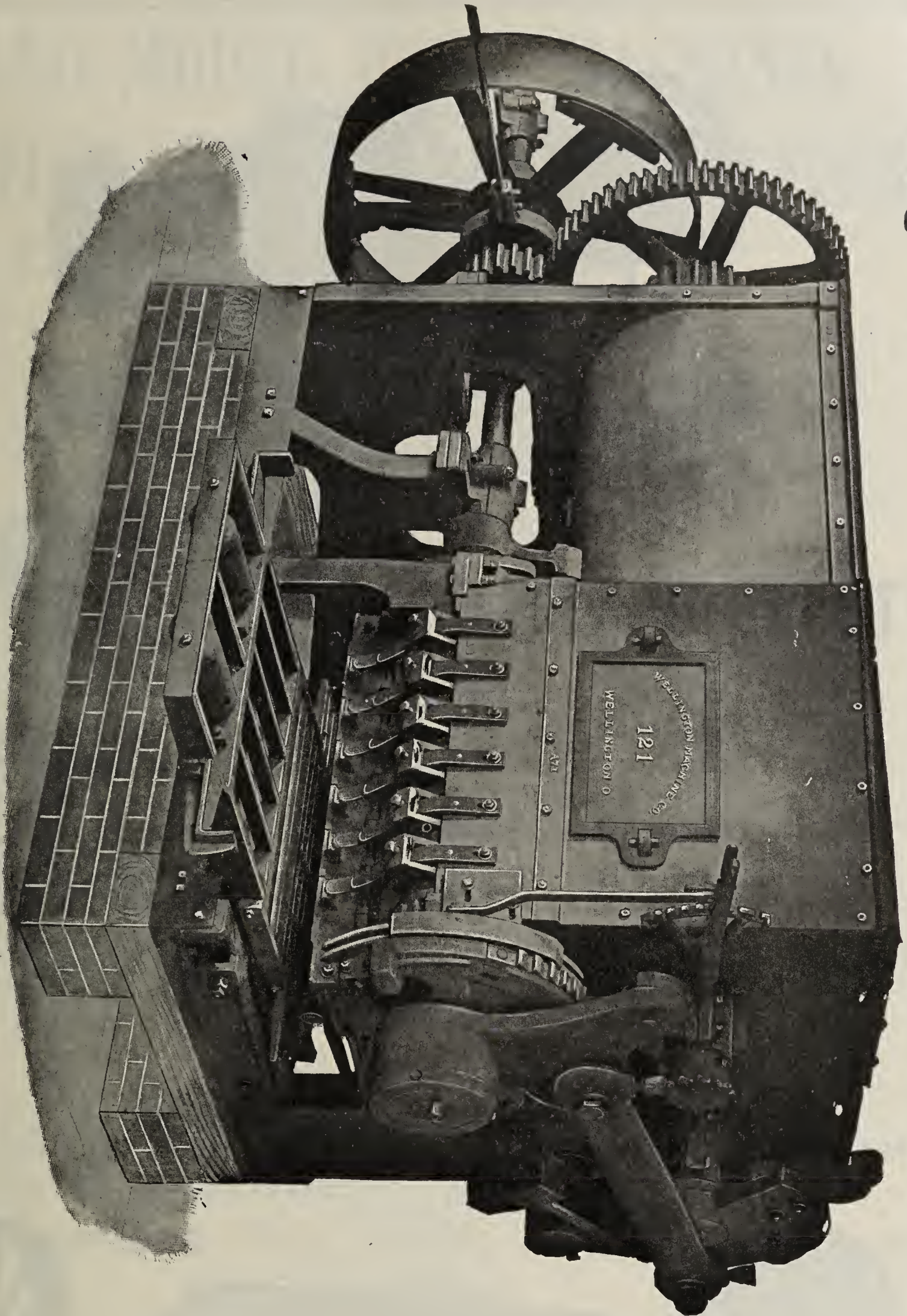
The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

OVER
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"Monarch"
Brick
Machines
in use.

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Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
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Smooth-roll
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Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

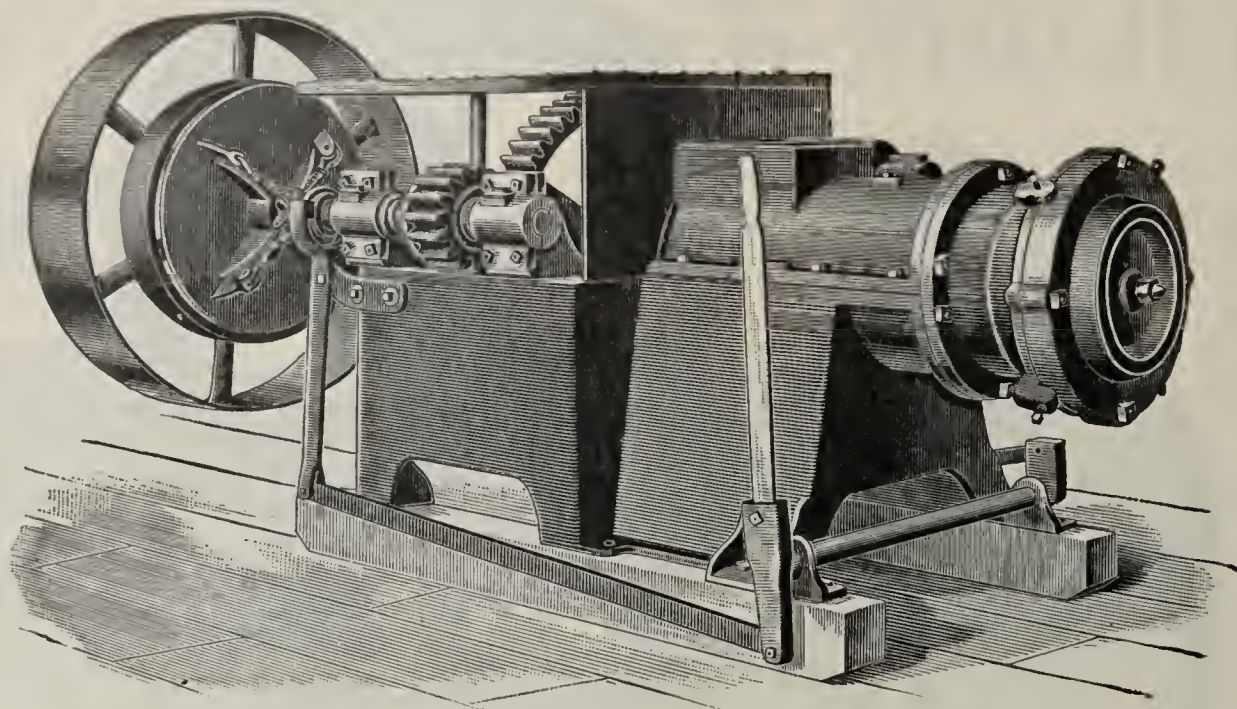
The Wellington Machine Co.,

WELLINGTON,

OHIO.

Send for Catalogue.

Mention the Clay-Worker.



NO. 25 LEADER BRICK AND TILE MACHINE.

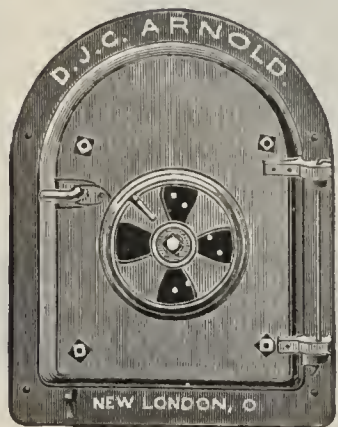
THE TARIFF

Will not be changed enough so you'll notice it. Therefore, you need not hesitate longer to prepare for increased business. Farmers are going to spend some of their wheat money for tile. The "infant industries" are going to spend some of their protection profits for buildings to increase their capacity. And the rest of us will HAVE to hustle. You have heard about the early bird. Better get busy. And don't forget that we are prepared to supply your wants.

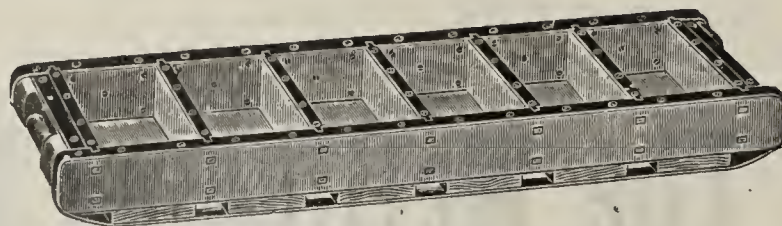
THE ARNOLD-CREAGER CO.,

Shops and General Office:

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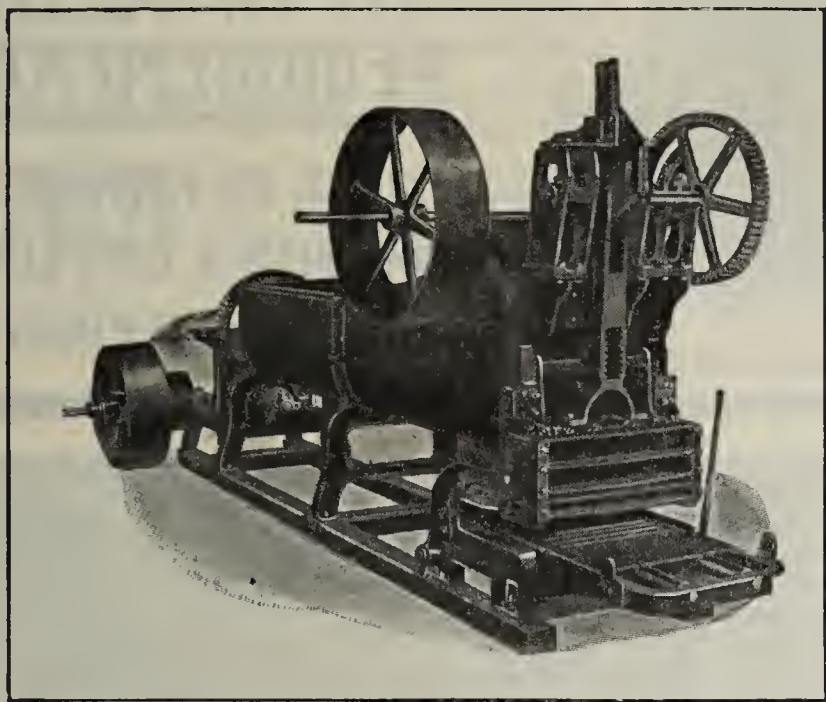


MACHINE MOULD
STEEL LINED FULL DEPTH AT ENDS
OF BRICK.



TRUCK WHEEL

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

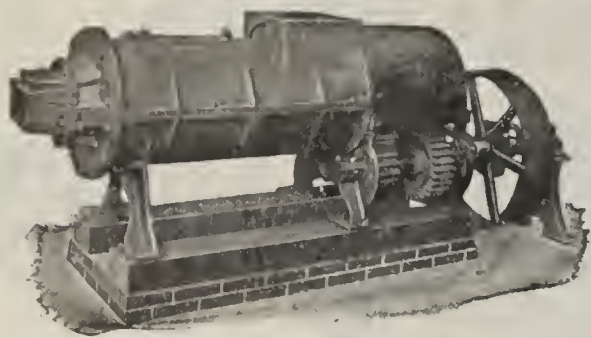
We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

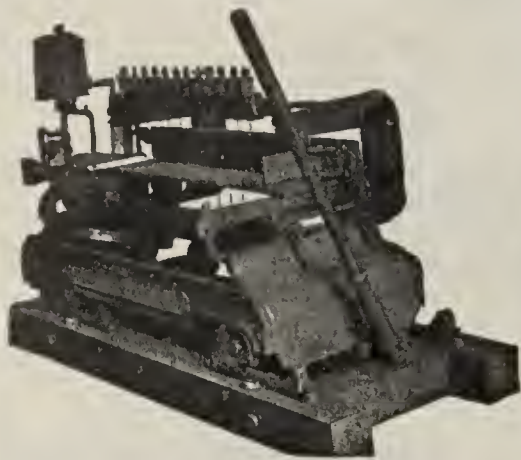
Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

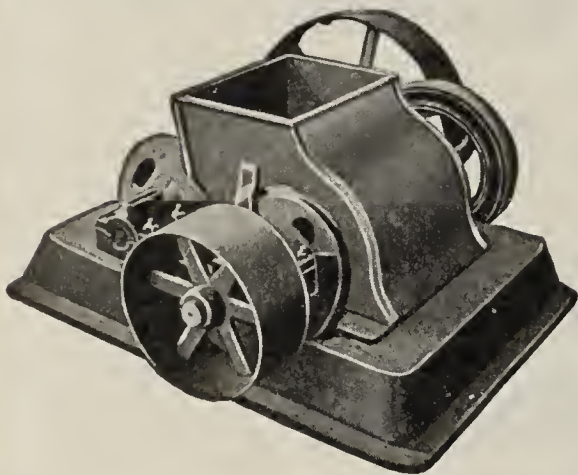
Mention The Clay-Worker.



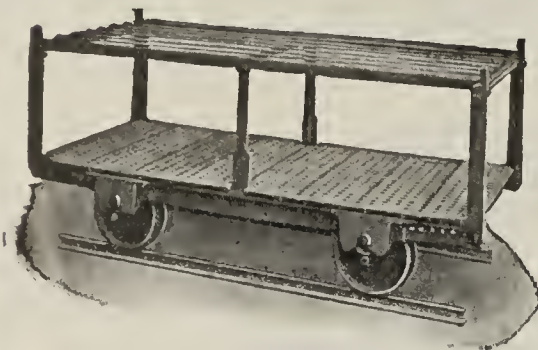
NO. 1 AUGER BRICK MACHINE



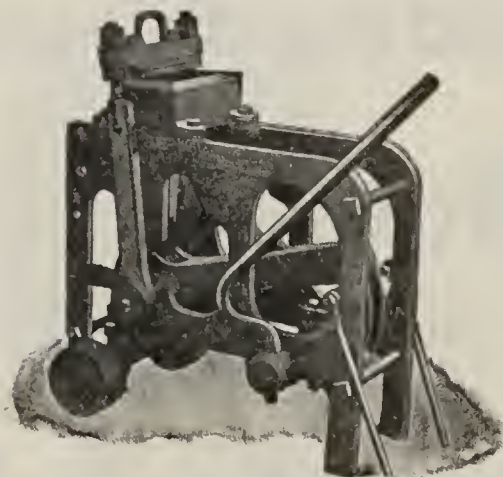
WIRE-CUT BRICK TABLE



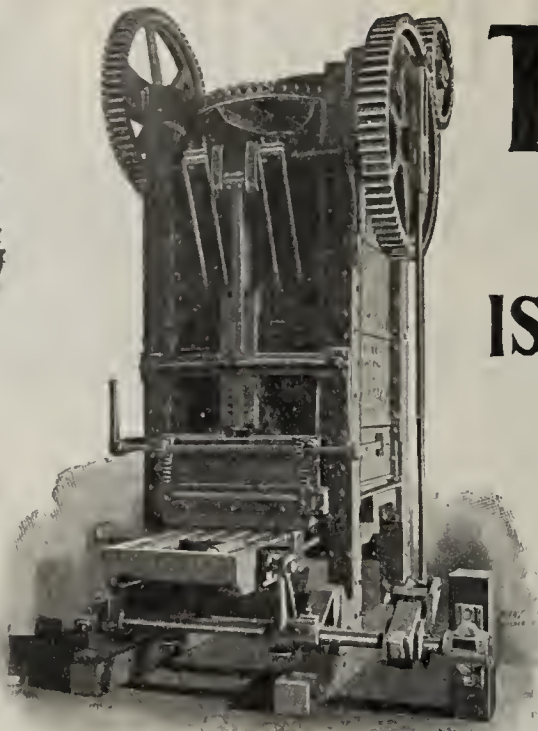
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HAND REPRESSES



STYLE "A" BRICK MACHINE

THE "MARTIN"

MACHINERY

IS FULLY GUARANTEED

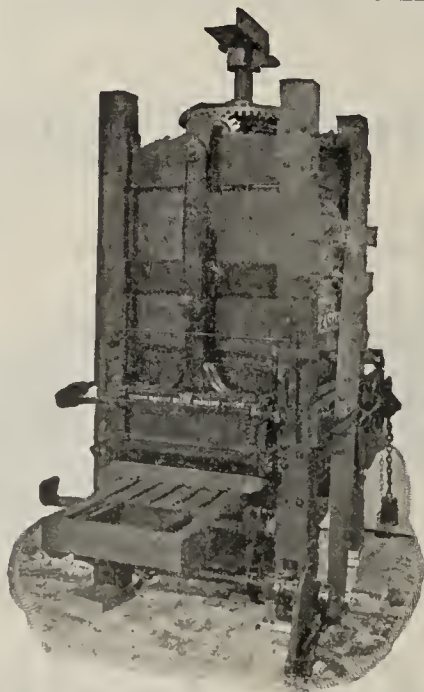
TO MEET ITS

REQUIREMENTS

LET US FURNISH
YOU WITH A COMPLETE
SET OF DRAWINGS



HANDLING BRICK FROM THE MACHINE TO THE DRYERS.



HORSE POWER MACHINE

LET US TALK OVER THE DRYER
QUESTION WITH YOU. THIS IS
NO EXPERIMENT BUT A PERFECT
SUCCESS. WE USE--NO CARS,
NO TUNNELS, NO FANS. DRYER
PRACTICALLY FIRE-PROOF.

WRITE FOR PARTICULARS
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

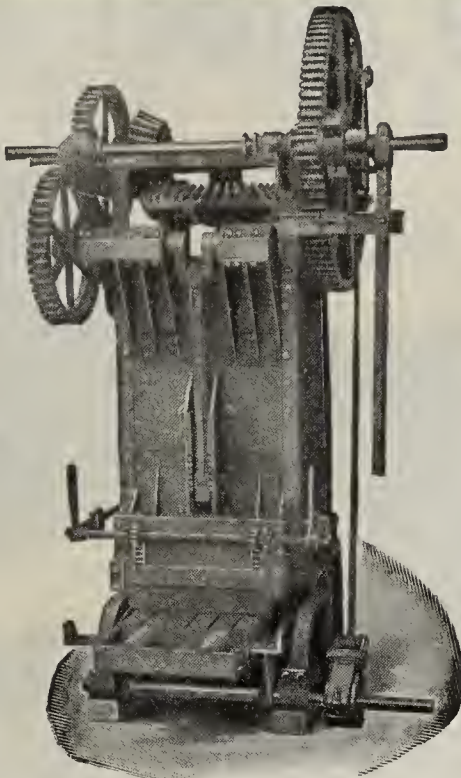
ADAPTED FOR EITHER SOFT OR STIFF-MUD BUILDING BRICK

FULLY COVERED BY PATENTS

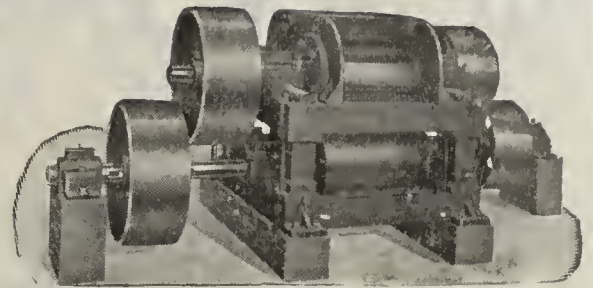
PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

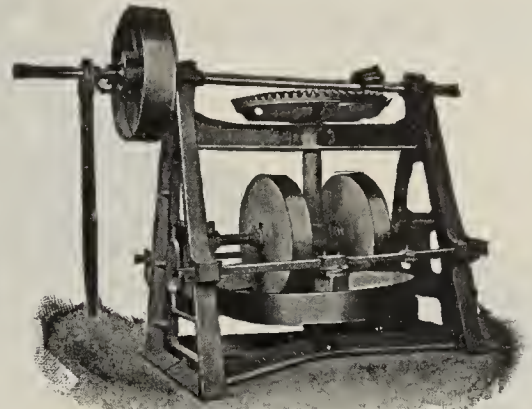
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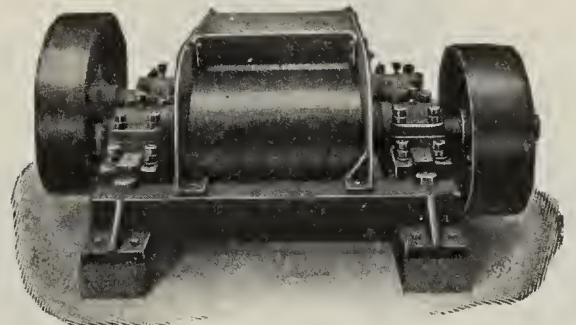
STYLE "P" BRICK MACHINE



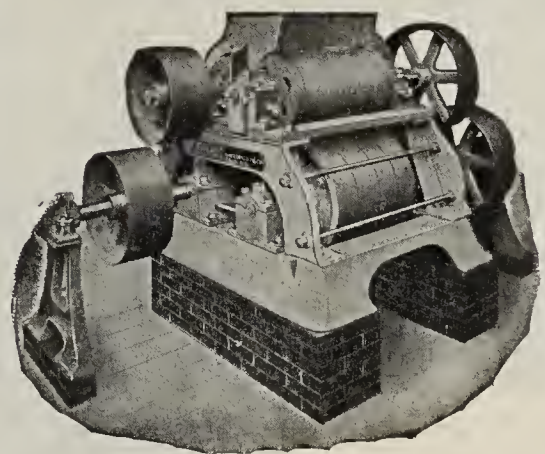
STYLE "P" CRUSHER



DRY OR WET PANS



DISINTEGRATOR



4-ROLL CRUSHER



THE BRICK COMING FROM A "MARTIN" PATENT DRYER

THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

WRITE
FOR
PRICES



SAND DRYER



STEAM POWER REPRESS

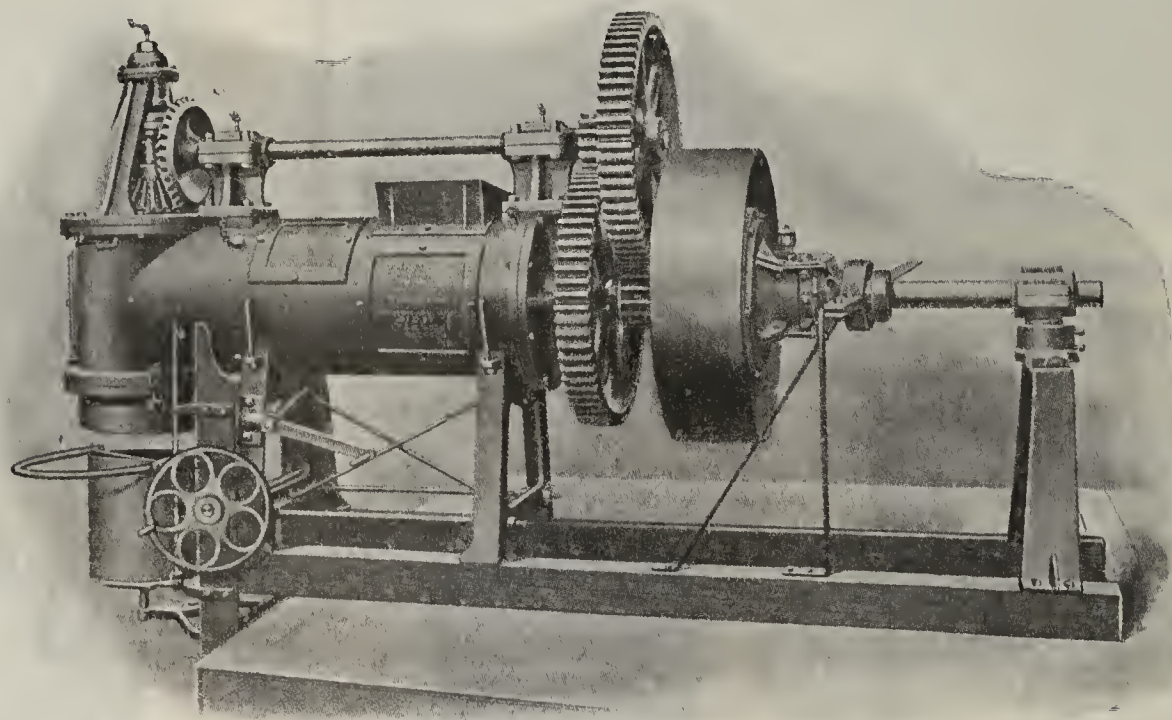
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

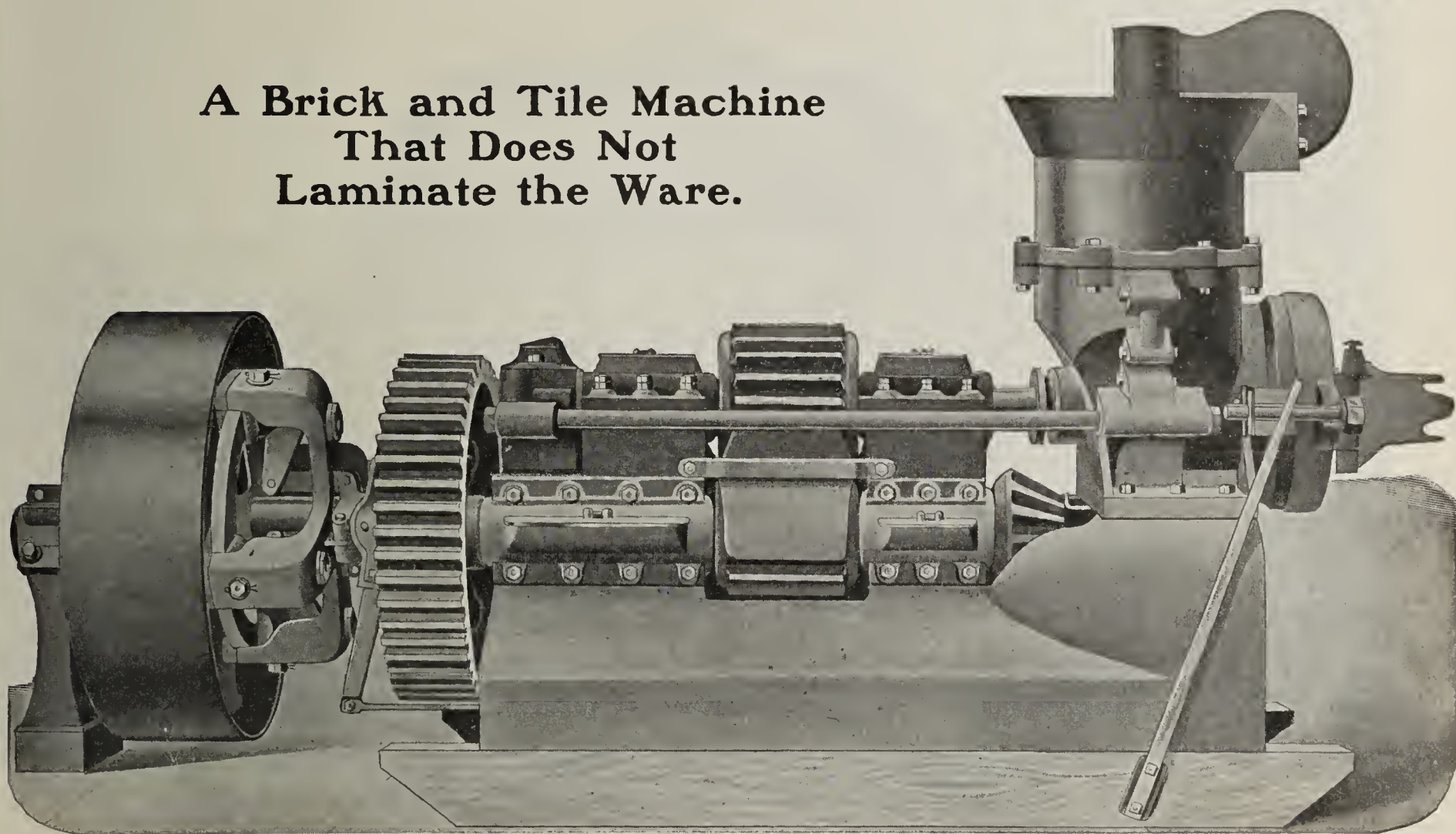
See ad on page 11.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



The Big Wonder Brick and Tile Machine.

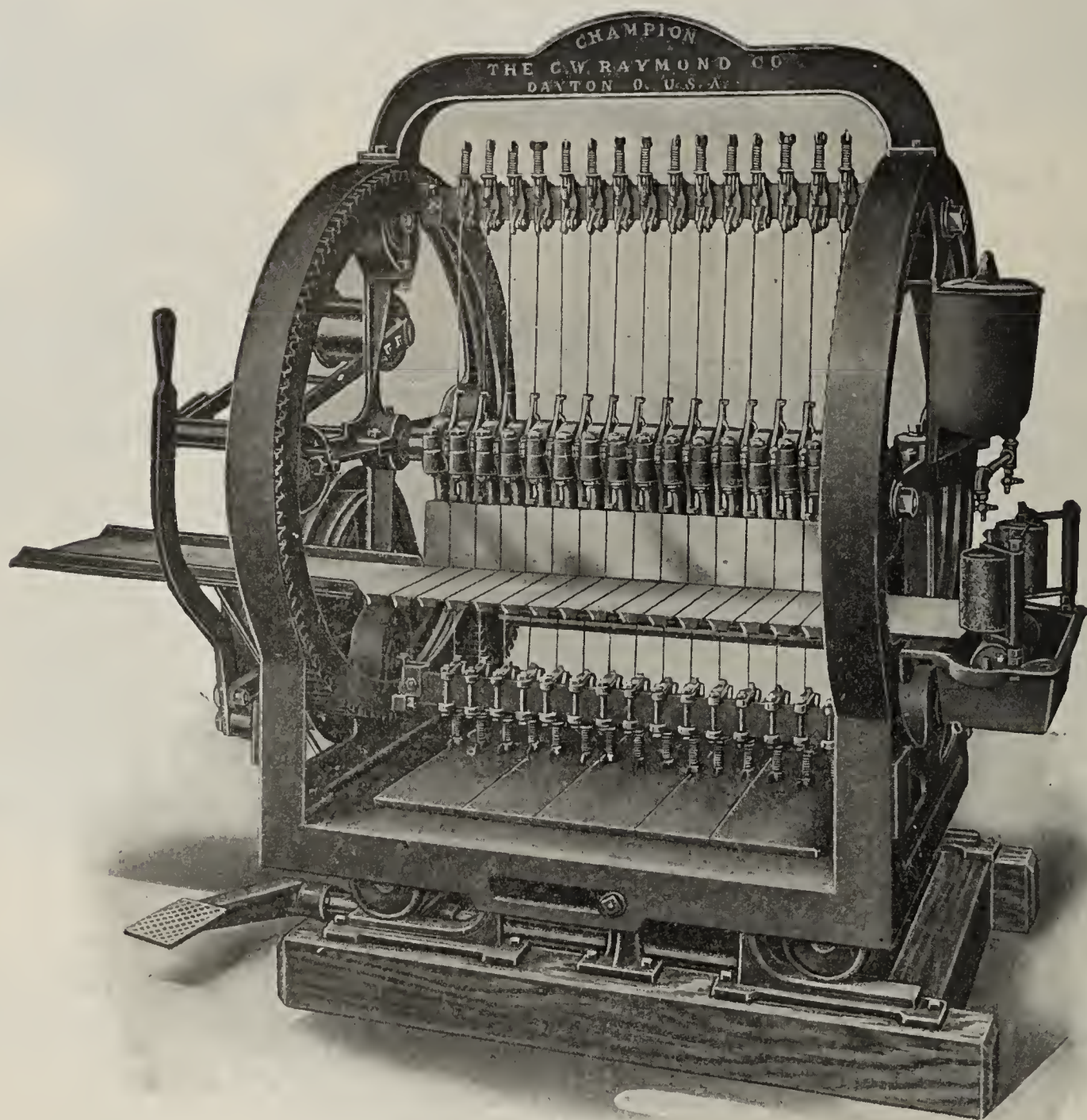
We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

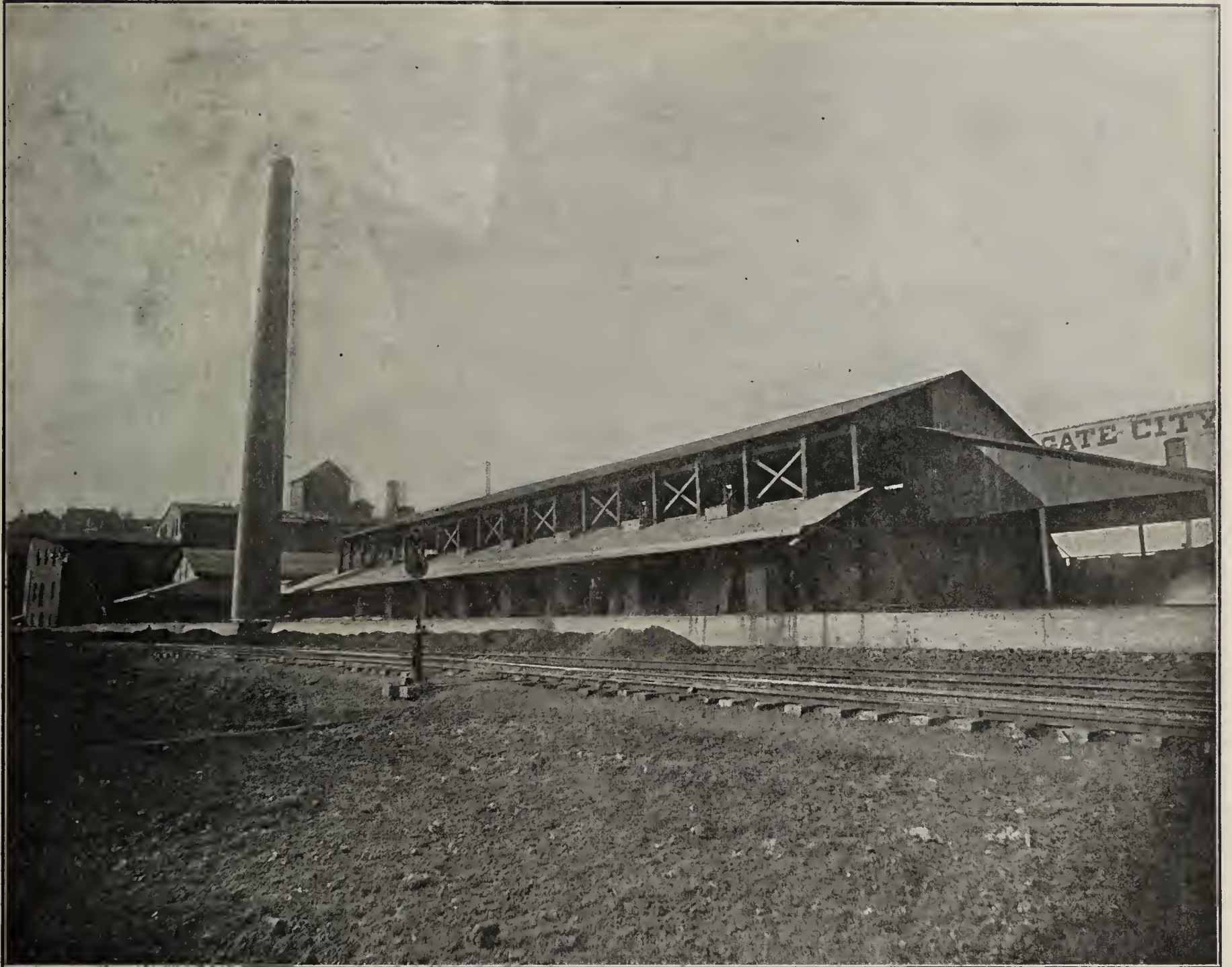
THE WALLACE MFG. CO.,
FRANKFORT, IND.

Imperative demands from all sections of the country for a cutting table to accurately cut stiff mud face brick has brought out the Champion, the next upward step in the evolution of Rotary Cutters. It is semi-automatic, and all of the desired qualities are there; we find nothing to improve about it. It has won its way by sheer merit. It has the good will of every face brick maker who uses it, and many more who have but seen it. It is chock full of perfection. We haven't room to tell you all about it here, but write now.

THE C. W. RAYMOND COMPANY,
DAYTON, OHIO, U. S. A.



The Youngren Continuous Gas Fired Kiln



As Installed at Omaha, Neb.

We are now ready to furnish licenses for the building of the Youngren Continuous Gas Fired Kiln.

The great labor saver and the wonderful fuel saver. It will give you a profit while your competitor is selling at cost. He can't stand up against your 60% to the good, besides the uniformity of burn obtained by no other method.

These claims are neither radical nor visionary, but susceptible of the highest proof, and we are ready to give this proof to you.

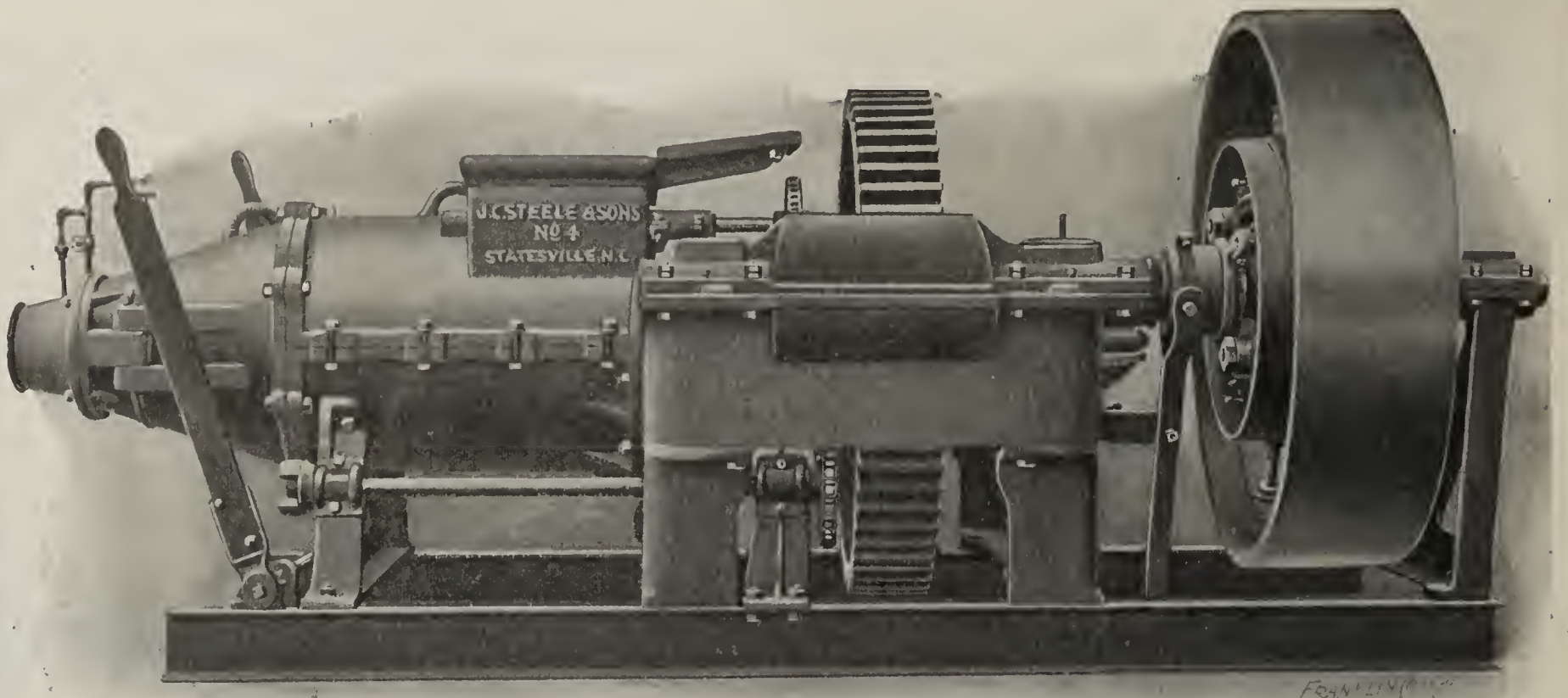
The C. W. Raymond Company,

Exclusive Licensees of the Youngren Patents.

DAYTON, OHIO, U. S. A.

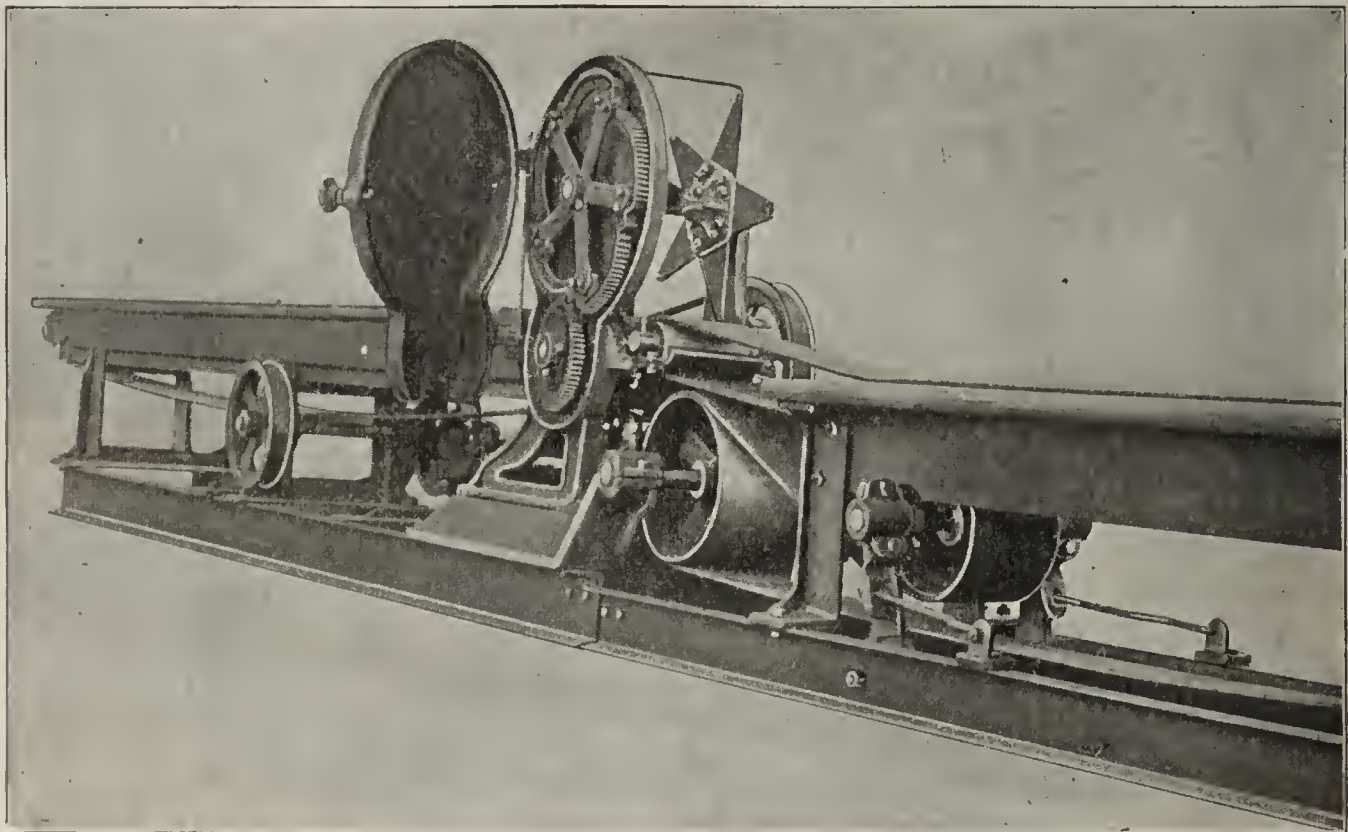
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Ask the Man Who Owns One.



No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

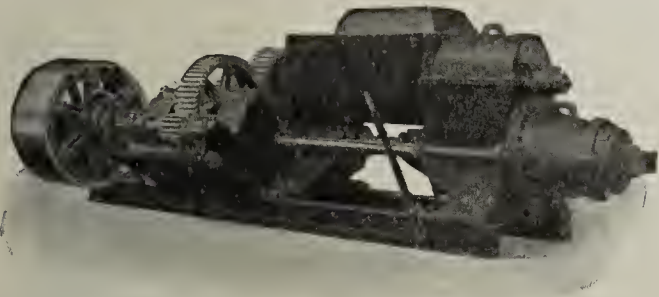
J. C. STEELE & SONS

STATESVILLE, N. C.

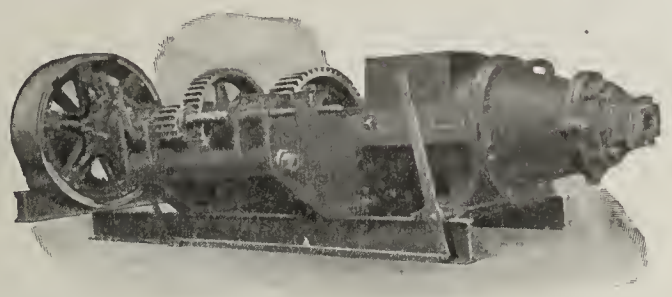
Success Brick Machinery Co., Memphis, Tenn., Western Agents.

Mention The Clay-Worker.

Modern Clayworking Machinery



THE CANTON SPECIAL
125,000 Daily Capacity.

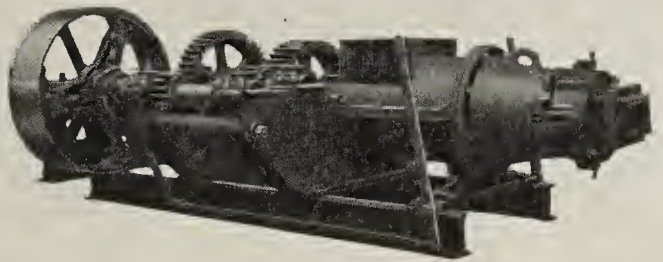


NO. 11 AUGER MACHINE
100,000 Daily Capacity

Single and
Combined
Brick
Machines
of any
Capacity



NO. 14 COMBINED MACHINE
25,000 to 40,000 Daily Capacity

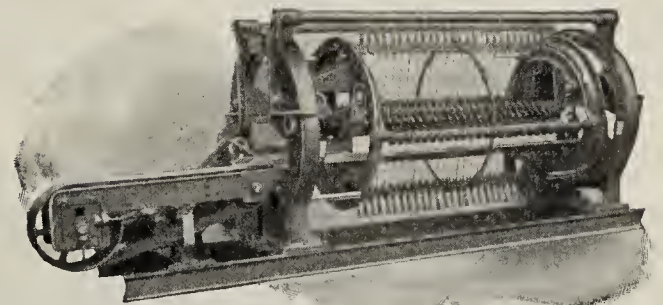


NO. 8 AUGER MACHINE
25,000 to 40,000 Daily Capacity

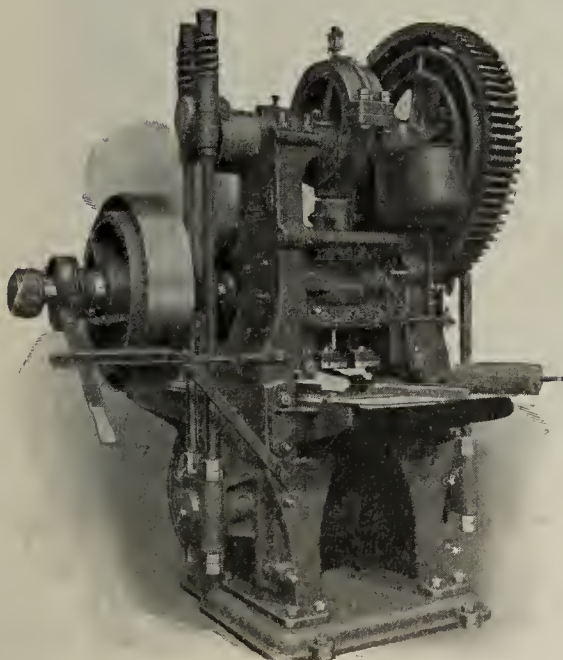
Rotary and
Side Cut
Tables
for Hand
or Power



12 FT. "C" PUG MILL

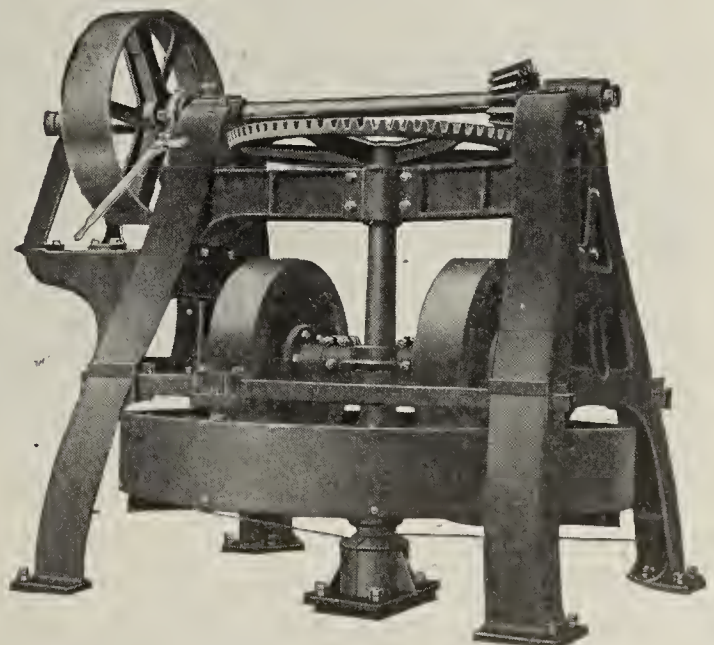


ROTARY AUTOMATIC TABLE
Daily Capacity up to 125,000



CANTON REPRESS

Pug Mills
Screens
Dry Pans
Elevators, etc.
and the
Canton Repress



9 FT. DRY PAN

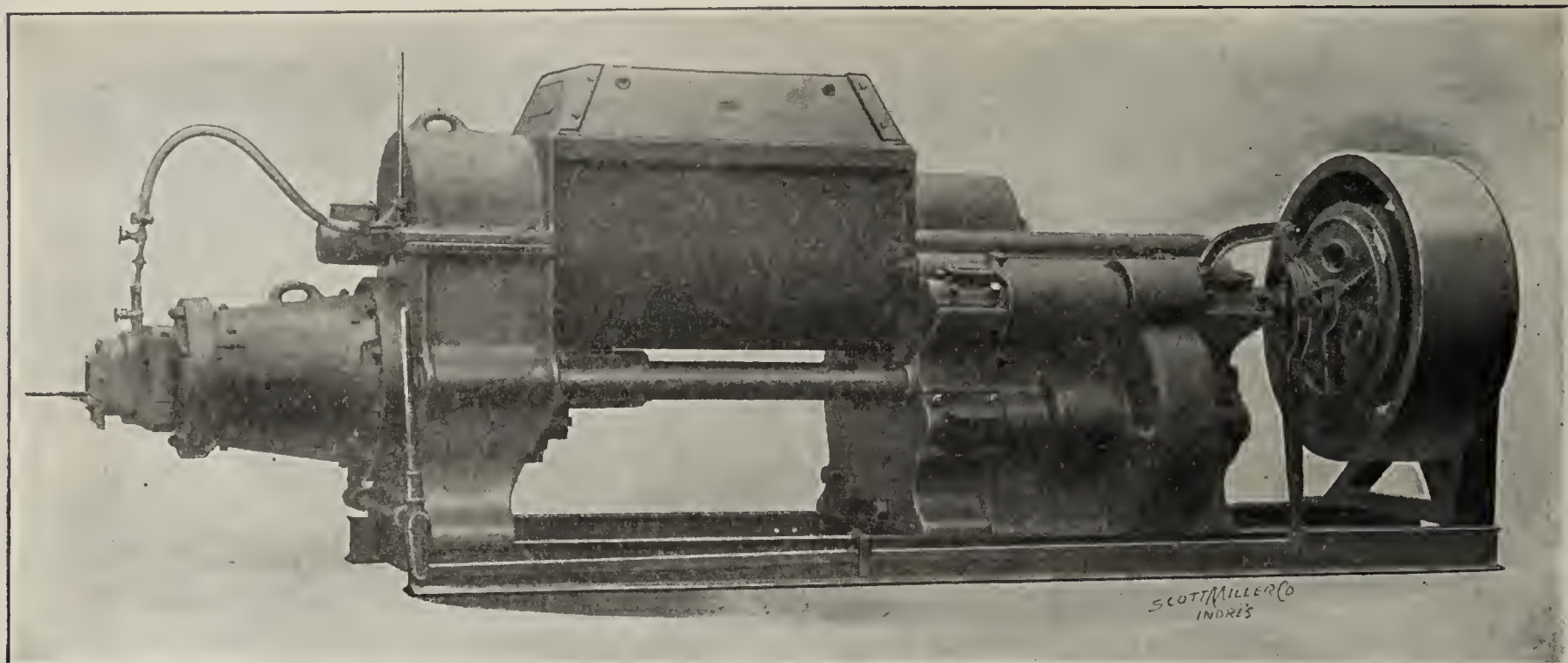
THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

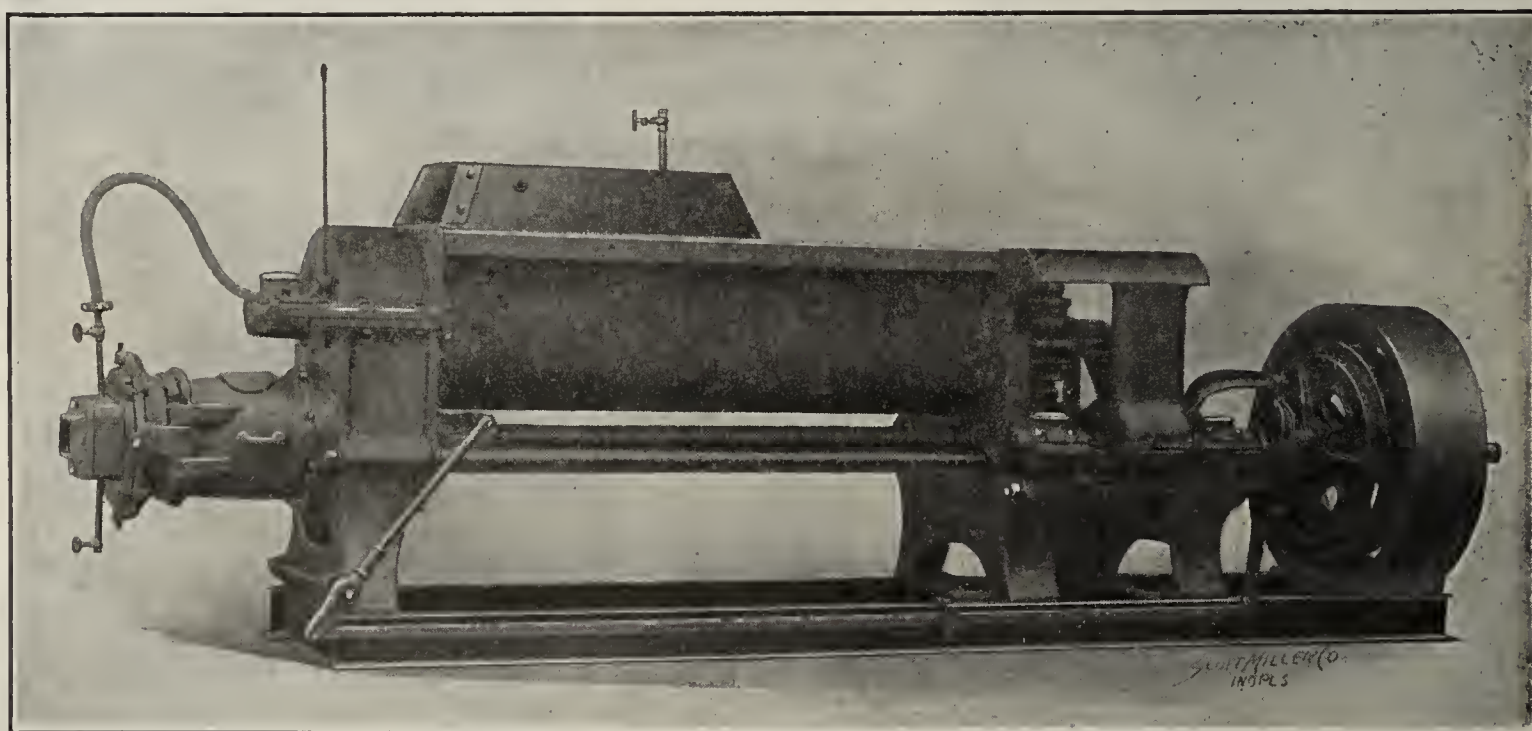
Mention The Clay-Worker.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

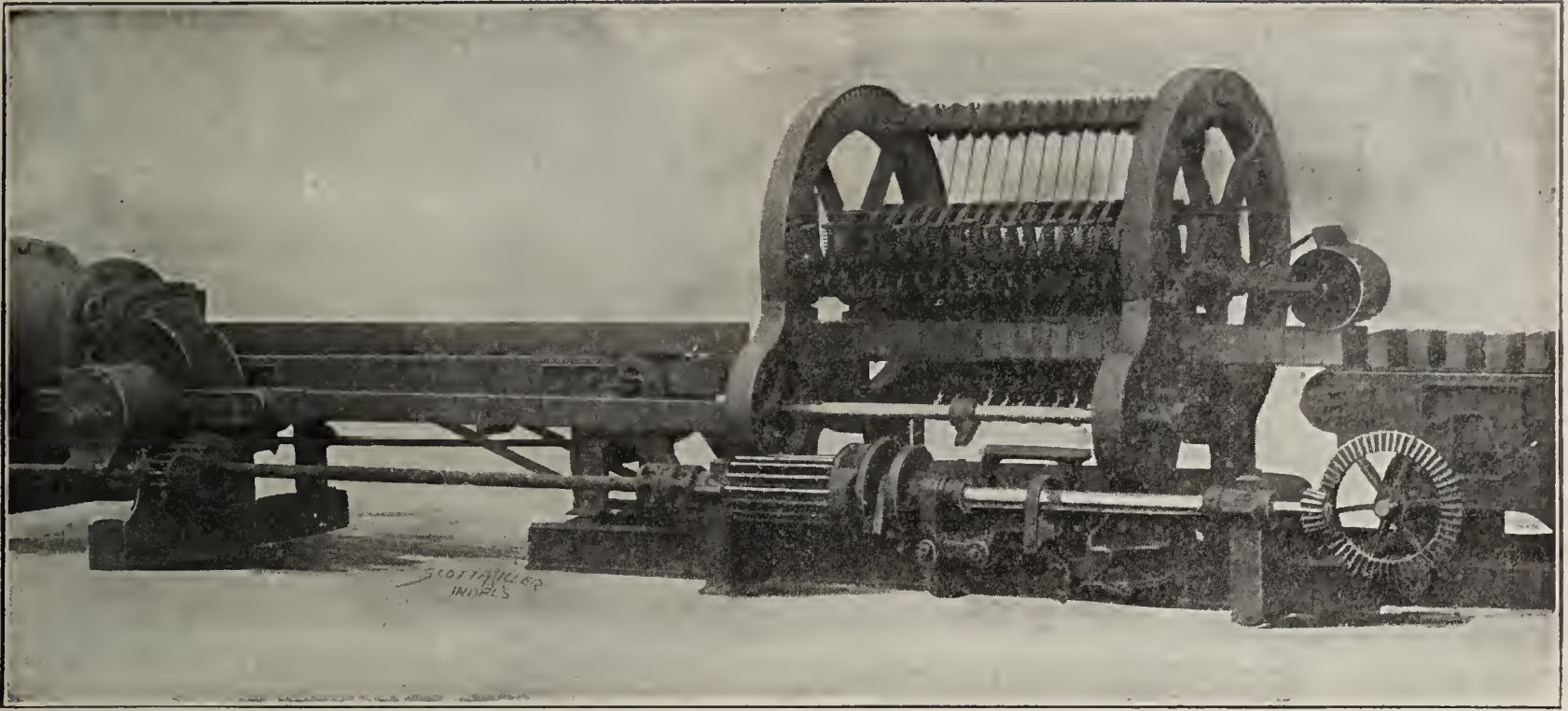
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

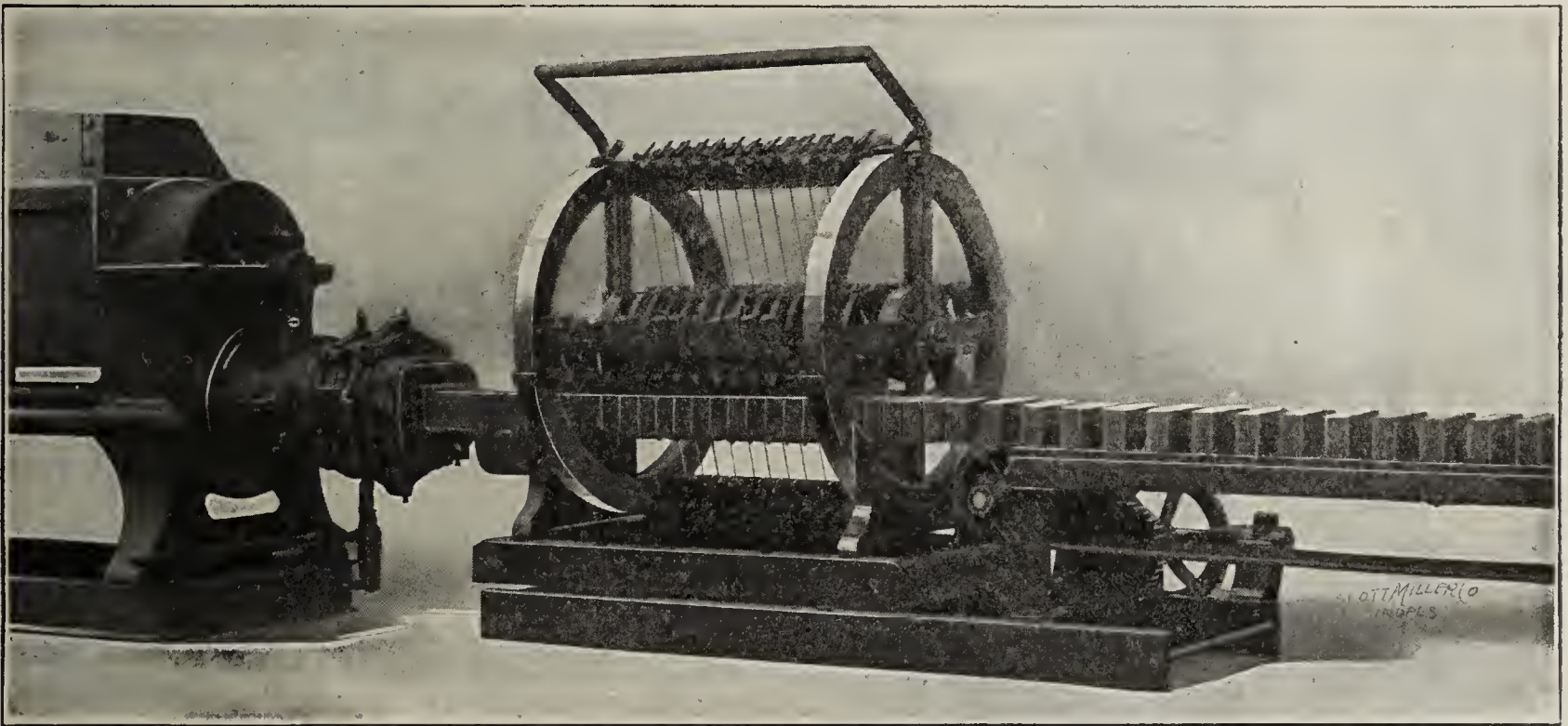
Galion, Ohio.

Write for Catalog

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

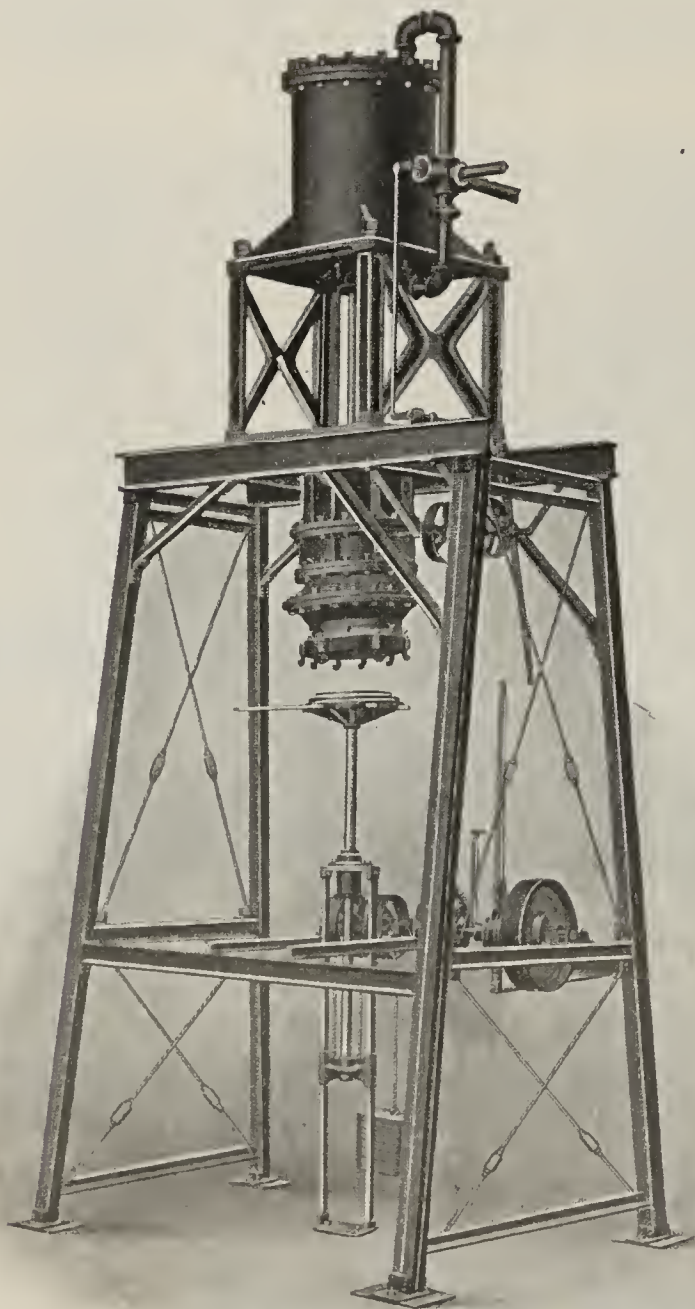
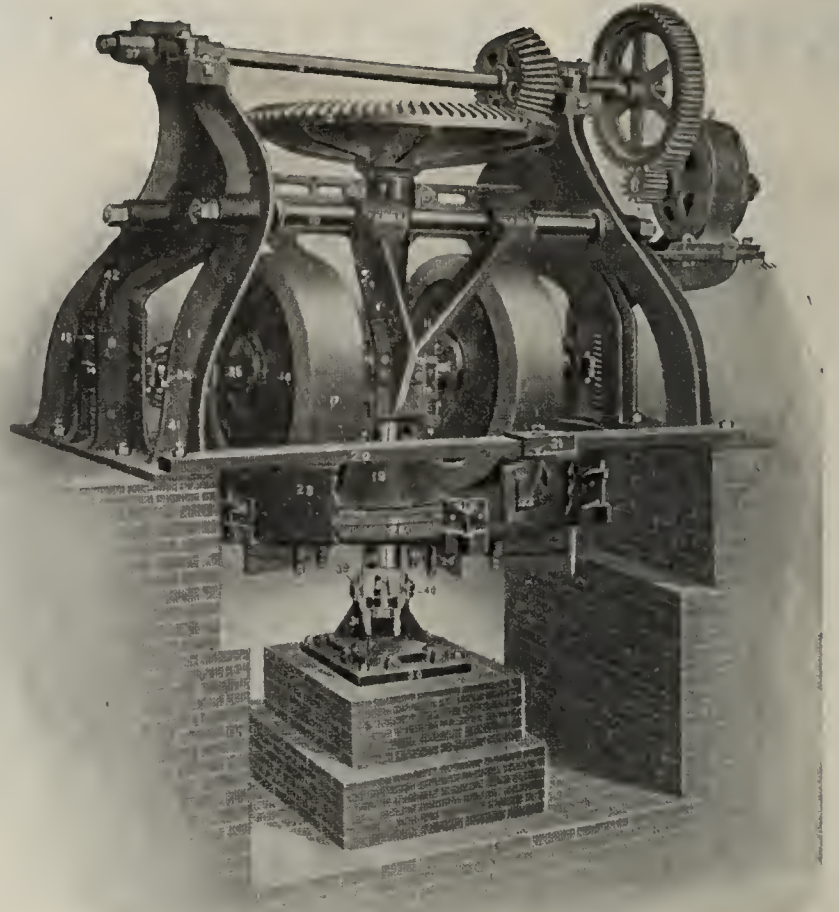
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

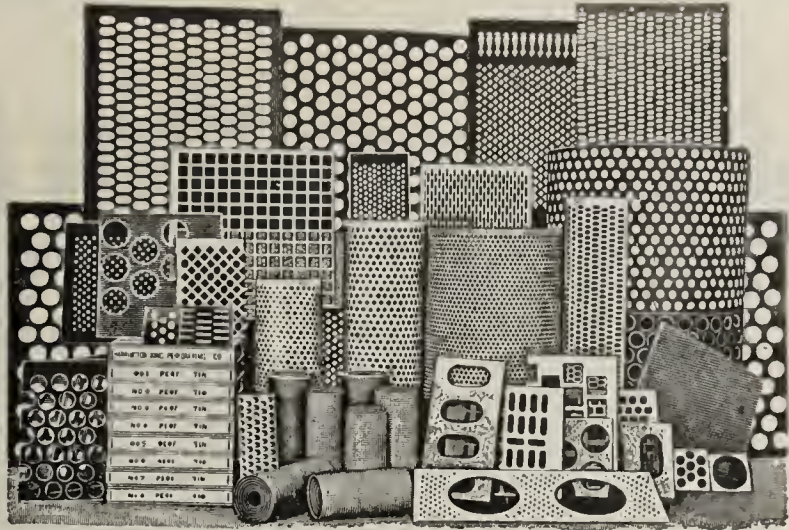
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the guage (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 231 North Union St.,
CHICAGO, ILL., U. S. A.



ARE YOU ON?

Are you on the BRICK road to success? Others are. If YOU are not and it is the fault of your Dryer, let US show you the way.

We dry SATISFACTORILY most of the brick of western manufacture.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

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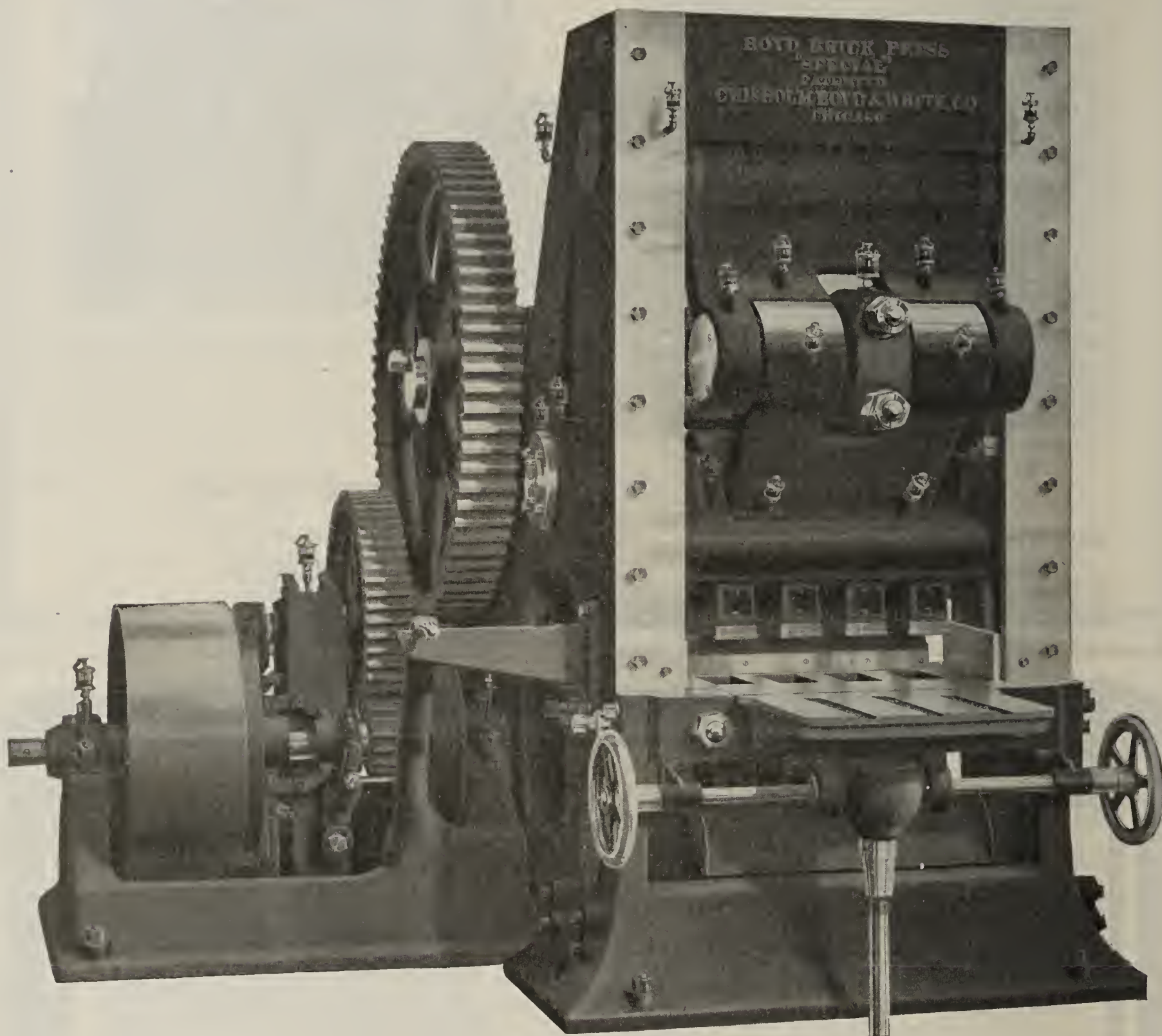
CHICAGO.



Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.

BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

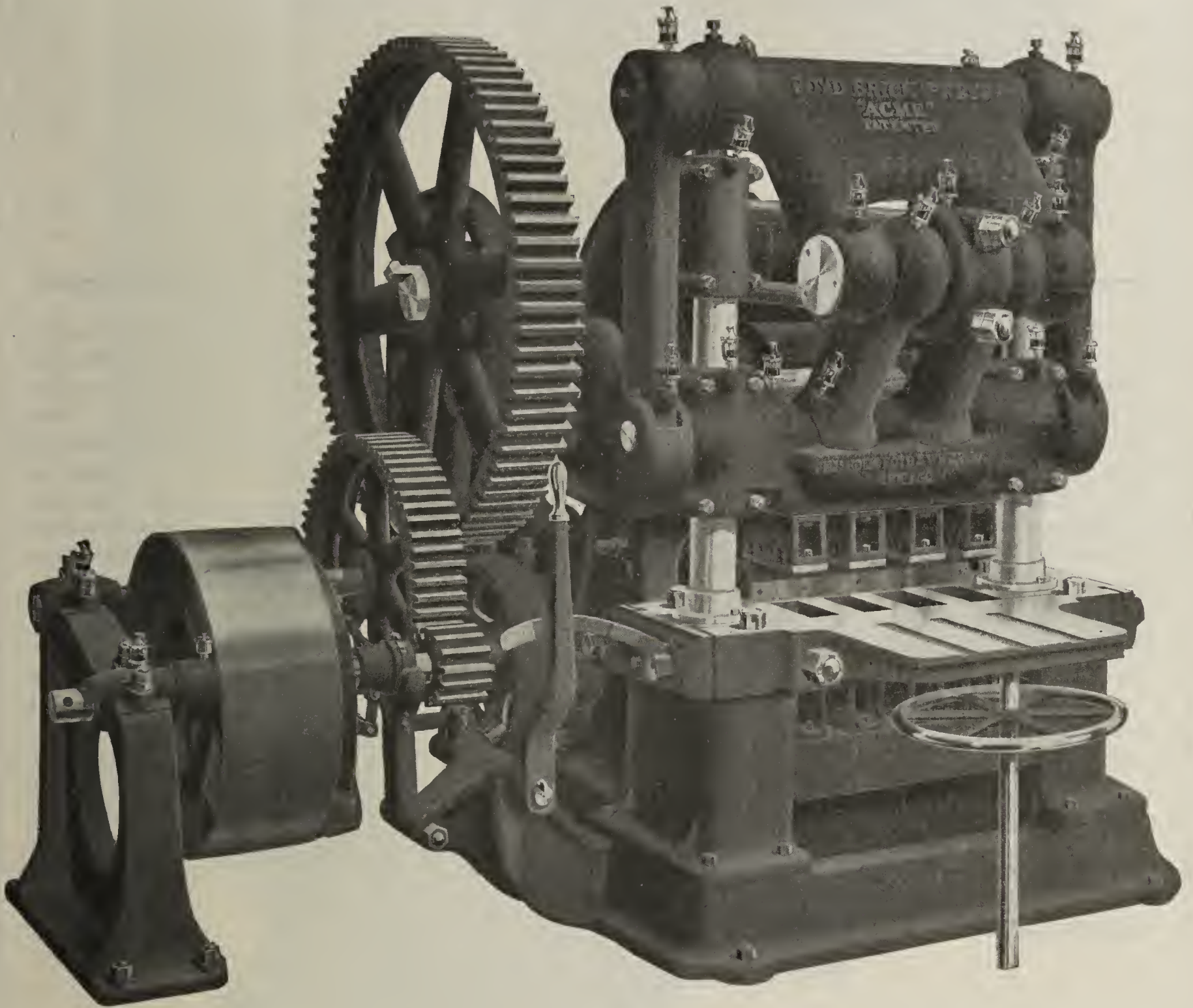
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

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The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

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THE GRATH SPECIAL

Five-Mold Brick Press

For Dry or Semi-Dry Clay Press Brick of Highest Grade

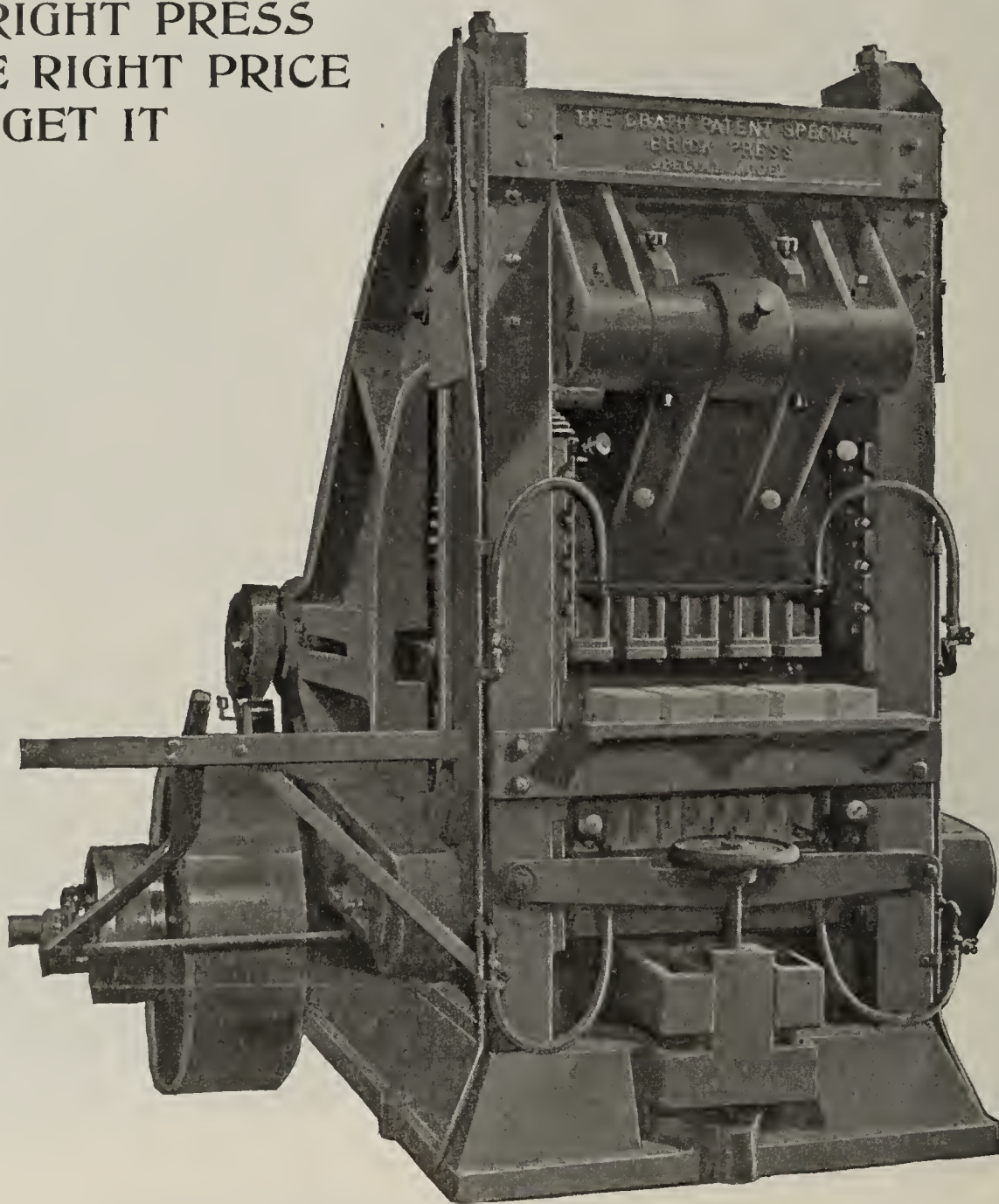
THE PRESS THAT MAKES THE PROFITS

THE RIGHT PRESS
AT THE RIGHT PRICE
GET IT

You can not afford to make anything but the BEST brick; the kind that finds the market in dull times; the kind that gets the orders even though the other fellow bids under you. To make this BEST brick you must have BEST machinery.

That is why the **GRATH** has won its way into popularity.

The GRATH Special is built in two, three, four and five mold sizes.



It is built by experts. Embodies the most correct mechanical principles. Made from the best obtainable materials, and the best attention is given to every detail of its construction. It represents perfection in brick presses.

The **GRATH** presses equally from top to bottom. It is simple in construction and operation. Is strong, massive, indestructible and guaranteed against breakage.

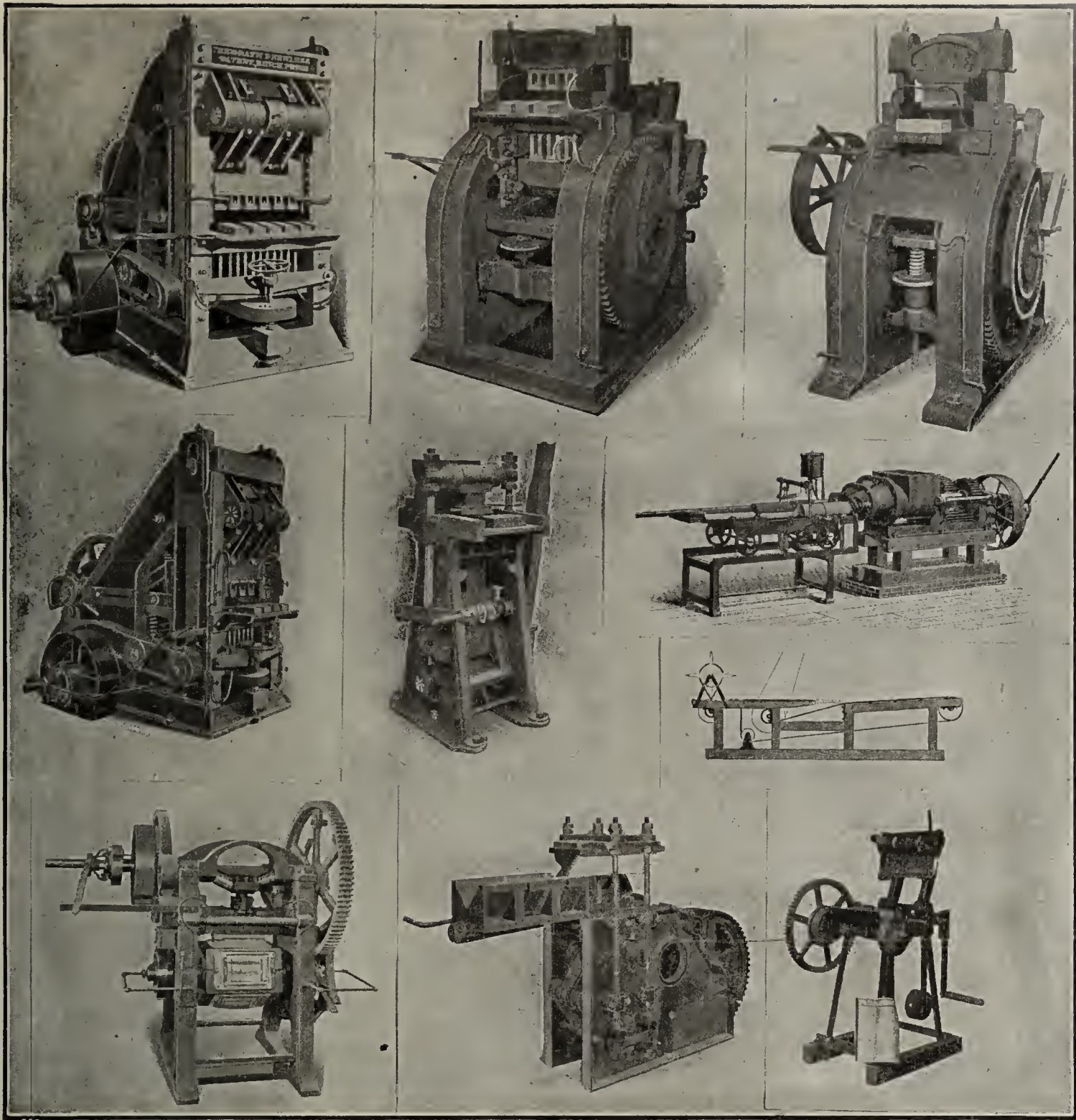
DRY PRESS BRICK

If you have suitable clay or shale, we can show you WHY and HOW you can make more money by making pressed brick than wire cut brick. If you are not sure send us a sample of your material and we will tell you.

*Send for our "Treatise on the
Manufacture of Dry Press Brick" and Roofing Tile.*

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OUR PRICES WILL SUIT YOU.

Press Brick and Roofing Tile Machinery. All Guaranteed Against Breakage and to Give Satisfaction.

Get Our Prices Before You Buy.



Selling Agents for The

SCHURS PATENT PERFECT OIL BURNERS

Especially designed for burning Brick, Tile, Terra Cotta and Lime. For Up and Down Draft Kilns. Flame may be regulated as desired and to produce any heat, can be turned upward, downward or sideways. Most Economical Steam or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

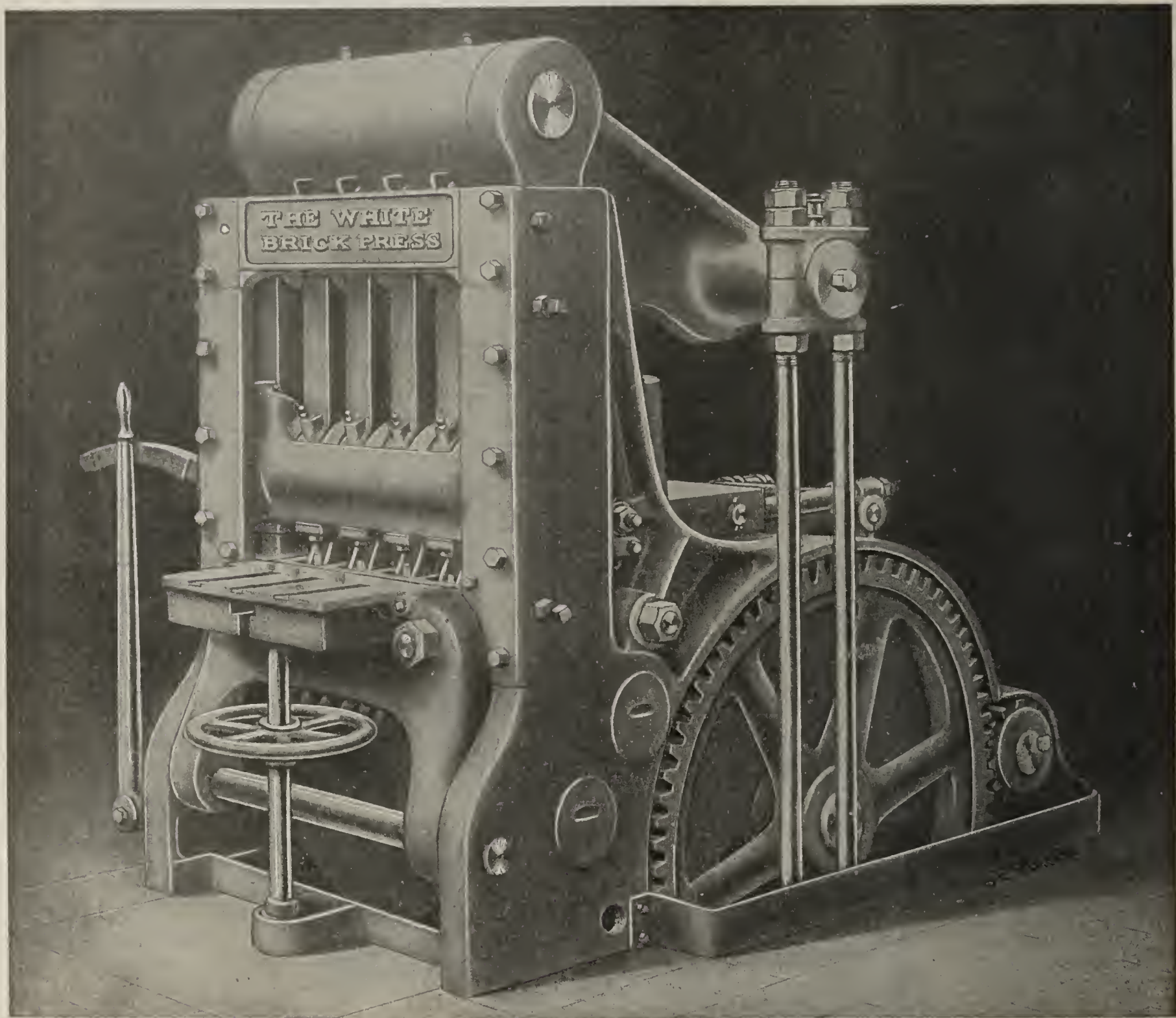
CENTURY BLDG., ST. LOUIS, MO.

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Lieber's Code.
Cable Address,
GRATH, St. Louis.

Long Distance
Phone
Bell, Main 235.

**Always Worth More Than
You Pay For It**



THE WHITE BRICK PRESS.

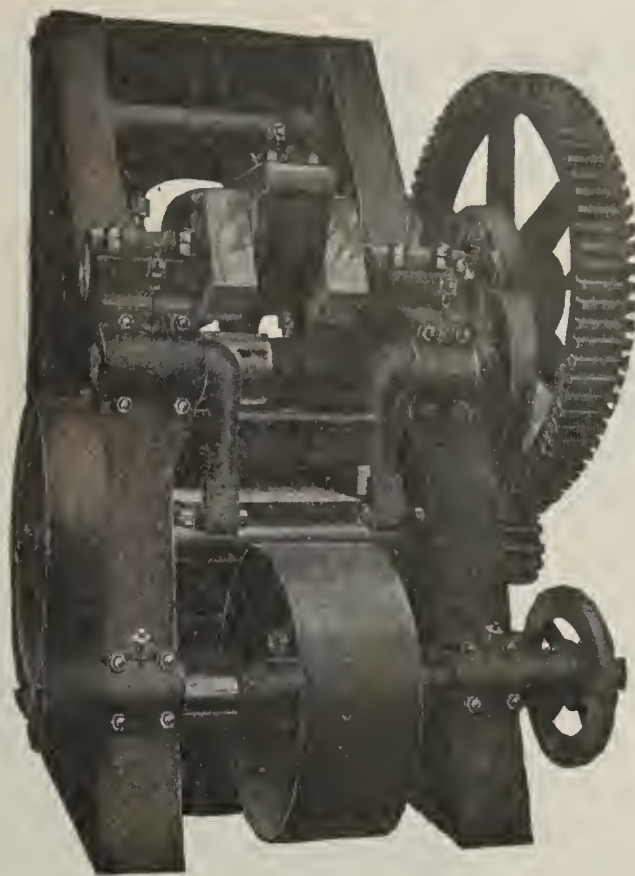
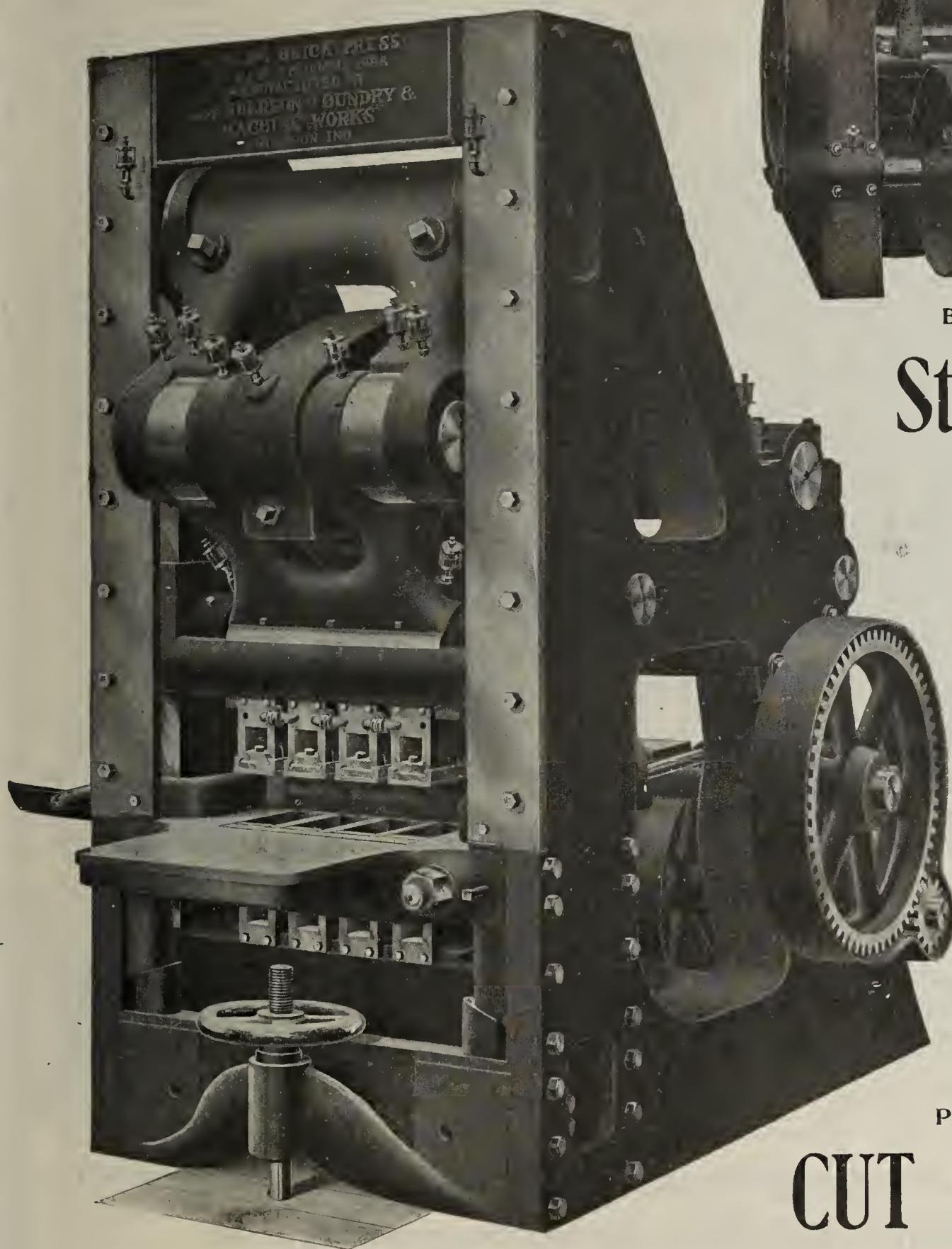
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

Provided with

CUT GEARING

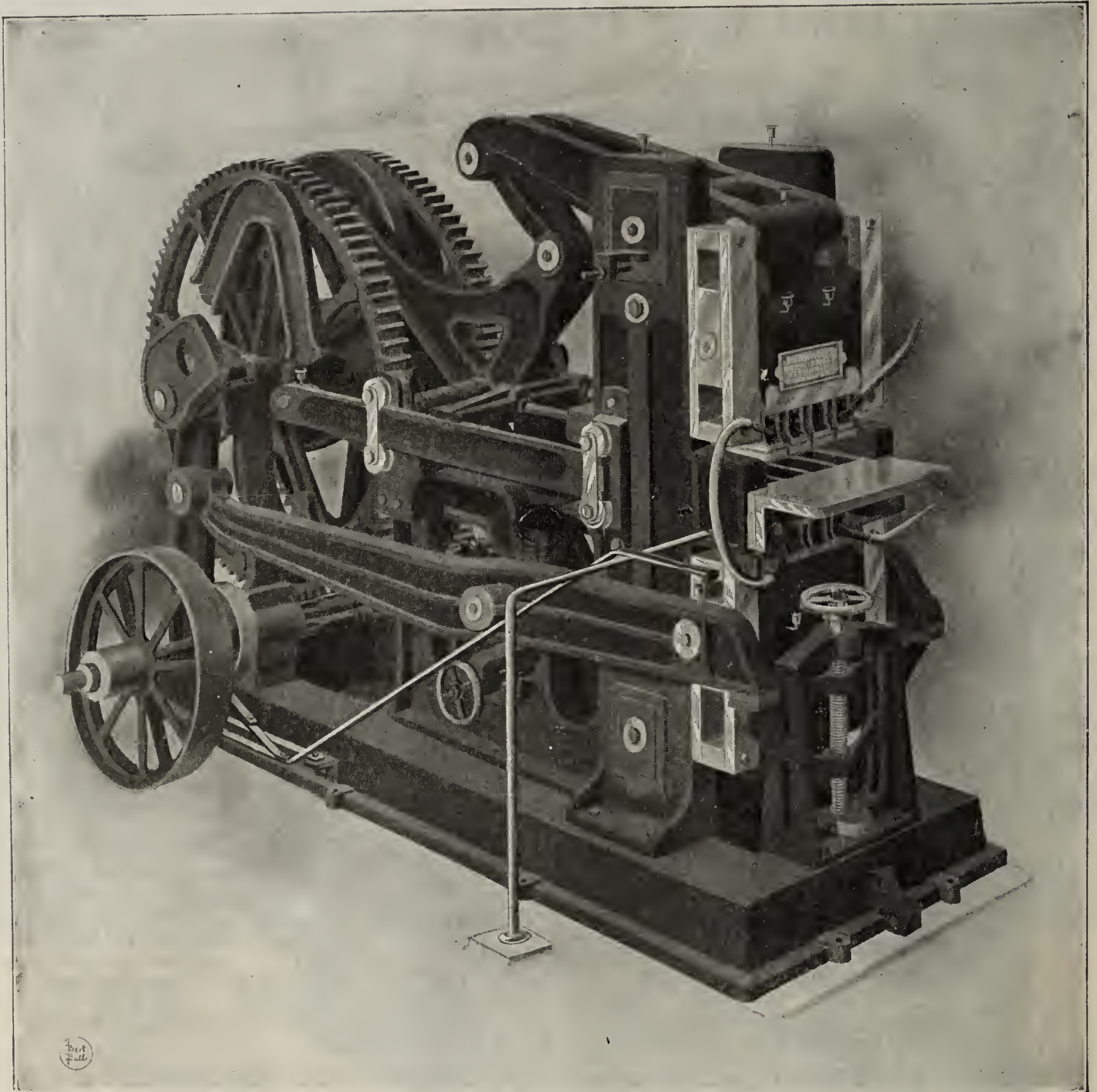
of either iron or steel, if desired.

Manufactured and Sold by

THE ANDERSON FOUNDRY & MACHINE WORKS,
ANDERSON, IND.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

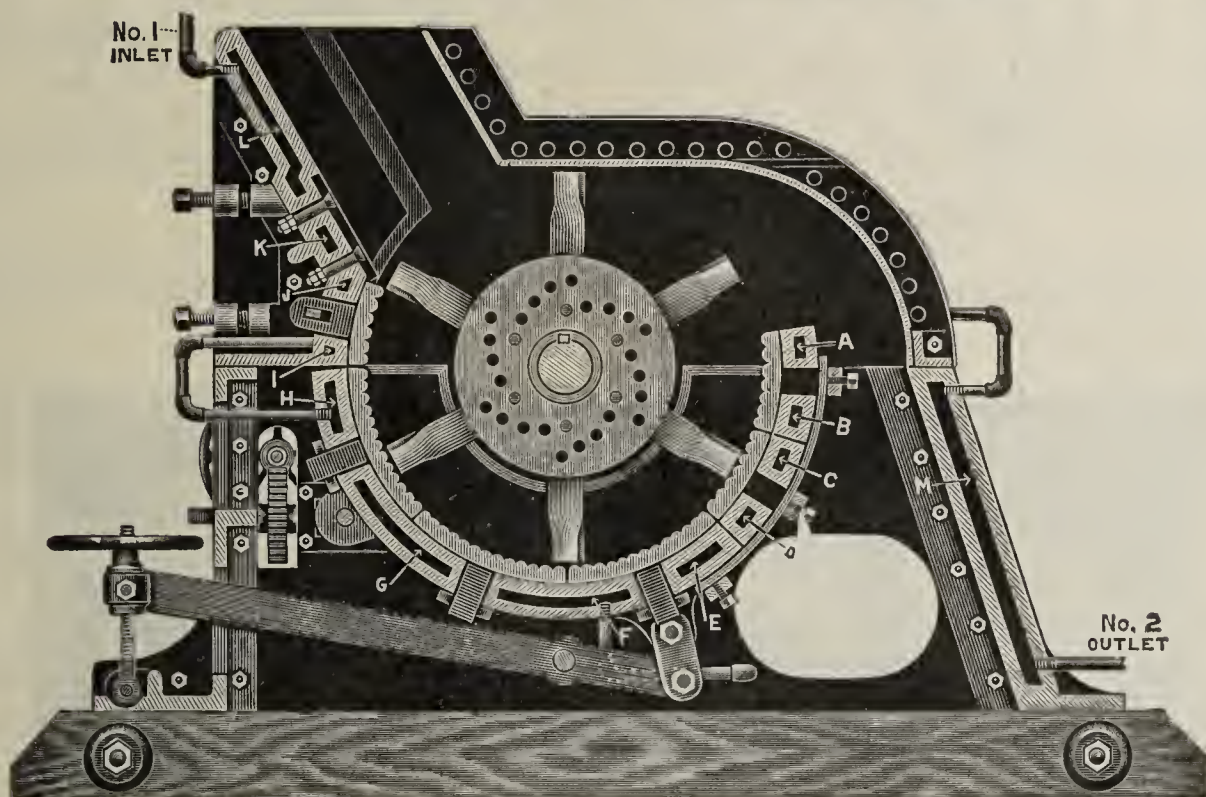


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

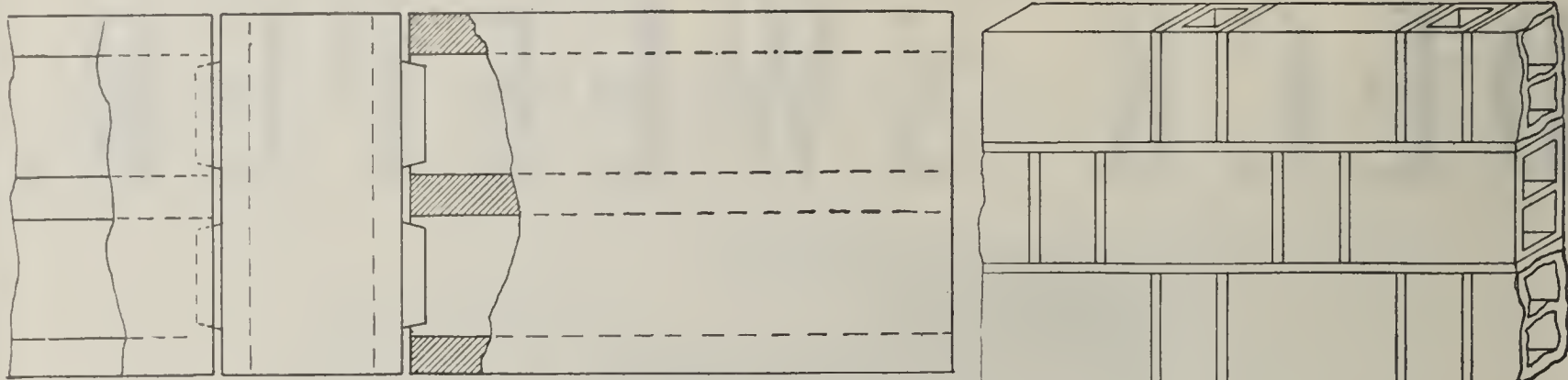
San Francisco Office, 428 Monadnock Bldg.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

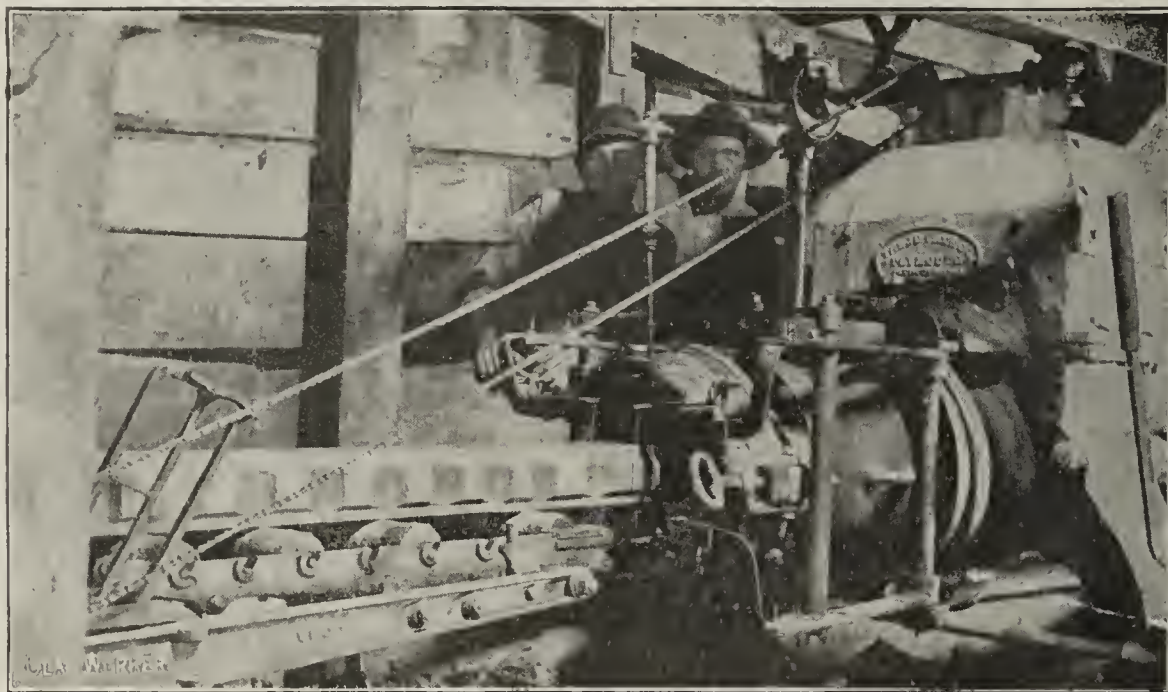
FOR SALE.

State Rights of My Patent No. 920967. Issued May 11, 1909



Interlocking Wall Construction.

Interlocking Building Blocks are made without any additional cost above ordinary blocks, as shown in photograph.



This machine (patent applied for) will be furnished to parties making contract for state rights.

A hollow tile wall laid up of ordinary blocks is never satisfactory because of the poor vertical joints which are never air-tight, and often fall out as experience has shown. This interlocking wall gives a perfect bond and the mortar joint can not fall out. Architects and builders are very enthusiastic about it. The Twin City Brick Company owns the rights in the Northwestern States. They are furnishing 400,000 hollow interlocking facing tile to the new million dollar hotel in St. Paul, and have more orders than they can fill for residences, flats, churches, etc.

CHEAPER TO MAKE THAN BRICK.

CHEAPER TO LAY THAN BRICK.

BETTER THAN CONCRETE AND

SAVES MONEY OVER FRAME.

State Rights will be sold only for cash or a combination of cash and royalties. Only manufacturers who have a clay suitable for making facing tile should apply to

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President of Twin City Brick Company,
ST. PAUL, MINN.

The Andrus Brick Press

Makes Brick Every Day.

Been doing it **20** years.
Strong, Simple and Capable.
24 in operation in St. Louis District

INVESTIGATE.

Scott Manufacturing Co.

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REMARKABLE OFFER

We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



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"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.

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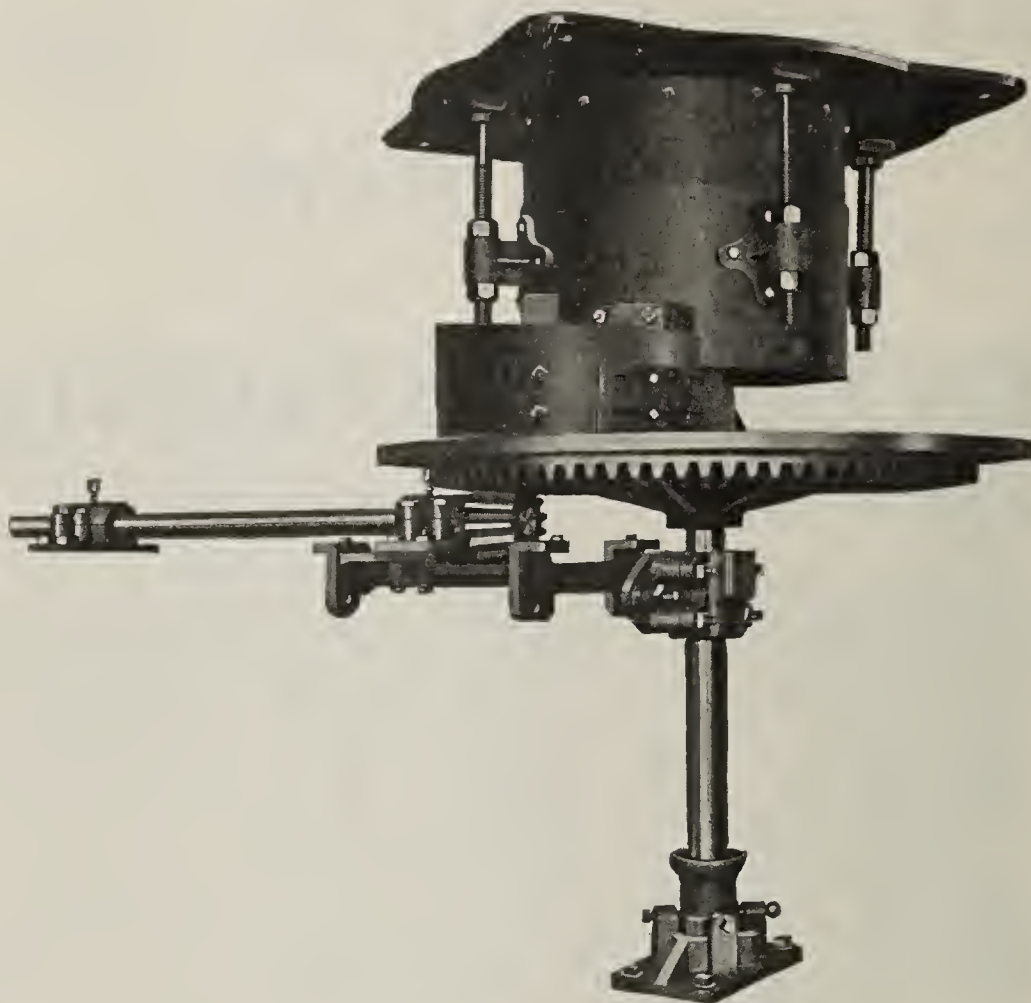
The Old Way.

THE CLAY-WORKER, INDIANAPOLIS, INDIANA.

TO ALL WHO

Deliver crushed clay to Dry Pan, or
Temper pulverized clay or shale in Pug Mill, or
Feed definite proportions of different materials for
accurate mixtures

THE COLUMBUS FEEDER



Will save its cost in a few months and give better
results than are possible without it.

If interested send for catalog or any of the follow-
ing publications:

"Bucket Elevators for Clay."

"Clay Screens."

"Apparatus for Controlling the Drying."

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The Best of Everything for Clayworkers.

The Ceramic Supply and Construction Co.,

Contracting Engineers and Machinists,
280 North Front St., Columbus, Ohio.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

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To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

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Will send you free, upon request, any or all of the following booklets:
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Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
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DEVONSHIRES and REPRESSED
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Highly Vitrified by Natural Gas.
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Vitrified Shale and Fire Clay Paving Bricks and Blocks.
 Burned in Yates' Patent Kiln.
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Thurber Vitrified Paving Brick
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Made of the finest shale, absolutely free from lime.
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 Factory at Thurber, Texas. Ft. Worth, Texas.

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THE DECKMAN-DUTY BRICK CO.
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Annual Capacity 30,000,000.
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MARION PAVERS

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MANUFACTURERS OF ALL SHALE

PAVING BLOCKS and PIONEER BUILDING BRICK.

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Our material has for over fifteen years successfully stood the heaviest traffic of Indianapolis, Terre Haute, East St. Louis and dozens of other large cities of Indiana and Illinois. We ask investigation and comparison by those seeking the best paving material. Samples furnished on application.

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Clinton Paving Brick Company,

Manufacturers of the Highest Quality of

Paving Brick

Which are offered to the municipalities of the Central States under positive guarantee as to wearing quality. None better.

Prices and samples sent on application.

Correspondence solicited.

Office and Works: Clinton, Ind.

Do You Want Clay?

WE OWN AND OPERATE EXTENSIVE DEPOSITS OF THE VERY BEST GRADES.

Fire Clays, Terra Cotta Clays, Kaolin, and Fire and Moulding Sands.

Have been in the business for TWENTY-FOUR years, and are prepared to meet every reasonable demand. Unsurpassed shipping facilities. Prices and samples free.

The BLOOMFIELD CLAY CO.,

(C. A. Bloomfield, Treas. and Manager)

P. O. Box 413.

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J. G. BUTLER, JR.,
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Gen'l Manager.

Bessemer Limestone Co.

Youngstown, Ohio,

MANUFACTURERS OF

BESSEMER BLOCK,

An unexcelled repressed shale paver.

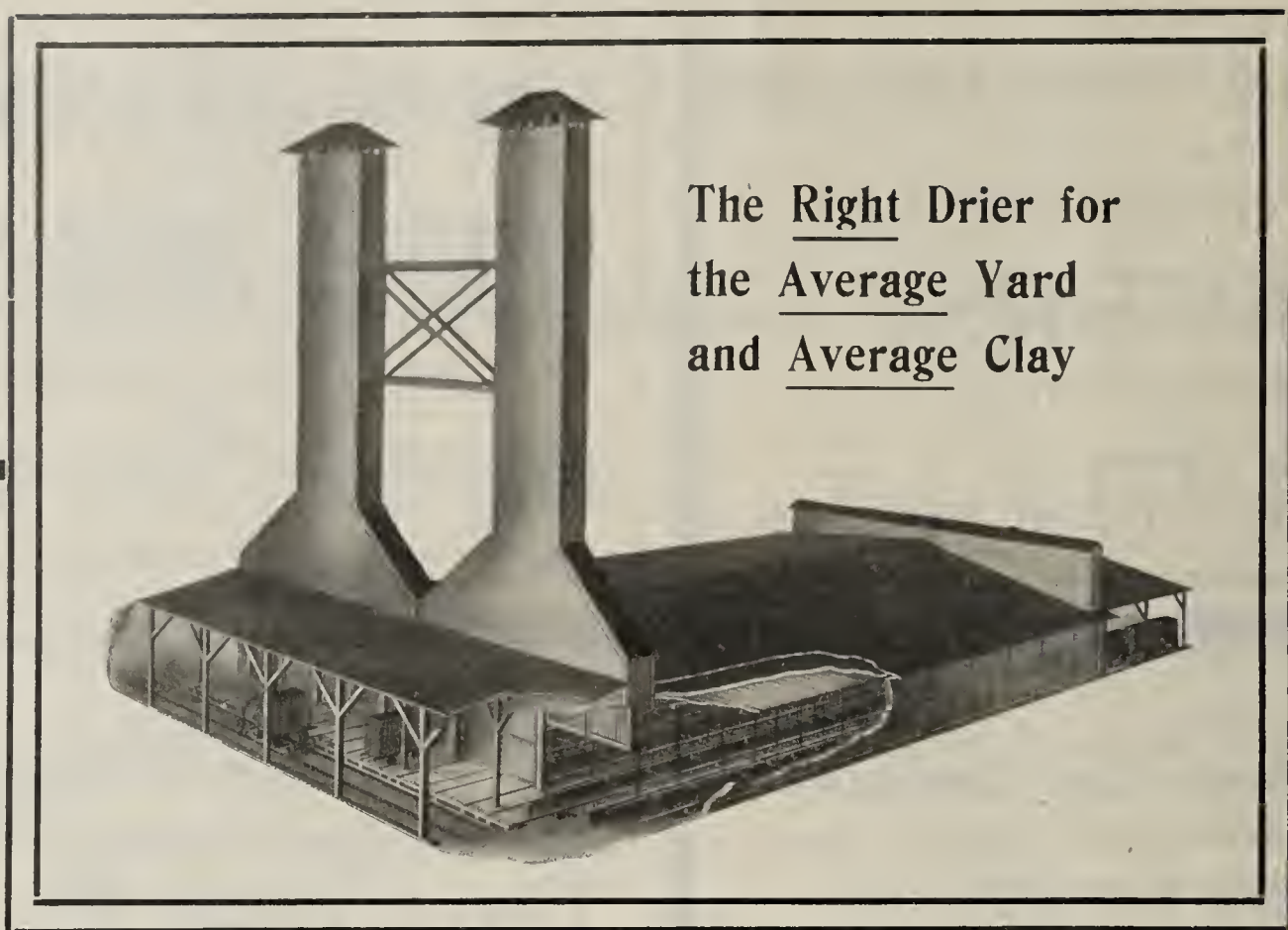
Correspondence solicited.

The Purington Paving Brick Co.,

of GALESBURG, ILLINOIS,

HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

Correspondence respectfully solicited.



The Right Drier for
the Average Yard
and Average Clay

You Merely Turn the Steam On

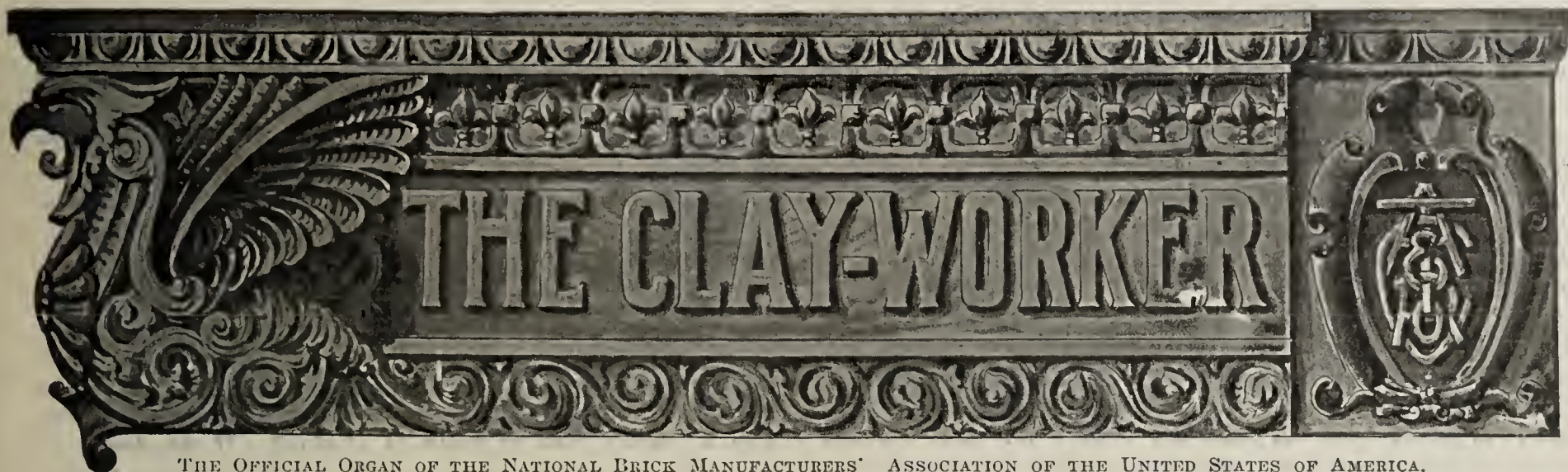
—and The Standard Drier does the rest. Its operation is absolutely automatic. Anyone can look after it. There's nothing whatever to do but start the green product in at one end of the Drier and remove the cars of perfectly dried brick at the other end.

The Standard is the Simplest

Brick Drier you can buy, as well as the most efficient and economical. It has no complicated machinery of any kind and doesn't require an expert to watch it. In fact, it doesn't need watching at all. It takes care of itself, asking nothing of your payroll but a man to fill and empty the Drier tunnels.

And it produces the most thoroughly and evenly dried brick you ever saw turned out of any drier. It dries each individual brick through and through—the drying process starting at the center and progressing outward. Bear in mind that The Standard Steam Drying System is the culmination of over twenty years' experience in Brick Drier manufacturing. No other drying system on the market will do the work so well and at so moderate an expense for labor and fuel. Prove this by referring to users. You'll find a list of them in our catalog. Write for this valuable book today.

THE STANDARD DRY KILN CO., 647 South Penn. St.,
INDIANAPOLIS, IND.



THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LII.

INDIANAPOLIS, IND., AUGUST, 1909.

No. 2.

Written for THE CLAY-WORKER.

SAFETY, COMFORT AND ECONOMY IN BRICK HOMES.

Residence of H. O. Steele at Statesville, N. C.

THE BUILDING OF A HOME is one of the most important events in one's life, and when the home is permanent it is an unending source of pleasure and pride. If constructed of good brick and in a style in keeping with the surroundings and needs of the family, it will prove grateful to the eye and purse of the owner in the years to

if built with wood, but in the course of a few years it will prove really cheaper because it is built of brick.

The building is situated on one of the best residential streets in the city and presents a substantial home-like appearance, being simple in design and graceful for its size (the building covers approximately 65x78 feet of ground, exclusive of the steps); the materials comprising the exterior are selected common brick and Mt. Airy granite, and the porches, cornices, etc., are of North Carolina pine. The roof is of slate trimmed with metal. There are two good, large porches, connected with a terrace.

Entering from the front porch, you come into a large



Attractive Home of H. O. Steele, Statesville, N. C.

follow. Such a home is the subject of this sketch, the residence of Mr. H. O. Steele, of Statesville, N. C., a home that is fireproof, costproof and timeproof—a home that is the embodiment of solid comfort and will remain just as it stands today for generations, with little or no repairs. Hence, it is an economical home. It cost a little more to begin with than

sitting and reception room approximately 16x35 feet in size. Separated only by a large opening with columns on the right is a staircase with a landing about 3x6 feet above the floor, extending the whole length of one end wall, with a row of five bevel-plate art glass windows, which gives a pretty balcony effect from the room below; opposite the staircase is

a cozy fireplace and two full-length windows. The ceiling is beamed into square panels of about 4 feet each; all of the woodwork in this room is of select quartered oak with Flemish finish. Opening off the reception hall are two pair of sliding doors, one to the dining room, the other to the music room; both of these rooms are about 16x20 feet. The music room is finished in an extremely Mission design, while the dining room is finished in mahogany with panel wainscoting 5 feet high, and when these doors are opened, throwing the three rooms together, you have an ideal place for social functions, as you have a space of about 35x35 feet with all hardwood floors and covered with rugs of Oriental designs, which present a beautiful appearance; and still the comfort, convenience and privacy of the occupants have in no way been sacrificed to bring about the above results, and every room is comfortable and homelike. The balance of the first floor is given over to spacious rooms for the kitchen, servants, hall and stairs, butler's pantries and storeroom. A good-sized back porch is provided and the same is enclosed by lattice work. The upper floor is given over to bed chambers, den, closets, bathroom, etc., all finished in delicate tints, with enamel woodwork; the upper floor has three balconies, plenty of hall space and is well lighted and ventilated.

The entire building has all the necessary comforts and conveniences which are required to make a perfect home. The building is also provided for a system of hot water heating, and all fixtures, mantels, etc., are designed or selected to harmonize in every way with their surroundings.

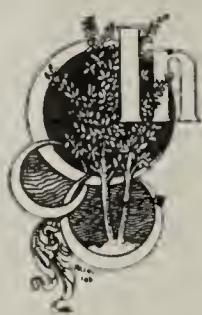
The owner has had a number of inquiries as to the designers of his home, many traveling some distance to go through same, and in appreciation of his architects' endeavors, he never fails to direct the inquiries to them, and one of the parties has already engaged the same architects to model a home for him on the same lines as above described. The architects are Messrs. Wheeler & Stern, of Charlotte, N. C., successors to Wheeler, Runge & Dickey.

ELECTROLYSIS OF REINFORCED CONCRETE.

Mention has been made in these columns of the discussion that has been going on in this country and in Europe as to the corrosion of steel reinforcement of concrete structures. Little attention has been given as yet to another possible source of danger—electrolysis. Investigations, however, have been carried on by Mr. A. A. Knudson, of New York, and Mr. M. M. Glauber, of Washington University, and these are of great interest. In the tests made by Mr. Knudson there was strong evidence of electrolytic action on the embedded metal, and the concrete showed great deterioration. Large cracks appeared, and the concrete became soft and crumbly, so that in places a penknife could easily be thrust into it. The experiments at the Washington University gave much the same results. Cracks appeared and there was marked loss of weight in the metal reinforcement. Mr. A. S. Langsdorf, who reported on these experiments before the Engineers' Club, of St. Louis, says: "The cracking of the concrete may possibly be explained by the fact that the layer of rust is of rather loose consistency, so that its density is less and its volume greater than that of the original material, thus giving rise to a bursting force. The fact that the cracks are mainly radial seems to support this hypothesis. The results indicate quite clearly that great caution must be used in the construction of reinforced concrete structures where the conditions are similar to those of the tests, such, for example, as might be found in the case of bridge abutments or concrete sewers in the neighborhood of grounded railway circuits. Further information is needed as to the extent to which the reinforcement of such structures, when buried in damp or wet earth, may become part of the return circuit of trolley lines; and also to determine the insulating effect of waterproofing ingredients in the concrete.—Stone.

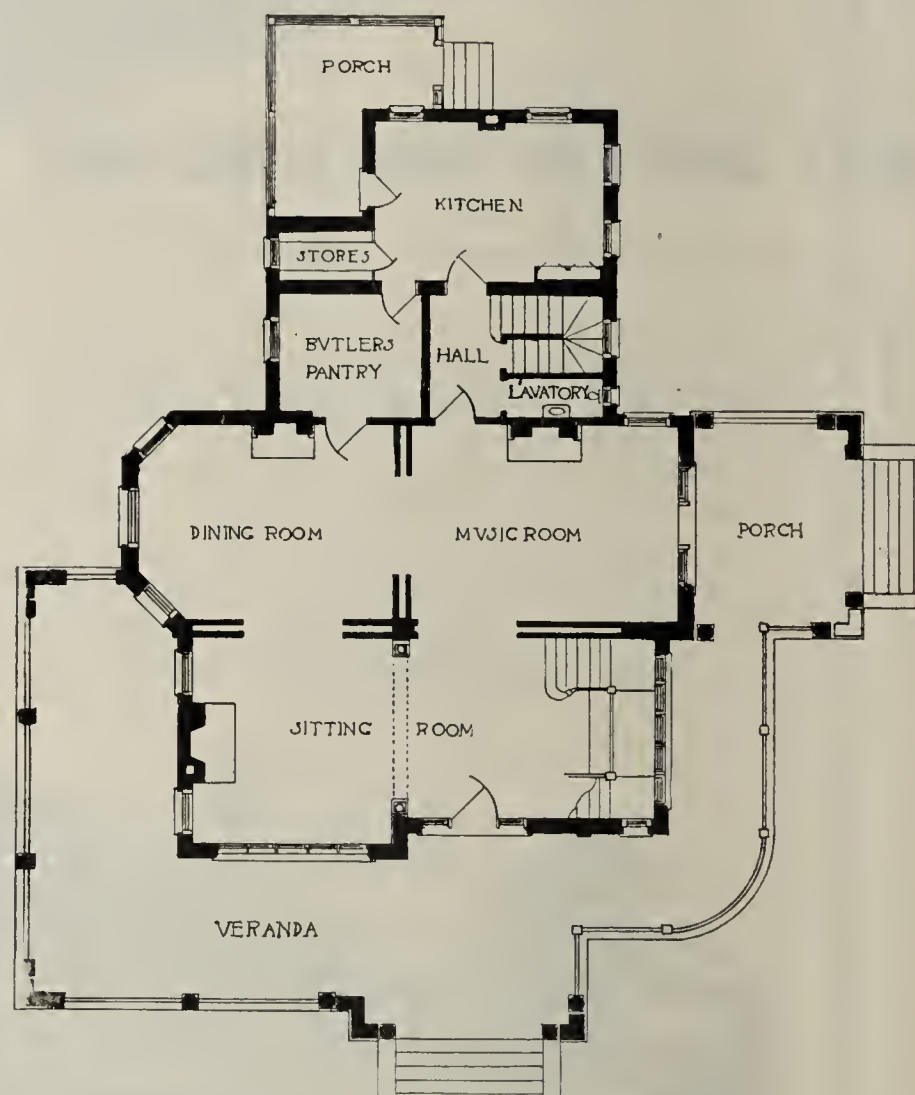
THE PREPARATION OF SURFACE CLAYS.*

BY A. V. BLEININGER, PITTSBURG, PA.



ORDER TO obtain a clear understanding of the behavior of our common clays, we must take the pains to determine what they are made of. for it is obvious that we are not dealing with a simple homogeneous substance, but with one extremely complex in its structure.

We can obtain a pretty clear idea of the mineral structure of clay by making some of it up with water into a thin slip and pouring the latter through a set of sieves, starting with the coarser and finishing with the finest ones. Each sieve is then washed with water, so that only a certain size of grain is retained. If we desire it, we could weigh the amount of clay taken in the beginning



Residence of H. O. Steele—First Floor Plan

as well as the residues left, for instance, on the 10, 20, 40, 60, 80, 100, 120, 150 and 200-mesh sieves. In this manner a pretty good idea could be obtained of the size of grains making up the material.

As to the separate constituents making up the clay, probably the first thing we observe on the coarser sieves would be hard, colorless grains, which we can at once identify as quartz, known to all of us as pure white sand.

The mineral quartz is one of the constituents invariably present, and it plays an important part in the makeup of our clays. It occurs in all sizes from the coarsest to the very finest grains. This mineral naturally possesses no plasticity whatever. Its presence, therefore, in the clay tends to reduce the plastic quality of the latter, and hence it decreases the shrinkage of the clay in drying. When heated, quartz will be found to resist very high temperatures, which are

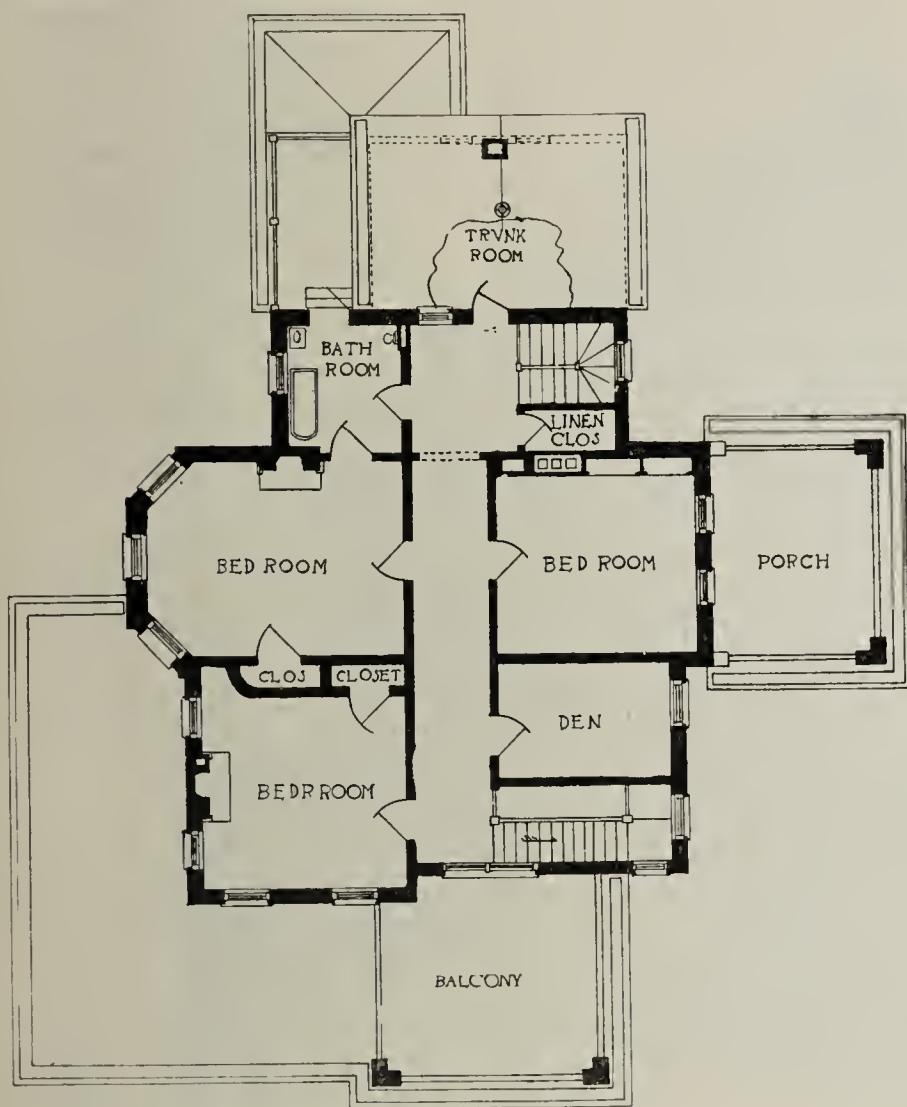
*Read before the Wisconsin Clay Manufacturers' Association, Milwaukee, February 11, 1909.

far above the heat employed in the burning of our red-burning surface clays. At the same time, however, quartz possesses the peculiar property of expanding on being heated. Inversely, when hot quartz is cooled it has a tendency to shrink again. This change in volume must not be confused with the changes occurring in heating and cooling any body. These volume changes are far greater than those due to expansion and contraction. Chemists tell us that quartz, when being heated to a certain temperature, changes its entire character and becomes a new mineral called "tridymite." We have frequently the opportunity of observing this increase in volume when we endeavor to burn clays very high in quartz in our kilns. We find thus that bricks made from such materials appear to show no shrinkage, but in fact increase in volume. From this we observe, therefore, that the quartz, when heated in a clay, not only decreases the drying shrinkage of the latter, but tends to decrease the burning shrinkage as well. It is evident that in pugging a clay very

for instance, a grade passing 10-mesh sieve, to a fine-grained, red-burning clay, we shall find that the material stands up better in the kiln than the clay alone. It does not soften so easily in the heat, and therefore the loss due to kiln marking and deformation is reduced. However, on adding to the same clay a small amount of very fine sand, the clay will not stand up as well in the kiln as it would without the addition of sand. This difference is due to the fact that fine sand enters into chemical reaction with the clay, while the coarser one does not. Again, a certain amount, say 15 per cent., of fine sand, added to a clay requires more water in pugging than 15 per cent. of coarser sand. Furthermore, the addition of fine sand to a clay does not shorten the time of drying as much as the coarser. Fine sand also causes a greater tendency to check and crack in the kiln than the coarser. For best results as regards drying, shrinkage and burning, as well as final strength, the sand should not consist of one size of material, but should be made up of coarser, as well as of finer grains. The coarser grains should predominate, so that, roughly speaking, we shall have about three parts of the coarser grain to one part of the finer, although this is subject to fluctuations, according to the sizes of grain involved. Speaking more exactly, the volume of the finer sand grains should be equal to the volume of the pore space in the coarser sand.

This we can illustrate by filling a quart pail full of the coarser sand and striking off the excess by means of a straight edge. If we now pour water onto the sand from a measuring vessel until the pail appears to be full, we shall learn just what the volume of the pore space is. For instance, if our pail holds 60 cubic inches of coarse sand and we succeed in pouring in 20 cubic inches of water, it is quite clear that the pore space is about 20 cubic inches. The sand mixture, therefore, should consist of about 75 per cent. of coarse and 25 per cent. of fine sand. A mixture of this kind, if added to the clay in reasonable amounts, depending upon the original richness of the clay, say 15 per cent., would thus decrease the drying shrinkage, reduce the time of drying, and any tendency to check and crack, would cause the brick to stand up better in the fire, and would result in a denser and stronger brick. It would also cause the clay to burn to a cleaner color, provided the sand itself is free from impurities, and there would be less tendency for the brick to white-wash. Where the bricks are made by the stiff mud process, the time of burning would be considerably shortened and bloating would be practically eliminated. If the sand used is too coarse, however, the bricks will invariably check and crack in the kiln, to say nothing of the rough appearance of the product. Many clays naturally contain enough of this sand properly proportioned to perform the functions already indicated. The question of improving heavy, plastic clays which are difficult to dry by the addition of sand is an important matter, and more attention should be given to this matter. Because a sand bank happens to be close by is not a sufficient reason why this material should be employed. Many of the sands are so full of impurities, or are either so fine or coarse, that they are unfit for the purpose for which they are intended. It would pay many brickmakers to clean their sand, rejecting that portion which is too coarse, as well as the excess of the fine matter.

In resuming our study of the sediments found on the sieves, we observe among the fine grains of sand material particles which, on close inspection, appear to possess a kind of pearly lustre, which are not translucent like the quartz grains, and which also are considerably softer, being scratched by a knife blade very easily. On placing some of these grains before a gas blast lamp, they will be found to melt to a glassy bead. This mineral is feldspar and it differs completely from quartz, in that it is not refractory. It is what is called a "flux," that is, it helps vitrify the clay and it does so very gradually. Although feldspar does not melt at the temperature at which brick clays are burnt, it nevertheless behaves as a flux, and its fusion action begins at a comparatively low temperature. While the melting point of feldspar is about Cone No. 8, its fluxing action begins as low as Cone 05. Feldspar, therefore, is a useful constituent of our brick clays, and it practically never occurs



Residence of H. O. Steele—Second Floor Plan

high in sand much less water will be required than in working a more plastic clay. Likewise, a sandier clay may be dried much more rapidly than one not so high in sand. As regards the porosity of the clay mixed with sand and burnt to a good hardness, we observe that this also is greater than that of the clay containing no sand burned to the same temperature.

It is easy to see, therefore, that if we have too much sand in our clay we experience trouble in drying, owing to the weakness of the mixture, the clay not being sufficient in amount to withstand the tensile strain caused by drying, and in consequence the product cracking and checking. Furthermore, in burning very sandy clays, since they do not shrink, but expand, they result in a weak, punky structure which becomes evident to the eye by the fine hair cracks appearing on the surface, and by the lack of ring. The question of the fineness of the sand is a very important one. We find that very fine sand behaves altogether different from coarse sand. To illustrate: If we add a small amount of coarser sand,

in excess. The greater the amount of feldspar in a clay of this kind, the better the latter is suited for the production of hard-burnt ware. However, the feldspar, in order to accomplish its function most thoroughly, must be fine-grained. In most sedimentary clays it appears in this condition.

Feldspar itself possesses no plasticity and hence behaves similar to quartz in reducing drying shrinkage. If it were possible to add fine-grained feldspar to a clay and mix it thoroughly with the latter, we would find that the vitrification would be accelerated in a very gradual manner. This we could illustrate by adding to a clay various amounts of fine-grained feldspar, for instance, amounts corresponding to 2, 4, 6, 8, 10 and 12 per cent. These mixtures we would pug and blend thoroughly, and on burning them to the best kiln temperature we would find that the porosities of the burnt brick, as determined by the absorption of water, would decrease with the amount of feldspar added. This decrease in porosity, or, in other words, the increase in vitrification, would drop gradually for every interval of 2 per cent., and thus illustrate the characteristic action of feldspar.

Further examination of the deposits on our sieves will reveal some mineral matter present in the form of thin flakes, which float readily in water, and we have no difficulty in recognizing them as mica; this material is well-known to us by its uses on stoves and for similar purposes. Its main characteristic points are its cleavage and softness. As we know, a sheet of mica may be subdivided almost indefinitely into thin layers. This mineral is hardly ever lacking in clay. It is non-plastic, and, being usually of very fine grain, it contributes practically nothing towards improvement in drying. It is found to fuse at a temperature somewhat above that of feldspar, and while the latter burns to a pure white glass, mica produces a greenish or even almost black fusion. From this we learn that mica is a flux similar to feldspar, although considerably weaker in its action. Since its amount in clay is usually fairly small, it is not of great importance. There are, however, clay deposits very high in mica, in which its effect is very prominent. Such clays, however, are not found in Wisconsin as far as the writer knows.

Again, giving our attention to the residues found on the sieves, we observe still another variety of minerals which we recognize most easily by its behavior toward acids. On adding a drop of acid-like muriatic acid to a grain of this material, it will be found to effervesce quite vigorously. It is evident, therefore, that this mineral is carbonate of lime, the effervescence being caused by the escape of the carbonic acid from this compound. In the Wisconsin clays we detect the presence of this substance very frequently, and we find that its size of grain varies from coarse pebbles down to the very finest particles of microscopic size.

Carbonate of lime, when heated, will lose its carbonic acid at a good red heat, and we have left caustic lime, or quick lime. On adding water to the lime we observe heating and a violent combination of the water with this base, while at the same time the resulting product, slaked lime, appears to have increased in volume.

In discussing the function of lime in clay, we must clearly distinguish between fine and coarse lime. By fine lime we mean that kind which passes 120-mesh sieve. Lime in this finely divided state behaves as a flux. However, its action is entirely unlike that of the feldspar, inasmuch as it accelerates vitrification not at a slow rate, but very rapidly.

The fluxing power of lime which becomes active so very suddenly is, therefore, a source of considerable trouble to the manufacturer. The difficulty is due to the fact that vitrification and fusion are so close together that the minute the clay begins to vitrify any small rise in temperature will bring about a softening of the clay, or even fusion. Since it is difficult for us to maintain uniform temperatures throughout the kiln, and since invariably some parts of it are hotter or cooler, it is readily seen that the burning of vitrified bricks from lime-carrying clays is a matter of extreme difficulty. The safest policy, therefore, is to burn the bricks just high enough, so that they may obtain a reasonable degree of strength without attempting to bring about vitrification. For this reason calcareous clays invariably are burned into porous bricks, owing to the fact that it is impossible

to burn dense material. At the same time the clay becomes more porous than red-burning clays, due to the escape of the carbonic acid from the clay in the burning. It is readily seen that the finer the carbonate of lime contained in the clay is, the more intense will be the above fusing action.

On the other hand, if the limestone occurs in the form of pebbles or larger particles the fusing action is not so marked. But another difficulty arises. While the fine-grained lime unites chemically with the clay, producing a lime silicate, the coarser particles are unable to do so. They will remain simply as granules of caustic lime, which are combined with the clay only on the surface. If, now, the bricks are stored away or used in a building, after some time water will penetrate into them. As soon as it has passed through the clay surrounding the lime grains and has come in contact with the latter, it is obvious that they will become slaked. As soon as this has taken place, the volume of the lime particles will increase, that is, they will swell with such a force that the brick may be disintegrated. If this happens near the surface, spalling will naturally take place. From this it appears that the trouble caused by coarse lime is very serious indeed, and that it is therefore preferable either to remove the coarser grains of limestone by screening or some other method of elimination, or to reduce all of it to such a fineness that it will do no harm. In other words, the cost of preparation becomes more expensive, and the best way out of the difficulty would probably be to adopt a combination treatment which will eliminate as many of the lime pebbles as possible, and to follow this up by grinding as fine as it can be done commercially.

It is an interesting fact, of which use is made in Europe, that when bricks containing grains of lime are immersed in water, as soon as they leave the kiln the distributing effect of the slaking is far less evident. In many European plants arrangements are provided for lowering the barrows of bricks coming from the kiln in pits filled with water, and for this purpose a double platform elevator is used.

The condition under which the bursting out of the lime specks will take place is bound to vary according to how thoroughly the particles are protected by the surrounding clay, and whether this clay is dense or porous. In some cases it may take quite a while for the water to penetrate through to the grains of lime. In others the slaking may take place very rapidly. Hard burning may delay the slaking of the coarse grains, but unless the brick is burnt so dense that no water can pass through it, this action is bound to take place in time.

Still another peculiar defect may be observed in some limey clays in which the content of carbonate is quite high, going as high as 30 per cent. and above. In this case the manifestations are a crumbling and dusting of the brick as a whole. This action usually takes place quite rapidly after the bricks have left the kiln, or even in the kiln, and it is due to the formation of a peculiar chemical compound, a lime slag, which, on cooling, changes to another chemical compound, this change being accomplished by a large increase in volume. This force is great enough to cause the particles to disintegrate to a fine powder. The manufacturers of Portland cement observe a similar phenomenon whenever they produce a cement somewhat low in lime. In this case the trouble is called "dusting."

Another point in connection with the burning of lime clays might be mentioned. Although clays of this kind contain usually a considerable amount of iron oxide, which we know to be the source of the usual red color of bricks, yet these materials do not burn red, but assume a buff or cream color, which, when carried to vitrification, changes to green. This is due to the fact that lime undergoes some chemical reaction with the iron, which makes the red color. It is very easy to prove this point by extracting the lime from the clay by means of some weak acid. On burning the clay thus treated it will be found to burn red.

Lime, no matter whether fine or coarse, affects the drying properties of clays favorably. This is due to the fact that the limestone is non-plastic and acts like so much sand. The drying necessarily is affected more favorably by the somewhat coarser grain than by the extremely fine particles.

Again, resuming our study of the residue remaining on the sieve, we observe still another kind of mineral particles which are conspicuous for their well-defined crystalline development and by their softness. We may find fragments or even large crystals of beautiful symmetry, which are easily cut with a knife. A simple chemical examination will show that this mineral is gypsum. It is a hydrous sulphate of

lime. This mineral, however, is usually not found in such large amounts as the limestone or fine lime, although there are cases in which several per cent. of it may be present. In drying, this material behaves something like any other non-plastic substance, but, owing to its small amount, exerts no special effect. In burning, unlike the carbonate of lime, it is not a flux in the sense of the latter since it is not decomposed by heating, owing to the fact that sulphuric acid is united powerfully with the lime and can not be expelled at the temperatures within reach of the brickmaker. The result is that these particles of gypsum remain as inert material, and do not become active in the vitrification of the clay. However, it is by no means a harmless constituent. Gypsum is soluble to the extent of one part in about 440 parts of water. In making up the clay with water in the pugging process, some of this gypsum is dissolved and the dissolved salt during the drying process is carried to the surface of the ware. There it will remain as a wet crust, which is not removed by burning. Of course, the extent to

Written for THE CLAY-WORKER.

BRICK AGAIN PROVEN A SAFE BUILDING MATERIAL.

ANOTHER FINE example of the fire-resisting qualities of burned clay brick was shown in the recent fire of the Hulman Grocery Company, Evansville, Ind. This fire, which occurred early Sunday morning, August 1st, resulted in the entire destruction of the general merchandise which filled three stories of the brick building. The interior of the building was totally destroyed, every bit of woodwork being burned, but the four walls built of brick remained standing, and are today in perfectly sound condition. The fire was unusually severe and it was thought at the time that that quarter of the town was doomed; every piece of apparatus in the city was called out. The fire burned like a furnace and was confined strictly within the four walls of the building, but after the fire had spent its force the walls were found little the worse for the severe test passed through. The fire was a \$100,000 loss, covered by insurance, so that an idea



Fire Proof Walls That Were Really Fire Proof.

which this takes place depends upon the amount of gypsum present, the character of the clay and the length of drying. Furthermore, the undissociated sulphate of lime present in the burnt brick on coming in contact with the water which seeps into the brick while in a building will, in time, leach out to the surface. In this case we have a common case known as "whitewash," and it is the gypsum which is at the bottom of this difficulty. If enough gypsum is present in the clay it may even be injurious to the strength of the brick, inasmuch as the dissolved salt may concentrate in one part of the brick or the tile and crystallize out in that portion. On crystallizing it will increase in volume and this volume change may give rise to spalling similar to the action of the lime. Nearly all of the whitewash we observe in our buildings is sulphate of lime, and hence where clean colors are desired, it is obvious that a clay should be used as low in this compound as possible. In many clays the amount of the constituent is so great as to prohibit their use for the manufacture of face brick.

(To be continued.)

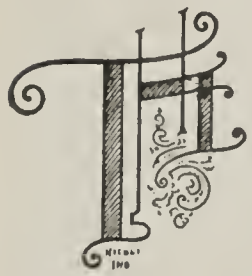
of the severity of the fire is easily obtained. The illustration appearing upon this page was kindly furnished by Mr. John Andrus, secretary of the Standard Brick Company, Evansville, Ind., and an active member of the organization recently formed in Evansville by the brick manufacturers and contractors for the promotion of a more general use of brick as a building material.

Official and complete mine reports of the State of Tennessee for 1908 have just been made. The value of all clay products in 1908 amounted to \$1,327,613. As compared with 1907, this is a decrease of \$175,077, or 11.65 per cent. The value of brick and the product amounted to \$1,129,174, which is a decrease as compared with 1907 of \$90,580, or .074 per cent. The pottery product was valued at \$122,555, which is a decrease compared with 1907 of \$43,613, or 26.20 per cent. The production of commercial clay mined and sold in 1908 by those not manufacturing clay themselves was valued at \$75,888, which is a decrease as compared with 1907 of \$40,980, or 35.05 per cent.

Written for THE CLAY-WORKER.

ALASKA-YUKON-PACIFIC EXPOSITION AT SEATTLE.

THE FINEST OF FAIRS IN SCENIC ENVIRONMENT—
PROVING A SUCCESS FROM VERY START.



CITY OF SEATTLE, normally of something above 300,000 population, has been swelled by an influx of visitors until its streets savor of New York and Chicago at the busiest hours. Twenty-five minutes' ride from the retail centers, the click of turnstiles is keeping pace with the unceasing tramp of the thousands who daily throng to see the Alaska-Yukon-Pacific Exposition. Among the visitors may be found people from every part of the world. Originally intended as an Alaskan commercial show, this latest of expositions is a world's fair in every sense of the word. The 250 acres of grounds, with its 150 buildings, its multitudinous amusements, exhibits and peoples from all lands and sections, make the fair international and universal to a degree that bears close comparison to the best had before.

No other fair has had, nor ever will or might boast of such a scenic environment. The clean-cut mountain ranges—the rugged Olympics to the westward, the gracefully rounded Cascades to the east—seem almost a part of the grounds. Mt. Ranier, towering 15,000 feet into the sky to the south, is the converging point of a long vista that is a study in scenic poetry. The lakes Union and Washington define the boundaries of the grounds with water scenery.

The tall Douglass firs that grew in a forest almost primeval before the exposition's axemen invaded it with instructions to spare the blow wherever clearing was not absolutely necessary, are a most important detail in the general arrangements of the grounds. These firs tower above even the tallest of the exposition structures, and it is an odd picture to see the rugged limbs swing above ornately classic architectural art.

Everywhere the flowers, trees and many varied shrubs blossom and grow in a riotous informal and most-at-home fashion, while a large floral garden with sundial's spheres goes to make a geometrically attractive display. Simplicity, purity and preservation of the landscaper's art have been well cultivated and defined.

The name of the fair—Alaska-Yukon-Pacific—has been fully justified. It is fair to exploit the northland, and in that it is highly successful. Visitors are given an excellent opportunity to get acquainted with the wonders of this practically still unknown territory.

Arriving at the fair at the main entrance, the court of honor is the first place to start the sightseeing of the grounds and buildings. The government building, with its great dome, is the very heart and center of this court. Directly in front of it is the Alaska monument, a towering shaft typifying the spirit of the fair.

Cascades tumble down the court to the geyser basin, where an imitation of an immense geyser spouts every minute. On either side is arranged the Alaskan, Hawaiian, European, agricultural, manufacturers and mines build-

ings, all of classic design and of the color of old ivory, so restful to the eye. Roman, Greek and French renaissance are the prevailing types of architecture.

Eight of the exposition buildings are permanent, and are to revert to the University of Washington, the campus of which was chosen as the exposition site. These are the auditorium, fine arts, machinery, forestry, Washington State, good roads, Arctic Brotherhood and women's buildings. Nearly \$2,000,000 in improvements will be the fair's bequest to this educational institution. Of these buildings the first three are architectural terra cotta trimmings, and present a very imposing feature. The other buildings, with the exception of the forestry building, are of stucco finish. The forestry building is a most interesting one. It is the greatest log house ever built anywhere, and its colonnade of 100 log pillars, each 5 feet in diameter, is the most imposing sight on the grounds.

Among the striking exhibits of the fair is the display of



Floral Garden, Alaska-Yukon-Pacific Exposition.



Washington State's Permanent Building.

a million dollars in gold, piled up in a heap in the center of the Alaska building. The largest copper nugget in the world is another exhibit in the same building. But Alaska is proven to be more than a land of eternal snow and ice. Mineral wealth is abundant, and the visitors are told by picture and facts that the climate of the northland is no more severe than that of the New England States, and that there is more good and paying agricultural land in Alaska than in New England, New York and Pennsylvania combined. An immense panorama pictures the far north as a place of beautiful valleys, rivers and harbors, as well as mountains and glaciers. Its mineral resources are elaborately exploited. Alaska salmon and other fish are cooked in one hundred different ways and served to show their value as a food product.

Alaska not only contributes to its future, but also shows its history. The remains of the largest mastodon yet discovered are exhibited, and what is left of this ancient monster

proves a valuable guide for the government mummified dinosaur which shows its wrinkled skin in competition.

Of the Pacific countries the exhibit of Hawaii is the most prominent, while the countries of the far east across the Pacific—the Philippines, Japan, China and other nations—give the Orient a more complete display than at any previous exposition.

A relief map, showing the model of the island Hawaii, is a good piece of work and a striking bit of realistic art. The Philippine exhibit is mostly made by the government, while Japan is great in their own building.

The northwest fills a most important chapter in the story told at the fair, and the whole Pacific Coast is exploited as never before. Washington, Oregon, California and Idaho have buildings, while British Columbia has a most handsome Canadian building. Several counties of the State of Washington have buildings also, while New York, Michigan and Utah have state structures.

From an educational standpoint, this fair has far surpassed any of its predecessors. The northland is pictured in the average mind as a land of roughness and uncultivateness, as a land in which civilization has not gained any footing. A trip through the educational section of this northland will totally destroy any picture or view the visitor may have, and will assure the visitor that the work done by Alaskan teachers and scholars is better than the average country or even city school of the states.

A monster stadium for athletic events, a natural amphitheater, in which daily exercises are held, a government life-saving station, a model farm, a wild cat still, a daily newspaper printed on the grounds, are independent features of the whole fair.

The amusement features are grouped together, and in order to remind the visitor of the northland feature, the street is called the "Paystreak." Those who have sought fortunes in the far north, have either found or missed their "paystreaks" of the claims.

Regarding the city in which the fair is held, Seattle has been preparing for the exposition for years, and can take care of all visitors. She has a score of first-class hotels, and all with reasonable prices. Free information bureaus are scattered at depots and docks. Six transcontinental railroads have terminals now in Seattle. Each of them runs through a country of great scenic attractions. To come by any one and return by another will be an education in itself. The Puget Sound, the most beautiful arm of the Pacific Ocean, offers scenery the equal of which can not be found anywhere. Steamship connections with California are of a daily occurrence. Excursions to Alaska lasting ten and fourteen days are one of the many side trips.

The monumental energy of this city of Seattle is such that it is worth coming the distance which intervenes between the intended visitors of the Pacific northwest. There may be larger and more magnificent expositions in the future, but there can never be another like this one. The attractiveness of this fair, the mountains, the water, the sound, the lakes and the skyline of firs are public property, and are the main features of its financial success.

The clayworking features of the fair will be described later on separately. In giving this general description of this northland fair, the



Looking Down Cascade Court, A.-Y.-P. Exposition.



Forestry Building, Which will Revert to the University of Washington.

writer has endeavored to arouse the general interest in a trip to Seattle, for he is convinced that once visited the Pacific northwest will always leave behind a desire for seeing it again.

S. GEIJSBEEK.

Written for THE CLAY-WORKER.

TYPICAL HOOSIER BRICK PLANTS.

EVANSVILLE, THE thriving industrial center of southern Indiana, is the home of the Standard Brick Manufacturing Company, which is operating several of the best plants in the southwest. William Suhrheinrich is president; H. C. Kleymeyer, general manager, and John Andres, secretary. H. Kleymeyer and F. Klutey, of the Kleymeyer-Klutey Brick and Tile Works, at Henderson, Ky., are also stockholders and directors. One hundred and twenty-five men are

holds clay enough for a million and a half brick and provides for the weathering of the clay, as well as for steady operation of the plant, regardless of weather conditions. The skillful arrangement of this machinery makes it possible for two men to haul the clay from the pit, pass it through the various reducing machines over the conveying system and distribute it in the storage shed, the daily capacity being enough clay to make 60,000 brick.

After the shale has gone through a sweating process, during a period averaging sixty days, it is then in further preparation run through a high-speed Fernholtz pulverizer, a set of Dunlap revolving screens, a rotary clay mixer, and then fed into the Berg press, where the brick are molded into shape, four at a time. This equipment is in duplicate, giving the plant a capacity of 40,000 brick per day.

The kiln in which the brick are burned is a Haigh semi-continuous kiln, consisting of thirty-six chambers, the draft being furnished through a subterranean tunnel connected



Approach from Shale Bank to Plant No. 1 of Standard Brick Mfg. Co., Evansville, Ind.

employed at the Evansville yards, the annual capacity being 20,000,000 brick, which is at present fully sufficient to supply local trade and the territory for many miles around.

The company's largest plant is located on the Upper Mt. Vernon road, at the intersection of Tekoppel avenue, on the western outskirts of the city. Here was found a large deposit of carboniferous shale, a hard, rock-like substance which must be blasted. It is hauled up an incline track by drum and cable to a tipple-dump, from which it is fed into a Climax rock crusher, which breaks up the larger lumps. From here the shale is transferred by a belt conveyor to a mixing machine, where enough water is added to give the clay the proper dampness; then it is dropped into a 9-foot Raymond dry pan which reduces the lumps to about the size of rice kernels, after which it is elevated and carried to the storage shed by a system of Jeffrey's conveyers, which distribute the material to all parts of the immense shed, which

with a brick stack 150 feet high, 7 feet in diameter, and 14 feet on the foundations. Each of the chambers has a capacity of 20,000 brick, three sets of chambers to each machine being kept under fire constantly, while some of the chambers are cooling and others are being emptied and then refilled.

Since building the Haigh kiln, which superseded four immense up-draft kilns, the product at this yard has been greatly improved, scarcely any salmon brick being found in any of the chambers; and the saving in fuel is considerable.

At Plant No. 2, in the extreme eastern part of the city, the company is making soft mud brick on an Arnold Greager machine at the rate of 30,000 per day, the three large up-draft kilns being equipped with the Boss system of burning and the fan is driven by an electric motor.

The principal stockholders in the Standard Company also control the First Avenue Brick and Tile Company plant, just

north of the city. Herman Bredenkamp is superintendent. Here also a red sand mold brick is made on the Potts machine, and drain tile on machinery installed by the American Clay Machinery Company.

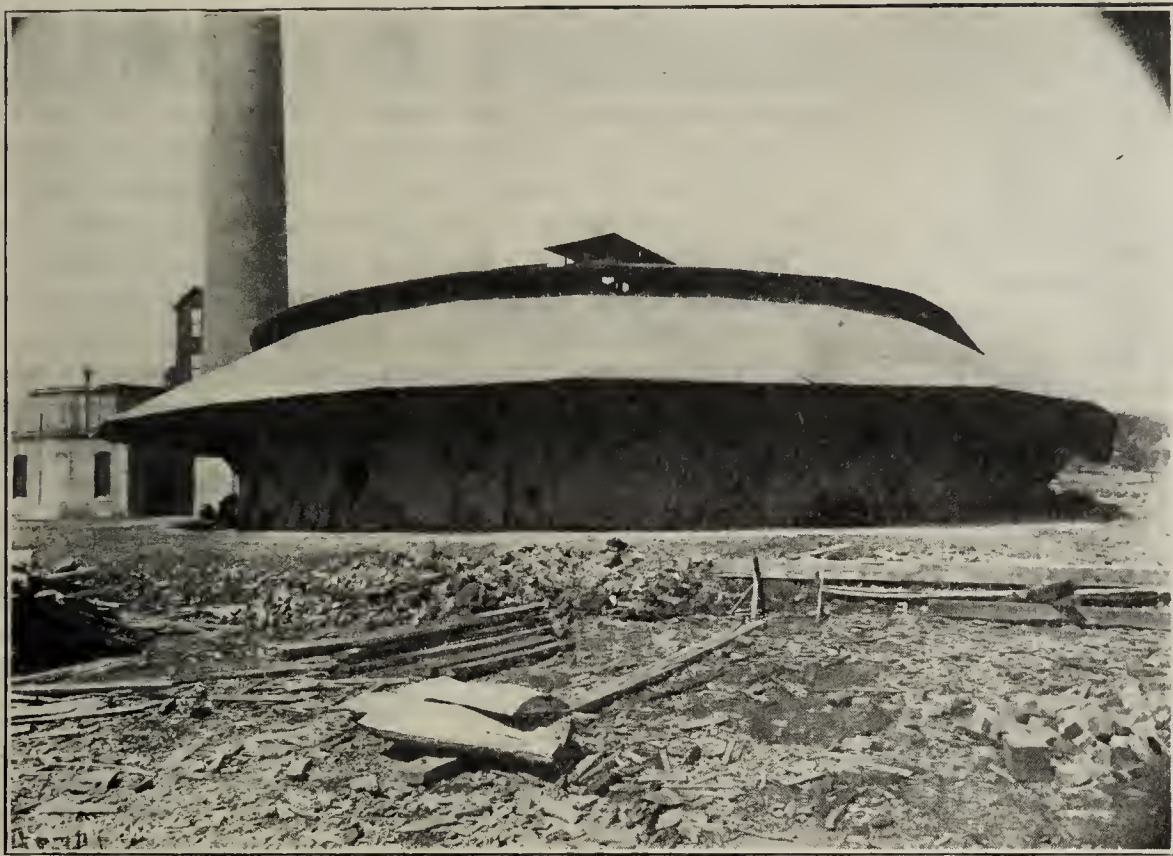
The drying of the material is accomplished in two tunnel dryers, situated 100 feet apart, a fifteen-track dryer for brick, and a six-track dryer for drain tile, the hot blast system being used. A 12-foot fan and heaters, furnished by the Green Fuel and Economizer Company, supply both dryers.

The company is fortunate in the location of their three

Written for THE CLAY-WORKER.

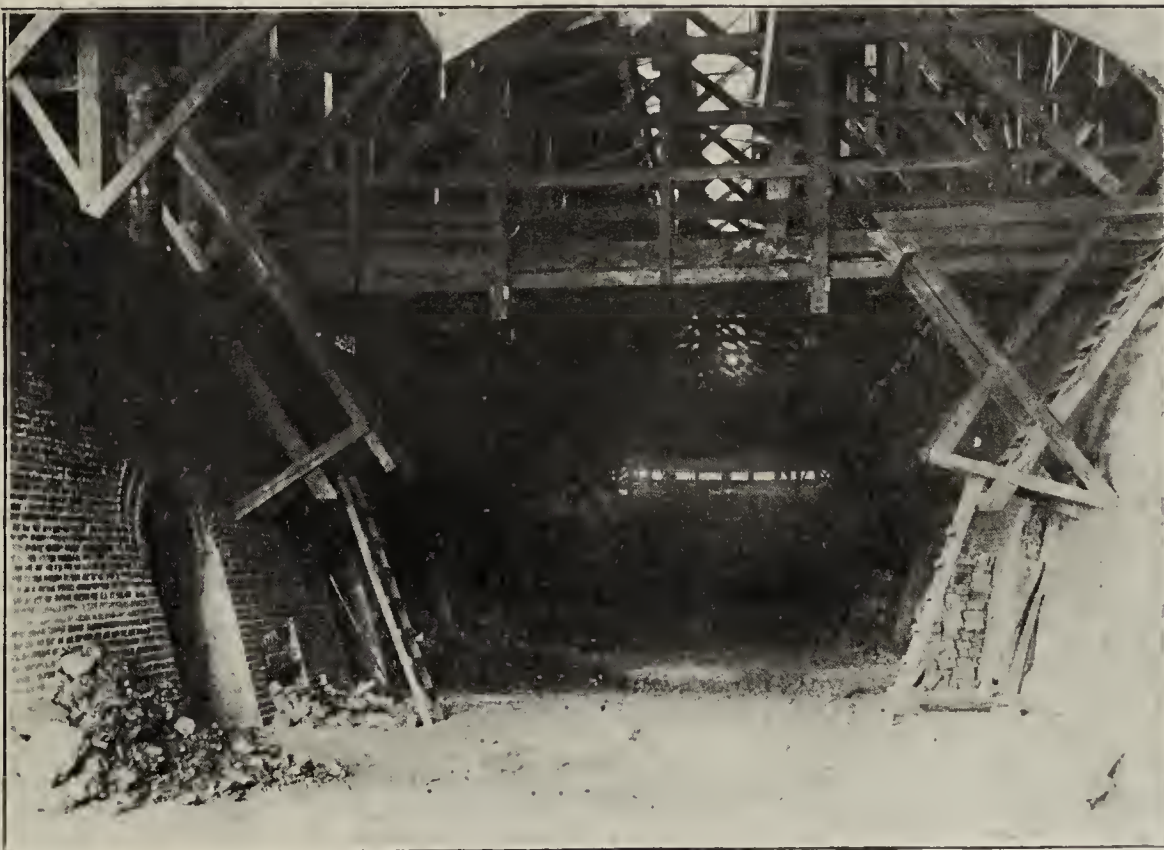
BRICK AND BUILDING NEWS OF NORTHWESTERN OHIO.

THERE IS STILL a brisk demand for all kinds of building brick in Toledo and vicinity. Most of the local plants are running at or near capacity and stocks have been reduced to a minimum by the heavy demand not only in the city, but from the surrounding territory. Building operations fell off somewhat during the last two weeks of July, but the first week in August has found



The
Haigh
Semi-Continuous
Kiln on
Standard
Brick
Mfg. Co.'s
Plant
No. 1.

Inner
Court
Haigh
Continuous
Kiln
at
Evans-
ville,
Ind.



plants, having one in each end of the city, which enables them to handle any contract wherever situated to advantage. Their land holdings are extensive, the combined total being 140 acres, the shale bank at Plant No. 1 running to a depth of 50 feet. Altogether, the clay deposits in sight are ample to supply the demand for fifty to one hundred years.

It is foolish to expect to get good out of the world unless you put some good into it, for it has been demonstrated time and time again that you can't get something for nothing.

them back to the satisfactory position occupied before the dullness came on. July, taken as a whole, made a very fair showing, although the valuation of new improvements fell somewhat below earlier estimates, and the aggregate of the month lacked approximately \$25,000 of reaching the mark fixed by the month of June. It is difficult to say just what caused the quietude in building circles during the latter part of July, but it is generally attributed to advances in lumber prices and other building materials, which took some time to adjust themselves and get down to a working basis. It is

evident, however, that this hiatus is now past and that there will be more doing during the latter part of the building season of 1909 than there was earlier in the year. Many large contracts are under way, many buildings are now in process of construction, a goodly number of which are of more than ordinary magnitude, and a long line of plans and projects for new work to be completed this season are now in sight. Prices of building brick are naturally much stronger than they were last year, when building operations were at a standstill in Toledo and manufacturers of brick were compelled to look outside of the city almost exclusively to find a market for their product. Local stocks of building brick are almost depleted, and it would seem that with present prospects before them there may be an actual building brick famine before the season closes. Other clayworking institutions report a very satisfactory condition of affairs with a prospect for an increased trade, now that the tariff agitation is finally out of the way, and manufacturers can estimate with some degree of certainty as to what is likely to happen. Sewer plants have been specially busy, and it is evident that there never was a season when the smaller cities and villages were so heavily in the market for sewer pipe. Extensive draining operations on the part of farmers who have been peculiarly fortunate for the past couple of years, and, consequently, are well fixed financially, are furnishing an active market for drain tile and keeping the tile plants busily engaged. Pottery concerns also claim that there is a much better demand for their wares and that the business atmosphere has cleared up wonderfully during the past few weeks. The paving block industry has also revived considerably recently, due largely to the fact that money is coming easier, municipal bonds are selling more readily, and that capital generally is now earnestly seeking investment. An official of one of the local banks this week stated that of a \$600,000 surplus which his institution had had on hands for months, more than half of it had been called for and let out to investors within the past two weeks. It may be said generally that business conditions along every line have shown a marked improvement recently, and that clayworking institutions are bound to profit in large measure by the better tone in financial circles.

Denis Honan, a driver of a brick wagon from the Toledo workhouse brick plant, made his escape this week while delivering a load of brick in company with a guard at City Park avenue and Curtis street. While the guard was standing a short distance from the wagon the prisoner suddenly leaped from the vehicle and fled down the street. He paid no attention to the guard's command to halt, and soon disappeared.

The Board of Public Service at Fremont, Ohio, recently awarded two important sewer contracts to Kinney & Zeigler, local contractors. One contract amounted to \$16,572.33 and the other to \$4,288.96.

Large paving contracts are now under way at Defiance, Ohio, and thousands of dollars will be expended in this work before the season closes. Laboring men are extremely scarce in the city and a number of outsiders have been brought in to work on these contracts. Building and construction work in the city is very active at present.

The South Webster Clay Products Company was this week incorporated for the purpose of erecting a large fire brick plant near South Webster, Scioto county, Ohio. The capitalization of the company was fixed at \$100,000, but it is said that this will be increased to \$1,000,000. Construction work on the plant will be started at once, and it is expected that it will be thoroughly equipped and ready for business in time for next season. A number of Columbus men and other Ohio capitalists are backing the project.

The W. R. Weedman Company, of Marysville, Ohio, recently landed a contract which will mean the furnishing of a market for a large block of building brick in that city. The work of erecting the new Union county Children's Home was awarded to the concern by the county commissioners at their of \$9,190. The building, which is to be completed by December 1, will have twenty-two rooms and will be constructed of brick.

T. O. D.



THE DRAINAGE OF IRRIGATED ALKALI LANDS.

The irrigation of land in alkali regions is demonstrating the fact that the water spread out over the land enters into the soil and subsoil, then rising to the surface by the capillary action of the soil brings with it in solution the alkali, leaving it at the surface, where the water evaporates, which so fills the surface soil with alkali that it is practically unfit for agricultural uses. Large areas of irrigated land have in this way been so greatly deteriorated for crop growing that such lands have only a nominal value. The Government has had some experiments conducted to provide against this loss. It has been pretty thoroughly demonstrated that underdrainage is the only sure remedy. The carrying of the water underground through tile drains minimizes the uplifting of the alkali by the capillary action of the soil. It is pretty confidently expected that in the future the land can be pretty well protected against the loss heretofore sustained. Besides, there are thousands of acres that have been rendered unfit for cultivation that may be reclaimed by thorough underdrainage.

CONSTRUCTION OF DRAINS.

The first thing necessary in the construction of drains is an accurate survey of the lines, from which a well-devised plan should be determined to include the carrying of all of the water that is likely to come to the area to be drained in ordinary rainfalls, which would determine the size of tile to be used in the construction of the main and the lateral drains, taking into account the fall and depth of the drains.

In clay soils, with a little running water, it is possible to do satisfactory work in laying tile drains by observing carefully the flow of water and leveling the bottom of the drain, to give a regular, even flow of the water in the drain after the tile are laid. In other soils it is necessary to have grade stakes every 50 or 100 feet, with a tight line above, by which measurement may be taken to determine an accurate grade, for the reason that it is best to lay the tile and cover them as fast as the trench is dug. Otherwise, the side of the trenches are liable to slide in and give trouble in the progress of the work. It is especially important that at any time if the work of digging the trench is discontinued, even for a night, and earth full of water, or if a rain should come unexpectedly, the sides of the trench are liable to slide and cause much extra labor. So it is best to have the work of laying the tile and filling the trench sufficiently to secure the tile in their beds, up to the point where the work is stopped. When the last joint of tile is laid at the point where work is discontinued, be sure to set a short board at the end of the tile to prevent the entrance of any dirt or other matter likely to obstruct the drain.

The digging of the trenches should begin at the outlet and the tile laying follow closely. If two or three diggers are employed, it is best to have one take the first spade depth and go in advance, the other or others following, each taking a spade depth or the desired depth to equalize the work of tile laying and partial filling of the trench, so as to secure the tile in position to follow.

A long-handled tile scoop is best for finishing the grading of the bottom of the trench; the bottom should be con-

caved or hollowed out to receive and allow the setting of the tile firmly in the bed. A scoop having a curve of the blade suited to the size of tile to be laid is preferred for use in finishing the bottom of the ditch before laying the tile. In digging the ditch the width should be sufficient for convenience in digging or spading, and when finished wide enough to receive the tile. Any additional width is so much extra labor in excavation, lifting the earth and filling the ditch when completing work. Much is saved by having the ditch only wide enough to do the work without hindrance. In placing the earth, in digging the ditch, deposit as near the edge as to safely secure it in position until it is needed for filling, then it may be handled into the ditch easily. Study to economize the labor of performing the work most expeditiously and efficiently.

DRAINING IN QUICKSAND.

How can I tile drain where there is quicksand and not have the tile fill up with the sand? is the question frequently asked, and generally answered by saying: "Use pipe tile and insert the joint ends in a collar."

The advice given is well meant, and according to the instruction given in some books, but practice has demonstrated a much better way of preventing the entrance of quicksand into the pipes, which is to cover the joints of the tile with clay, which is better, much better, than collars, and has the advantage of usually being at hand. Of the many tile factories in the United States we venture the statement that not one factory out of fifty makes collars for drain tile and keeps them in supply. The use of clay to cover the joints of the tile has proved such an effectual way of keeping out quicksand, that the use of collars has been abandoned. If the underdrain is being laid in sandy soil, where clay can not be had conveniently, use a strip of tar paper 3 or 4 inches wide and wrap it around where the tile join together, which will be easier done and more effective than collars. It is difficult to get a collar that will fit the joints so closely as to keep out the quicksand. First use clay. If clay can not be had conveniently, then use tar paper strips; the latter will last for years, and when it does give out the sand and soil about the joints will be so compact as to give no trouble in the future. The clay will be on duty for generations to come.

BETTER THAN OPEN DITCHES.

Land owners often make the mistake of constructing open ditches, thinking that they will serve the same purpose of tiled ditches, and afterward wondering why pipes laid in the ground can and do accomplish so much more than open drains, the latter having so much more capacity to carry the water. The open drains are soon affected by the water and weather conditions, so as to puddle the clay surface of the drain, shutting off in part the inflow of water that should come out of the soil and sub-soil on the sides of the open drain, so that the older the open drain the less satisfactory it will work. On the other hand, a tile drain laid with tile having sufficient capacity to carry the water away as fast as it enters the drain works better as it gets older. In fact, tile drains are more and more efficient each added year for several years after being laid, the soil and sub-soil becoming more open and porous on both sides of the drain.

The tile drain works constantly, carrying away the surplus water and thus leaving the soil above the drain line open and ready to receive the water of rainfalls, which the tile removes at its leisure. The water passing out through the drain leaves the air spaces to take in more air, which serves to make more plant food available. So the good work of improving soil conditions for the better growth of crops grown on them goes on from year to year, making the tile drains more efficient.

To get rid of open drains, for they are a nuisance, get large tile of sufficient capacity and lay them deep and care-

fully in the drains, and cover them so as to cultivate over them; then the cultivation, sowing and reaping can go on without any hindrance. Besides, the owner or farmer will get rid of a harbor for noxious weeds, briars, bushes and water-loving vegetation of all kinds, and he will be proud of his job.

SOME THINGS WORTH CONSIDERATION.

If there is to be any difference in the quality of the drain at different points, start well, but let it grow better as it approaches the outlet. Or, in other words, begin doing the best possible at the outlet, and continue doing the best to the head of the drain.

Clay is the best material to use next to the tile, in securing them in place. It may be so compacted around the tile as to hold them firmly. All matters subject to decay are objectionable, because they furnish fine particles that may in the future enter the tile at the joints, and by decrease in bulk, may leave openings through which the water may enter in streams, and, in time, serve to displace the tile.

The digging of ditches and the laying of drain tile comes under the head of skilled labor. While no great amount of knowledge is required in the performance of the work, yet the little required is imperative, that the details of the work may be well done.

BENEFITS OF DRAINAGE.

No soil can produce maximum crops when it is saturated much of the time with water. The best soil condition is when it is moist, that is, when the particles of soil are covered with moisture, and the spaces between the soil particles are free of water. This condition may be obtained by underdraining the soil, which allows the water that would otherwise fill the spaces in the soil to pass down through the soil and subsoil to the drains and out through the tile.

In wet seasons the underdrained soil is much of the time filled with water, and the air so necessary to plant growth is excluded and the crops drowned out, or, at best, are light in yield. Tile drainage, if well done, prevents damage from wet weather and adds many advantages besides. We mention a few, as follows:

A well drained soil enables the farmer to work the soil earlier in the season and sooner after rains fall, and the soil works easier and a good seed bed can be made without repeated harrowing and rolling.

Underdrainage prevents the soil from souring or running together, and prevents the rapid evaporation which makes the soil cold—the well underdrained soil being much warmer, secures the better germination of the seed and a more rapid growth of the plant. It lessens the risk of the freezing out of wheat or clover, so common on wet lands.

It increases the fertility by making it available to plant growth to greater depths. In many clay soils there are stores of fertility sufficient to last many years in growing maximum crops if we can make the soil open, so that the roots can penetrate to greater depths for food and moisture.

Emerson said years ago that there are farms underneath our farms that we know not of until we underdrain. If the soil is filled with water near the surface for any considerable length of time in the spring the roots of our crops will extend out from the plant, keeping near the surface, then, if a season of dry weather sets in, the plants are injured. When the roots are nearer the surface, crops that are cultivated are likely to be injured by deep cultivation or root pruning, even if the season is otherwise favorable.

The most satisfactory benefit of underdraining is the increased crop production—in many instances doubling former productions, with almost mathematical certainty. Underdrainage makes the intelligent, industrious husbandman master of his calling—whether the season be favorable or unfavorable.



The New Home of H. Brewer & Co., Tecumseh, Mich.

A FINE CLAYWORKING MACHINERY MANUFACTORY.

IT IS A REMARKABLE fact that the development of our brick and tilemaking industries to such a high point of perfection as they stand today, has been accomplished within the memory of many of our still active pioneer clay products manufacturers. The old-timers well remember the conditions back in the forties and take pleasure in comparing the present status of the clay business with that of the olden days, when such a thing as clayworking machinery was little known. Brick were made by hand and in a crude fashion, but so well burned that they have successfully withstood the ravages of time. From these old pioneers we learn that in the fifties the clay business in this country took on a new life, principally due to the introduction of clayworking machinery which greatly improved the process of manufacture. Later dryers using artificial heat and kilns with permanent walls and roofs were installed that greatly reduced the cost of production, shortened the time for drying and burning and enabled the manufacturers to turn out better products, but the greatest credit for the evolution in brick and tilemaking, as well as in the other clay industries, must be given to the long-established clayworking machinery companies, one of

which is H. Brewer & Co., Tecumseh, Mich. For over fifty years this firm has played a most important part in this field.

A Little History of H. Brewer & Co.

In 1849, Horace Brewer established a foundry and machine shop at Tecumseh, under the firm name of Anderson & Brewer. It was a small affair and catered only to local trade, making in a primitive way steam engines and sawmills. Their factory building was insignificant and unpretentious, though affording adequate facilities for their work at that time. Later the firm name was changed to H. Brewer & Son, at which time they entered the clayworking field manufacturing the Tiffany tile machine and the Sword brick machine, both of which gained popular favor. These machines were at first made under contract in the H. Brewer & Son shop, thus giving to the Brewers the credit of making the first of this type of machinery. After the death of Horace Brewer in 1880, his two sons, Charles and Albert, took up the business. Charles Brewer died in 1885, and at the death of his brother Albert, in 1895, the firm was incorporated under the head of H. Brewer & Co. At this time Mr. Charles Burridge, who is now widely known through his identification with the National and State Associations, became associated with the H. Brewer & Co. as sales manager, which position he holds today. The present officers of the company are: President, P. W. A. Fitzsimmons, son-in-law of Albert Brewer; vice-president, Horace R. Brewer, the only son of Charles



VIEWS OF THE LARGE, WELL LIGHTED AND VENTILATED



Transportation End of Plant—Showing Jib Crane for Loading Freight Cars.

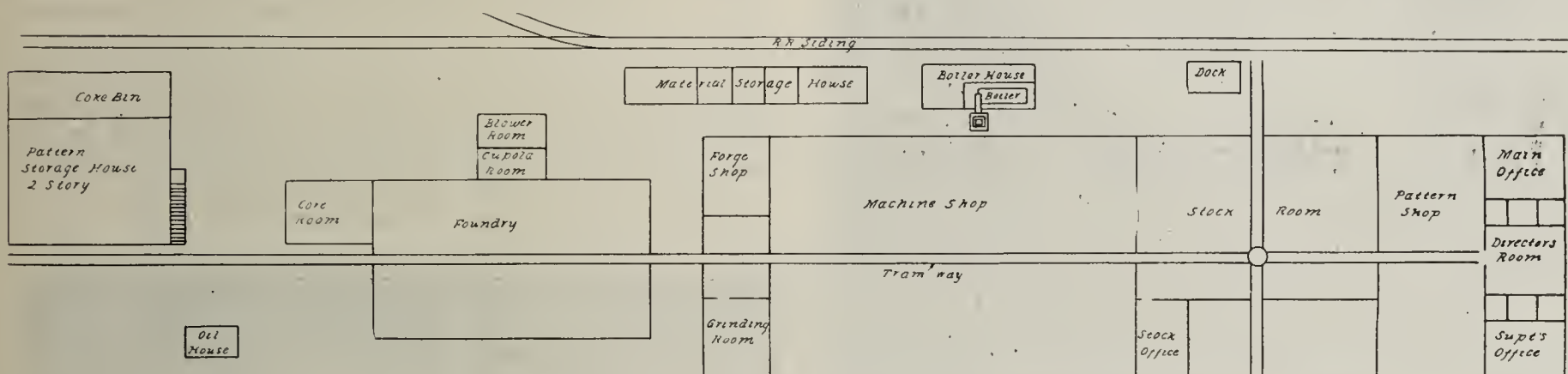
Brewer, and grandson of the founder, and secretary and treasurer, John D. Shull.

The Development of H. Brewer & Co.'s Machinery.

While, to be sure, their first clayworking machines were crudely built and have long since disappeared, the funda-

So we may truthfully say that the present high rank of the clay business is in part due to H. Brewer & Co., who worked out many excellent ideas under adverse circumstances, and stand at this time among the foremost clay machinery manufacturers in the world.

Their first Tiffany machine, invented by George S. Tiffany,



Floor Plan of H. Brewer & Co.'s New Plant.

mental principles still remain in their present day machines, and have been improved and worked out so skillfully that by their usage the clayworking industry has become one of the most important in the world today, having an annual production in this country alone valued at over \$160,000,000.

of Tecumseh, who is still living in his old home and quite active, though now well onto his eightieth year, was built for the manufacture of 3-inch tile only. It consisted of a vertical cylindrical tank, inside of which revolved a shaft having knives which mixed the clay and forced it out of



FOUNDRY OF H. BREWER & CO., TECUMSEH, MICHIGAN.

a die on one side at the bottom in a hollow 3-inch tube of clay, which was cut into tile by hand. This at first was run by a horse traveling around the machine pulling a long wooden shaft, but later this was changed so as to be run by steam power. Even in its first stage the Tiffany machine was a great improvement over the hand method. After a period of experimenting, it was demonstrated that 6-inch tile could easily be made on the machine. At that time little was it thought that there would ever be a demand for larger sized tile. Think of the many plants today making 24-inch and even larger size tile with almost the same ease as the smaller sizes, and on Brewer machines which weigh 10,000 pounds and have capacities more than sufficient to run any of the large plants with enormous outputs making tile of all sizes. Such has been the development of the Brewer machines, which today are shipped to all parts of the country and are proving an unqualified success.

The Sword machine passed through a similar evolution. This was a vertical machine for making brick, the clay being thrown in the top by hand, but later a conveyer belt was added which carried the clay from a crusher to the top of the machine, a distance of probably 10 feet. These machines, the Tiffany, the Sword and the Brewer crusher, were greatly improved from time to time, and for several years were the H. Brewer & Co.'s chief product. With constant experimenting they added numerous important features to their ma-



The Immense Pattern Shop.

chines, and finally placed upon the market a high-grade horizontal machine as well.

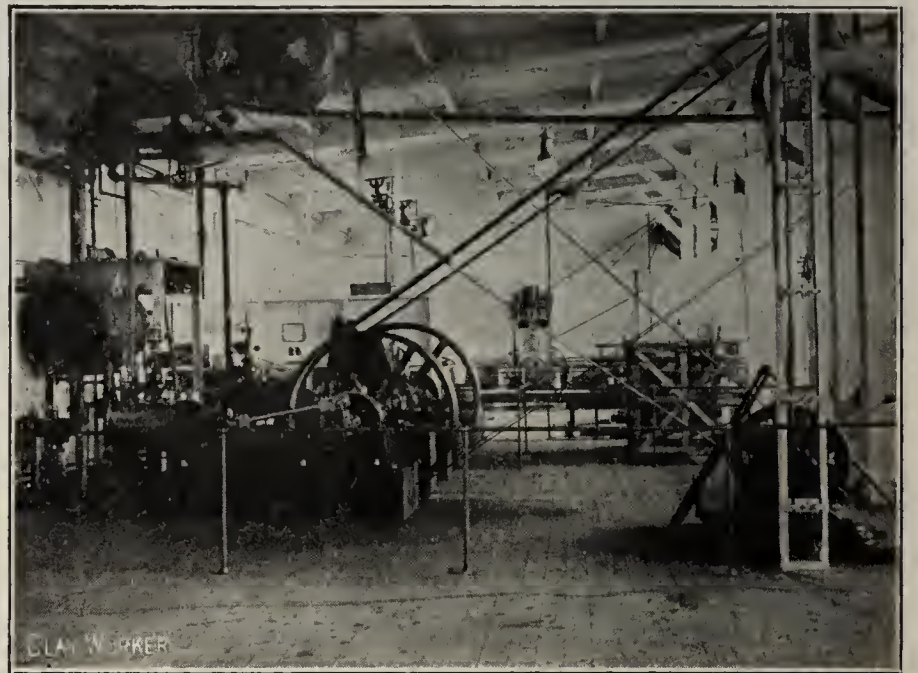
From 1884 the company gradually increased their factory capacity by five distinct changes and additions to the buildings, until a year ago the need for new and better quarters became so imperative that they began the erection of a magnificent factory, 600 feet in length, which represents an investment of \$175,000. The new home of H. Brewer & Co. is one of the finest in the clay field and affords them ample room and facilities for producing an enormous number of their machines annually.

They are now manufacturing on a large scale not only their horizontal brick machines, but almost everything needed in the machinery and equipment line employed in modern stiff mud plants. The Brewer machinery, including their large horizontal and vertical machines, cutting tables, crushers and granulators, disintegrators, dry pans, pug mills, conveyers, hoists and various other machinery, has a high reputation and is recognized for its high qualities, great durability and economy and simplicity of operation. A trip through their well-equipped new factory will no doubt be a treat to many clayworkers.

The Company's New Home.

The first impression of a visitor as he views the immense buildings housing the works, is one of substantiality and strength. They occupy a prominent location on the outskirts of the village of Tecumseh, being available to transportation

by a spur track of the L. S. & M. S. R. R., about 700 feet of straight trackage running alongside the west side of the property. The problem of transportation has been solved most satisfactorily through the erection of a complete industrial railway system, whose branches reach every portion of the shops and connect with the railroad tracks at convenient points. This narrow-gauge industrial road runs entirely through the center of the principal buildings, and, in connection with the elaborate system of traveling cranes, permits the handling of the heavy machinery and castings with an ease and rapidity unsurpassed. All the centers of



Section of Power Plant, Showing Compressor and Generator,

activity in and about the works are provided not only with railroad trackage, but with cranes of necessary capacity. The three largest of these cranes are each capable of sustaining a weight of eight tons. They are all the product of the Northern Engineering Company, of Detroit.

All the buildings are of the standard mill construction,



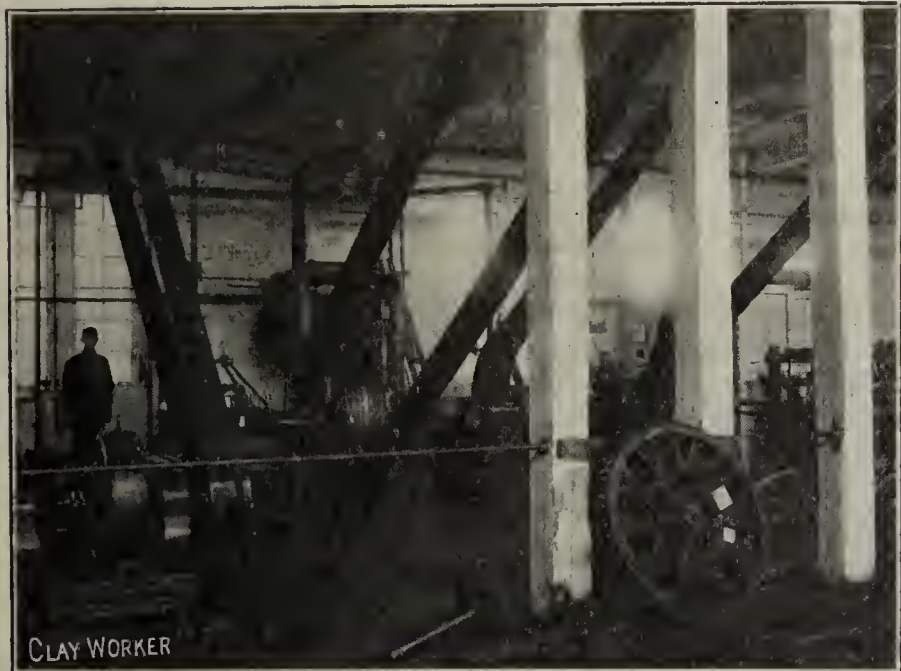
Erecting Floors and Machine Shop.

known to insurance men as "slow burning," the principal difference from ordinary mill construction being that the timbers which support the roof are larger and further apart. The roofs are of the five-ply pitch and gravel variety and the glass, except that in the lower sash, is corrugated.

The Main Building.

The main building is 322 feet long and 90 feet wide, with a monitor 30 feet wide extending throughout its length, except 30 feet upon each end. Entering this building upon the west side of the north end, we find ourselves in the main

office. This room is large, well lighted and well furnished, and is joined on the east by toilet room, lockers and fireproof vault. Upon the opposite side we find the draughting room and office of Superintendent Davis Brown. It is here that new designs are originated and put in condition for the shops and from here the movements in the shops are directed. Between the two offices just mentioned is the directors' room and a wide passageway leading from one office to the other and to the shops. All offices, in fact each desk in all the offices, as well as all departments throughout the entire works, are connected by a private telephone system which



H. Brewer & Co.'s Power Plant.

permits intercommunication without expenditure of time or effort.

Passing from the offices we enter the pattern shop, and in this department we find the highest development of the woodworker's craftsmanship. Tools with razor edges remove shavings as thin as tissue and are guided by the skillful hand



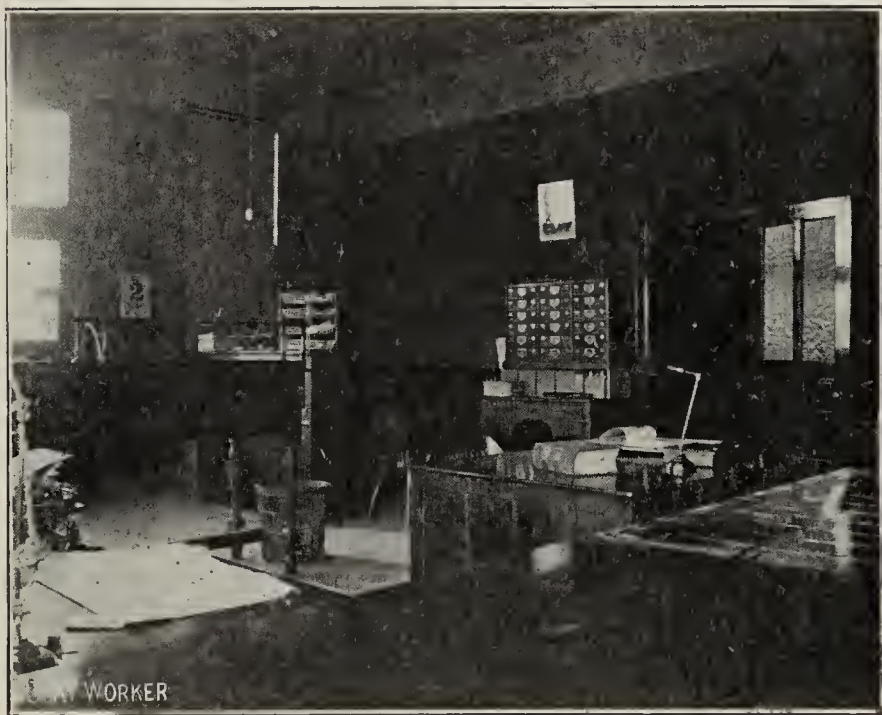
An Aisle in the Well-Equipped Stockroom.

of the workman along lines of hairlike fineness. The completed machine reflects the accuracy and the finish of the pattern, and, as far as the mechanical work is concerned, the construction of it starts in the pattern shop, where it assumes certain indelible impressions which remain with it forever. In this shop there are numerous saws, lathes, planers and boring machines, as well as the benches at which the hand work is performed.

Proceeding south we enter the stockroom, and are immediately interested in the large traveling crane which is moving a massive brick machine of 14,000 pounds weight so easily

and so rapidly that it seems almost incredible. This stock room is 90 feet square and consists of three sections 30 feet wide. The center section is covered by the traveling crane just mentioned and contains finished machines of the heavy class. The west section contains the medium weight machines and parts which may be handled without the aid of the crane; and the last section, which is separated from the others by a glazed partition, is filled with racks and shelves, as shown in the illustration, which go to the ceiling and contain many thousand different stock parts and kinds of material, all indexed and classified in a thorough manner. In the south end of this section is also the stock and shipping office, where the time of the workmen is kept and where the cost accounting is carried on.

This stock room is run on the card index plan and is in charge of Mr. Horace R. Brewer, the only one of his name connected with the works. The entire stock of parts is carried on a perpetual inventory. The same could be said of the material, stores and finished machinery, it being possible from this perpetual inventory at any moment to secure an accurate statement of the value of the stock carried, or of the quantity of stock of any particular kind. The cost-keeping system maintained in this plant, while not elaborate, is very complete and especially adapted to the class of work involved. The value of the castings is based on the average



The Well-Furnished Office.

cost per pound, which system has been considered best adapted for a plant of this character.

Continuing south we enter the machine shop, which is the largest of the rooms in the main building, being 90x130 feet. It contains a multitude of machines, some enormous in size and weight, while others are delicate in proportions and accuracy. We are shown the index wheels on one machine, the graduations of which represent one one-thousandth of an inch, and, almost within reach, another monster machine cutting chips as large as walnut shucks from a large casting. There are lathes, planers, boring mills, shapers, grinders, millers, keyseaters, radial drills and many other machine tools which few, aside from machinists, know anything about; and there are bench hands and vice men and floor men, who do the assembling or erecting.

All of the machine-tool equipment about the works is of the most modern pattern and most of it is entirely new. Some of the tools are especially worthy of mention. The largest, an open-side planer, made by the Cleveland Planer Works, has a capacity of 42 inches by 42 inches by 12 feet, and is an unusually large planer for a plant of this character. Other noteworthy tools are a Bickford Company 84-inch vertical boring and turning mill and an Osterline universal grinder capable of adjustment to the one-thousandth of an inch.

In this room also there are two traveling cranes, by means of which the heavy castings and machines are moved about

and placed in position. We also see in this department a set of testing and demonstrating machines which are kept in readiness for the benefit of prospective buyers "who come from Missouri" and have to be "shown." All these things, taken together with the engines, the air compressor and the electric generator, make this a busy place, compact in arrangement, yet not congested or inconvenient.

Leaving the machine shop we enter the chipping room, where heavy castings are given their first smoothing up with chipping hammers operated by compressed air. To the east of this is the rattler room, where the smaller castings are cleaned in rattlers or tumbling barrels, and also the grinding room, where the large rapidly-revolving emery wheels are located. To the west is the forge shop, with its large heating furnaces and steam hammers, as well as the forge, anvil and sledge of our grandsires, which for some kinds of work have yet to meet their superior. We notice the absence of bellows, however, and are told that they have given place to a blower driven by power, which "saves elbow grease."

The Foundry.

We are glad to leave the heat of the forge and the dust of the rattlers for the open air and find ourselves in an areaway 20 feet wide between the main building and the foundry. This space is all accessible to the operations of another traveling crane, and is used principally for temporary storage of rough castings which are not required in the shops. The foundry is a building 100x60 feet and with



Main Erecting Floor, Showing Traveling Crane.

two adjoining additions, one of which is a core shop with its ovens and benches, while the other contains the cupolas or furnaces, the blowers and the electric motor which drives them, and the pneumatic hoist which elevates the iron and fuel to the charging floor above.

The striking feature of the foundry is the ample provision for lighting and ventilation and its commodious size and arrangement. The roof is truss supported, thus doing away with all posts. In this foundry they make castings as small as ¼-pound each and as large as 4,000 pounds. For handling the heavy castings, flasks and patterns, there is a 15-foot jib crane, and deep pits are provided for some kinds of work, which, if made upon the floor would project too high for convenience.

Showing the great care exercised in every detail of the manufacture of Brewer machinery, it is to be noted that every heat from the foundry is carefully tested. Three test bars are taken from each heat. They are 1 inch square and 12 inches long. In the superintendent's office is a powerful testing machine, and on this these bars are tested to the breaking point. This care is exercised for the purpose of maintaining a high standard for all castings, the standard ranging from 3,000 pounds up to 5,000 pounds for the semi-steel, which is used for all important working parts of the machinery.

Following the tram track south we again reach the open air, and in passing observe the oil-house in which the various kinds of oil used about the works are stored. There is engine oil, cylinder oil, core oil, thread cutting oil, kerosene, gaso-

line, alcohol, linseed oil and the like, all isolated to reduce the fire risk.

Where the Patterns are Stored.

Passing on we reach the pattern storage house, a two-story brick building 50x60 feet. This building is filled with indexed shelves and racks and contains the many thousand patterns from which the different castings are made. The contents of this building are, of course, valuable, and for that reason it is separated from the others as much as consistent. The uninitiated can hardly realize the value represented in the wooden patterns stored away at a plant of this kind. Some of these patterns represent a value of nearly \$1,000, and \$25,000 would be a conservative estimate of the actual value of the total contents of this building. Near the pattern storage house we find another traveling crane erected over the yard. With this the heavy flasks are loaded upon the tram car for transportation into the foundry, where they are used in making the molds.

Turning now to the west side we reach the railroad track, and find piles of coke and pig iron conveniently located to load upon a tram car which takes the material into the hoist before mentioned. We again turn to the north, and as we proceed we come to the material storage house, where molding sand, fire clay, smithing coal and other fuel are kept.



Brewer's New Giant Planer.

This is a long, narrow building so located that cars may be unloaded directly into it. Next, we reach the boiler house, in which the large, high-pressure boiler is located, together with the pumps which supply the water for the institution, a large water-storage tank upon the roof and a 60-foot brick stack adjacent. Near by is a large pillar crane by means of which the machines are loaded upon the cars for shipment. Like the traveling cranes inside, it is powerful and rapid, lifting tons as if they were pounds.

We have completed the circuit and are back at our starting point. We appreciate now more fully than before that it is a mighty big plant, well equipped with modern tools and a credit to H. Brewer & Co.

The Power Plant.

The power plant operating the plant was supplied by the Atlas Engineering Works, of Indianapolis, and includes a high-pressure horizontal tubular boiler of 100 h. p., and two throttling engines, one of 50 and the other of 75 h. p., the larger of these being used particularly for the operating of the demonstration and testing machinery. In connection with the power plant is a 30-kwt. Ft. Wayne generator, which provides electric lighting by both arc and incandescent systems. Also connected with the power plant is a Westinghouse com-

pressor, which supplies compressed air for the air tools and elevators.

For the winter months a vacuum heating system is provided, ample for all requirements. By this system all the exhaust steam from the engine is condensed and the condensed steam returned to the boilers. A vacuum pump permits the use of this exhaust steam without back pressure upon the engines.

The credit for the unusually fine design and construction of this new home of H. Brewer & Co. is due in no small degree to Mr. Davis Brown, the superintendent and mechanical engineer in charge. He has been actively interested in the clay machinery business for over thirty years and has made many valuable improvements in the Brewer machines, which now, true to their trademark, "If marked Brewer, its good," are meeting with entire satisfaction.

The H. Brewer & Co. policy of confining their business to the clayworking field only, and giving all of their efforts to improving and perfecting their complete line of stiff mud



A Corner in the Machine Shop.

machinery for the manufacture of brick and tile, has maintained for the Brewer products a high reputation for a good standard of excellence in both the materials entering into the machines and the workmanship on same. Their horizontal brick machines and their upright drain tile and brick machines are in great demand today. Although the past year has been one of dull times for many machinery manufacturers, H. Brewer & Co. have been operating steadily and have shipped many large orders to distant points.

THIEF GETS BRICKYARD PAYROLL.

Thieves entered the office of the John Hall Brickyard, at Tiffin, Ohio, recently during the absence of the office employes and stole the funds on hand to meet the payroll, amounting to more than \$500. A woman working near the place saw a man run from the office and furnished a description to the police. The thief was not arrested. Two suspects who were arrested were later released upon the failure of the woman to identify them.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



HERE HAS BEEN considerable "doing" in the world of brick and building during the past month. Not of least interest has been the move on the part of the common brick people to settle their differences and agree upon a "living price" for common builders without violating the anti-trust laws of Illinois and bringing the wrath of the public prosecutors down upon their heads. Incidentally, there has been a slight reorganization of the Illinois Brick Company, which is among the chief of the parties to the proposed new arrangement.

William Schlake, who was secretary of the Illinois Brick Company, has been chosen as its president, following the resignation of C. D. B. Howell. E. C. Potter takes Mr. Schlake's place as secretary. David R. Forgan resigned as director and his place on the directorate is taken by George S. Munroe, of Joliet, Ill.

The building record for the year is still holding up several paces in advance of last year, as shown by comparison of statistics week for week. The general run of the buildings continues small in amount invested, showing that it is a prosperous time for the individual, and single residences or small apartment dwellings are the order of the day.

There are, however, plenty of larger projects worthy of special note. Not of least interest is the first tangible evidence of a movement which is expected to broaden the sphere of the skyscraper considerably and carry this class of building outside of the loop district, to which they have been confined since the first one was erected about two decades ago. Such a building will soon be put up for the White Steamer Automobile Company, extending along Wabash avenue from 2633 to 2709. This is so many blocks south of the southernmost loop boundary, that it is all the more significant.

Among the modern structures which will not aspire quite to the sky-scraper class planned for immediate erection in the downtown district is a ten-story mercantile building to be put up for Jacob L. Kesner at the northwest corner of Madison street and Fifth avenue. It is to be of brick construction, with an expanse of 80 feet on Madison street and 120 feet on Fifth avenue, and will cost in the neighborhood of \$800,000.

A modern warehouse and depot is to be put up at Twenty-second and Grove streets by W. M. Hoyt & Co., wholesale grocers. It will be of brick and fireproof construction and cost about \$400,000.

A fine new building is planned for the University School for Girls, with 102 feet frontage on the Lake Shore Drive, just north of Cedar street. It is to be three stories high, with an English basement, and the street wall will be of brown brick with a rich surface, trimmed with terra cotta. A fine architectural effect is promised. It will be in strict colonial style, and will afford accommodations for forty resident pupils and two hundred day attendants. Holabird & Roche are the architects.

The same architects planned the handsome building which is being put up for the Studebaker Brothers Manufacturing Company, at the southwest corner of Michigan avenue and Twenty-first street. This is to be a seven-story building, with an exterior finish of brick, and will be ready for the automobile department of the business about December 1.

The demand for theaters of solidity and good looks in the outlying districts keeps up, and the bills presented outside the loop are no longer always "melo" or trashy. A neat little brick theater, costing the tidy sum of \$300,000 is to be used out on the northwest side for the presentation of high-class musical comedy. It will be located on West Division street, just west of the juncture of Milwaukee and Ashland avenue. The exterior surface will be of glazed brick and terra cotta trimmings. The interior will be in keeping, and it will seat about 1,500 people.

SCRIP.

Written for THE CLAY-WORKER.

BRICK NEWS FROM DIXIE LAND.



BUILDING CONDITIONS in Memphis, Nashville, Chattanooga and other southern cities, are quite good this month. Anticipations for September are equally as favorable. The brick and clay-working industries so far as visited by your representative in the southern territory report regular operations and plenty of work. Labor is frequently scarce and prices are quite close.

The Memphis Brick Supply Company reports a good business from their office in the Southern Express building, Memphis, Tenn. They are furnishing 800,000 brick for the Alston Boyd warehouse, 350,000 brick for the DeSoto Oil Company building, and about 350,000 brick for the Memphis Cotton Oil Company plant, in new South Memphis.

The Cubbins Brick Company, Memphis, Tenn., are now burning about 470,000 common brick. They are furnishing the brick for the South Memphis public school, also the brick for the city hospital.

The Bush Brick Company, Arcade, Nashville, Tenn., say that the foreign market for brick is very good. At Nashville their principal job just now is the Davidson county court house. Recently the Bush Brick Company suffered a \$15,000 fire loss in their engine and boiler rooms and dry sheds. The fire was late in June, but the place has now been restored.

E. T. Lewis & Co., of Nashville, Tenn., have the contract for considerable brick paving over the city, which, with other contracts, keeps them busy.

T. S. Jenkins, of Huntington, Tenn., who recently purchased the E. U. Dill farm, has found thereon a clay believed to be potter's clay. In different parts of Carroll and the adjoining county of Carroll, some very fine clays have been found.

An inexhaustible supply of clay, supposed to be kaolin, has been found on the premises of L. F. Duke, at Dickson, Tenn. When first mined the clay has a yellowish cast, but as it dries it becomes white. There is no grit in its composition and it is easily molded into any desired shape. An analysis will be made of the deposit. The bank in which the clay is found is within seven miles of the railroad and the same distance from the Harpeth river.

The Board of Public Works at Nashville has let the contract for the construction of a clay pipe sewer between Woodland and Main streets, in East Nashville, to Curtis & LeSuer, on a bid of \$1,575. The appropriation for the work was \$1,600. The only other bid received was \$1,783.27.

Mayer Bros. will start a plant at Frostburg, Md., for the manufacture of building and paving brick.

The Wilpicoba Clay Works, of Ragland, Ala., will expend \$50,000 for improvements to its brick plant.

The Prewitt Brick Manufacturing Company, of Elgin, Texas, will install additional machinery and enlarge its plant.

E. C. Murphy, of Hobart, Okla., is considering the establishment of a \$10,000 pressed brick plant.

The Columbus Fire Brick Company has been incorporated at Columbus, Ga., with \$15,000 capital stock. Andrew L. Crawford is president. A plant formerly operated by Mr. Crawford at Girard, Ala., has been taken over.

J. B. Sewell, of Baldwin, La., will establish a brick plant at Bayou Teche, La.

The Eureka Fire Brick Company has been incorporated at Tuscaloosa, Ala., by J. D. O'Gara, H. W. Sweet and N. Hedgeoth.

The Giddings Pressed Brick and Gin Company has been incorporated at Giddings, Texas, with \$30,000 capital stock.

The Womble Brick and Tile Company, of Womble, Ark., will establish a brick plant. C. M. Howells and Milton Robbins are the incorporators.

The Creighton Tile Company has been organized at Creigh-

ton, Mo., with a capital stock of \$25,000. Victor Swanson and others are identified with the company. The company will manufacture tile and hollow brick. **DIXIE.**

THE VALUE OF THE CLAY PRODUCTS OF ILLINOIS IN 1908.

E. F. LINES, STATE GEOLOGICAL SURVEY.

THE REPORT on the value of the mineral products of Illinois for 1908, which have been obtained by the State Geological Survey in co-operation with the Federal Survey, shows that the clay industries have shared the effect of the financial stringency of 1907. The total of the values reported of the clay products in Illinois for 1908 is \$11,425,575, which is \$1,794,914 or 13.5 per cent. less than for 1907, when the total was \$13,220,489.

Among the leading industries the greatest decrease in the 1908 production as compared with that of 1907 was in the output of common brick, the 1908 total being 25 per cent. less than that for 1907. The average price in 1908, which was \$4.34 a thousand, was almost exactly the same as in 1907. This low average is due to the large quantity of brick that have been sold in Chicago at very low prices. Outside the influence of the Chicago market the prices of common brick ranged from \$6 a thousand to \$8 in small towns.

The paving brick industry not only held its own, but showed a substantial gain during 1908, the increase over 1907 amounting to 11.8 per cent. The average price per thousand advanced from \$11.08 to \$11.71. The highest proportionate gain was made by drain tile, with an increase of 37 per cent. The figures for sewer pipe show a loss of 22.6 per cent., and for pottery 14.6 per cent.

A summary of the values of clay and the leading clay products for 1907 and 1908 are shown in the following table:

Value of Clay Products in Illinois in 1907 and 1908.

Product.	1907.	1908.	Percentage of Increase (+) Decrease (—)
Common brick ...	6,499,777	4,873,122	—25.0
Paving brick	1,405,821	1,572,576	+11.8
Drain tile	1,031,192	1,413,424	+37.0
Sewer pipe	662,487	512,340	—22.6
Pottery	935,312	797,954	—14.6
Miscellaneous	2,685,900	2,256,159	—15.9
Total	\$13,220,489	\$11,425,575	—13.5
Raw clay	\$105,703	\$114,481	—13.5

The value of the raw clay is not included in the total value of the clay products for the reason that the major part of the clay is used within the state in the manufacture of sewer pipe, stoneware and terra cotta. The figures for the latter, which is one of the leading clay products of the state, are not published because of the custom of the survey not to publish totals in which less than three producers are represented.

The value of all the mineral products of Illinois in 1908 amounted to \$130,576,694, as against \$152,221,284 in 1907 a loss of 14.2 per cent. It appears, therefore, that the business of the clay industries last year compared favorably with the mineral industry as a whole, and although there was considerable loss in mineral products in Illinois, this loss was less than the average for other states, in the majority of which the losses amounted to from 20 to 25 per cent.

The detailed report for Illinois mineral production in 1908 is shown in Circular No. 5, and may be obtained by sending 2 cents postage to the State Geological Survey, Urbana, Ill.



Building Material Test.—The Royal Prussian Testing Station at Grosz-Lichterfelde tested during 1908, 39,136 pieces of material which belong to the building material class; 20,381 tests belongs to brick of all kinds of material, and 18,755 tests were of different mortars and binding materials. Of the brick tested the greater part were clay brick, of which one set showed the high crushing strength of 5,760 pounds per square inch. The lowest test for brick was 3,000 pounds per square inch.—Kalksteinfabrikation, No. 11, 1909.

The German Kachelstove.—The German kachelofen or stove, which has been used for centuries to heat the rooms of residences, offices and hotels, and is principally made of clay, glazed tiles and fire brick, has been more and more pushed to the background on account of more modern methods of central heating plants. The German clay oven manufacturers have recently gotten together to find a remedy and to contract the great loss to which they have been subjected in a count of business loss. They will erect in Munich a testing and experimenting station, in which results will be tried to be obtained to apply the clay oven to modern heating plants.—Tonind. Z. Z., No. 41, 1909.

Sewer Pipe Situation and the German Tariff.—With the new German tariff regulations, the sewer pipe manufacturers are suffering considerable. The new tariff reduced the duty to 40 pfenning from one mark (from 25c to 10c) for every hundred kilos. The foreign countries have, however, all raised the duty. Austria to 48 cents, Switzerland to 75 cents, Italy to \$1.50, Belgium to 22 cents, and France to 40 cents. The export of German sewer pipe has been stopped nearly entirely, many cities close to the boundary advertising bids on German and foreign pipe. Especially is this the case with Belgium manufacturers. The best Belgium is, as a rule, far inferior to the very poorest German pipe, and the people will find out before long that the home product is the best material to use.—Tonind. Z. Z., No. 50, 1909.

Flowerpot Kiln.—The following kiln construction can be used for the burning of flowerpots at the temperature between Cones 011 and 08. When wood can be delivered cheap, a half-muffle kiln, in which the flues are so arranged that the fire will go first through the bottom flues and through the ware, and then strikes against the roof of the kiln and then collects in a hole in the crown and is drawn off by the chimney. In case of the use of briquettes, lignite or coal, a muffle kiln is necessary, in which the fire gases will go three or four times around the muffle. If it is necessary to biscuit the ware first, then the waste heat should be taken advantage of and a story added to the kiln through which the kiln gases can pass, and in that way the ware will be biscuited.—Keramische Rundschau, No. 11, 1909.

Figuring the Capacity of Continuous Kilns.—In reply to a question of how many brick and roofing tiles should be set in a continuous kiln to produce an annual output of 2,000,000 brick and 3,000,000 roofing tiles, we find the following figures: The setting as done now is two chambers per day, holding from 10,000 to 20,000 pieces of mixed ware per day. To burn 60 per cent. of roofing tiles in a chamber and obtain good results is impossible. Thirty per cent. is a better ratio of setting, and this could possibly be brought up to 45 per cent. under certain circumstances. The brick should be used to make the proper fire walls to protect the roofing tiles. There are 200 working days in a year, and adding to this the Sun-

days, we get 225 days' burning. In this period 5,000,000 should be burnt, which gives a daily burning product of 22,000 pieces. A cubic meter of usable burning space contains 300 pieces, either brick or roofing tiles. For 22,000 pieces it will require, therefore, 75 cubic meters' kiln space. When the kiln has a sectional surface of 8.5 square meters, the fire should advance about 9 meters every twenty-five hours in order to burn 22,000 bricks or roofing tiles. When the roofing tiles are set according to the above-mentioned methods, they will occupy about 4 square meters of the kiln, and as the fire advances 9 meters every twenty-four hours, there will be burnt 4x9x300 meters, equal in round figures to 10,000 roofing tiles. In 225 working days we therefore can count on a yearly production of 2,500,000 tiles. It will be the highest quantity that such a kiln could produce.—Deut. Z. Z., No. 45, 1909.

Leadless Stoneware Glazes.—According to the experiments of Max Schmidt, the composition of leadless glazes can be made very successfully for commercial use. In a very interesting article he describes the methods which he pursued in order to obtain his results. The best glaze produced is composed as follows:

Oxide of potash	33 parts
Oxide of sodium	22 parts
Oxide of calcium	74 parts
Alumina	115 parts
Silica	613 parts
Boracic acid	143 parts

This glaze matures at Seger Cone 2, and it has proven to give excellent results in all parts of the kiln.—Sprechsaal, No. 19, 1909.

New Official Melting Points of Seger Cones.—Dr. A. Hoffman, of the Royal Testing Station, at the annual meeting of the German Association of Fire Clay Products, read a paper regarding the melting points of Seger Cones 20 to 35. The tests were made in an iridium kiln, and the temperatures were taken with an iridium-iridiumruthenium element, which was imbedded in a magnesia tube. The melting points of gold (1,064 degrees centigrade), palladium, 1,575 degrees, and of platinum, 1,790 degrees, were taken as standards. The following table shows the new melting points:

SK 20....1,580°	SK 25....1,620°	SK 30....1,710°
21....1,595°	26....1,630°	31....1,710°
22....1,605°	27....1,660°	32....1,740°
23....1,610°	28....1,670°	33....1,760°
24....1,615°	29....1,685°	34....1,780°
		35....1,800°

—Sprechsaal, No. 11, 1909.

Matt Glaze.—Matt glazes can be produced by any temperature when a bright glaze is saturated with oxide of zinc. To obtain a perfect matt the addition of rutil, or titanitic acid, will greatly help the matt effect. The following recipe has been tried over and over again, and has always given good results. For a glazing temperature of Seger Cone 06, a raw glaze can first be produced by mixing:

White lead	70 parts
Red lead	10 parts
Flint	35 parts
Feldspar	15 parts
	130 parts

This mixture should be well ground and afterwards 32 parts of oxide of zinc can be added. This glaze will give a glaze which will melt to a good matt at Seger Cone 06, and which will give no trouble in burning.

To obtain a blue green glaze the following should be compounded:

White glaze, mixed as above.....	130 parts
Oxide of zinc.....	28 parts
Oxide of copper.....	2 parts
Carbonate of cobalt.....	1.5 parts
A red brown matt glaze is made of	
White glaze	130 parts
Oxide of iron.....	3.24 parts
Fine ground rutil.....	13 parts

—Tonind. Z. Z., No. 40, 1909.

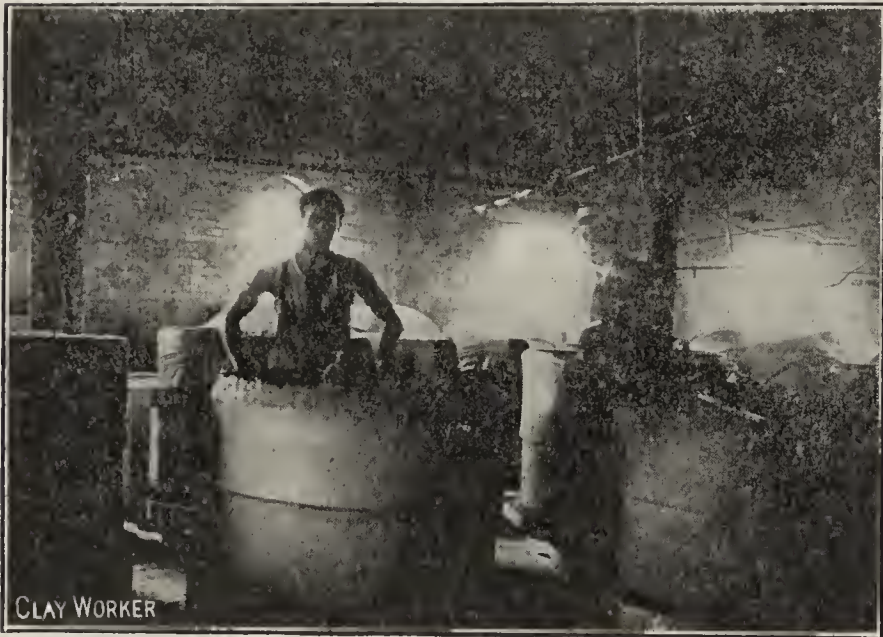
Written for THE CLAY-WORKER.

THE AMERICAN CERAMIC SOCIETY'S MIDSUMMER MEETING.

Interesting and Enjoyable Trips Through Brick Plants, Plate Glass Works, Clay Pot Factories, a Pottery and a Large Crucible Steel Plant, Including a Delightful Visit at the Pittsburg Laboratories.

THE NINTH ANNUAL mid-summer meeting of the American Ceramic Society, held July 29th, 30th and 31st, including trips through large plants in Kittanning, Ford City and Pittsburg, was thoroughly enjoyed by nearly two score of members and associates. This social meeting, the object of which was the renewal of old acquaintances and the forming of new ones, and to afford the opportunity of pleasant Section Q meetings and tours through some of the finest plants in their respective fields in this country, was a most successful one, living up to the reputation of the previous meetings.

The three days were crowded with pleasure, and there was not an hour's time wasted from start to finish. The first meeting point was the Hotel Reynolds, Kittanning, Pa. The visitors began to arrive early Wednesday night, and by



Building Room of Clay Pot Department, Kittanning Plate Glass Plant.

Thursday morning the names of twenty members had been placed on the hotel register. By Thursday noon the number had increased to twenty-eight, and when the meeting adjourned Saturday noon at the Fort Pitt hotel, Pittsburg, the list of attending members totaled thirty-four.

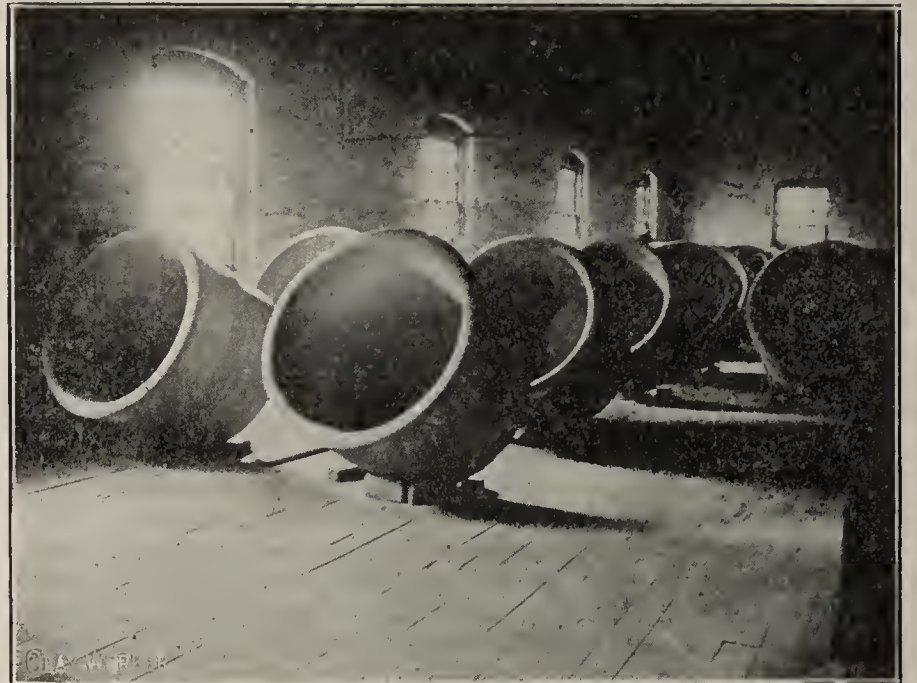
The Trip Through Kittanning Brick Plants.

The first day's program was devoted to trips through two Kittanning (Pa.) brick plants—the Kittanning Plate Glass plant and the large Pittsburg Plate Glass plant at Ford City, Pa. The enthusiastic ceramists, under the guidance of Hon. Geo. W. McNees, secretary of the Kittanning Clay Manufacturing Company, left the Hotel Reynolds at 8 o'clock Thursday morning, boarded a special car kindly offered by the City Street Railway Company, and went direct to the Kittanning Clay Manufacturing Company's plant. Here the visitors spent a couple of hours very pleasantly inspecting the plant where high-grade buff and gray building brick are made by the stiff mud process.

The clay used, which is fire clay, is mined, the mine being entered by a 60-foot shaft. The fire clay vein averages 10 feet in depth and extends over several hundred acres. Besides the fire clay deposits, there is a 50-foot red-burning shale exposed on the surface which was used in the past in the manufacture of a red brick, and now only a small quantity

of this is used from time to time with the fire clay for coloring processes. The fire clay is blasted, elevated and stored under a large shed, where it is wet down and allowed to weather. After being properly weathered, the clay is thrown into two pans, one of which is of the American Clay Machinery Company's make, elevated to gravity screens and thence dropped to Freese pugmill and brick machine. Thirty thousand brick are made daily, dried in a ten-tunnel waste heat dryer and burned in eleven round down-draft kilns of 65,000 capacity each, and one rectangular kiln of 125,000 capacity. The brick are repressed on American Clay Machinery Company eagle represses. The power is furnished by two 250 h. p. gas engines. Gas is used as fuel, and has proven an exceptionally fine material in the burning of their ware. Mr. J. H. Painter is president of this company, while Mr. Geo. W. McNees is secretary-treasurer.

At 10 o'clock the party left for the Kittanning Brick and Clay Company's plant, three miles distant, where, under the leadership of Mr. S. C. Martin, Jr., they inspected a most interesting face brick plant. Here they drift for the fire clay, the plant being located in a valley below where the clay is run out in cars from the mine. The clay is stored and allowed to weather, the clay mined one day being used the next, the weathering being hastened by wetting with hose. The clay is wheeled to dry pans in a finely divided condition, and goes through two sets of machinery in two distant parts



Clay Pots on Drying Floor, Kittanning Plate Glass Plant.

of the plant. The Freese machinery is used here. The brick are dried in two dryers, the principal one being of twenty-eight-tunnel construction. Over thirty kilns are employed in the burning. Two kinds of brick are made, a white and a buff, the buff being made by adding a small amount of red burning surface clay to the fire clay. The daily output of this plant is about 135,000. The officers of the company are: S. C. Martin, president; R. G. Yingling, secretary, and E. B. Latchshaw, superintendent.

Through Two Plate Glass Plants.

From the Kittanning Brick and Clay Company's works the ceramists went to the Kittanning Plate Glass factory. Mr. G. W. Reese, the president, and Mr. M. B. Elliott, superintendent, acted as hosts and escorted the party through the plant. The clay pot department in this plant was the first point visited, and proved to be the most interesting part to the ceramists. The party was taken first to the basement of the clay pot plant, where the clay is stored and prepared. Numerous large bins filled with a variety of clays line one side of the basement. These clays include washed, dried and burnt clays, both from this country and abroad. Sixteen per cent. of the clay used is a German clay. The Christy fire clay from St. Louis, Mo., is the principal clay purchased by them in this country. These clays are ground, mixed in certain proportions and pugged and then stored and tamped. The tamping is done by barefoot men and boys. The clay is then

turned over, tamped again and goes through the pugmill once more. This process is repeated four times before the clay is considered in proper condition for building the pots. The prepared clay is elevated to three drying floors, where the clay pots and furnace doors are made. These clay pots are 42x31 inches in size, and hold about 170 square feet of glass. The pots are built up by hand 4 inches at a time. The fired pots are cast once a day, the life of each pot averaging twenty working days, or twenty casts.

After visiting the several drying floors and seeing the large pots and furnace doors in course of building and drying, the party was escorted through the big glass plant, watching with much interest the process of manufacture from the raw

washing and storing rooms. After this most enjoyable trip the ceramists returned to the hotel, ate a hurried lunch, and left by trolley for Ford City, where they inspected the Pittsburg Plate Glass Company's plant, one of the largest in the world. This company owns several large plate glass plants, two of which are located at Ford City and known as Plants Nos. 4 and 5. Plant No. 4 alone produces one-third the entire output of plate glass used in the United States, so an idea of its immensity may easily be obtained. The same process is used here as at the Kittanning Plate Glass plant, though more automatic devices are employed and larger pots and plates made. At Plant No. 4, 120 pots are cast daily. They have a 20-foot table here of 530 square feet capacity. At Plant No. 5, adjoining No. 4, an 18-foot table is used of 215



SNAPSHOTS TAKEN AT MIDSUMMER MEETING BY CLAY-WORKER REPRESENTATIVE.

- (1) Waiting for Car to Kittanning Brick Manufacturing Plant. (2) and (3) Ceramists at Cook & Co. Pottery, Ford City, Pa. (4) A Moment's Rest at Ford City Before Leaving for Pittsburg.

materials into the fine plate glass. Twenty pots are cast here every day, standing an enormous heat. The hot pots filled with liquid glass are taken from the furnace and automatically emptied on a large steel table, where the mass is rolled into a thick plate and slid into the annealing furnace, or lehr, which at this plant is 250 feet long. It takes the plates of glass four hours to anneal. The plates, which are 15x12, are then taken in perfect wholes, or after being cut up into sections which have no defects, and ground and polished on large steel tables 28 feet in diameter. At this plant there are ten grinding tables and eight polishers. An electric railway between the grinders and polishers is used in conveying the plates from grinder to polisher, and thence to

feet capacity. Eighteen polishers and seventeen grinders are used at No. 4 plant, taking two hours for the completion of their work. Such an enormous plant beggars description. Suffice us to say that the power used here on Plant No. 4 alone is over 10,000 h. p. for running the machinery, and 1,500 h. p. for operating motors. Of special interest to the party was the cutting, the mirror, and the chipped glass departments. At this plant we saw on exhibition a plate of glass 165x279 inches, the largest plate glass in the world. The whole afternoon was spent in and about these two large plate glass plants. Our hosts were Messrs. E. Brown and F. Gelstrop, officials of the company, and Mr. Geo. C. Taylor, superintendent at Plant No. 5. Col. F. A. Moesta, president

of the Kittanning Railway Company, furnished complimentary cars for this trip as in the morning.

The party returned late in the afternoon to the Hotel Reynolds, where the Hon. Geo. W. McNees awaited our return with a number of large automobiles that carried us over Kittanning and the neighboring boroughs. After this delightful ride, the hungry ceramists satisfied the inner man, and later in the evening met in one of the parlors of the hotel for a quiet Section Q meeting, arranged by Mr. Ross C. Purdy, president of the society. At this meeting a number of business matters were brought up and discussed, the secretary being authorized to carry out the wishes of the society relating to same. Seventeen new names were presented for membership and voted into the association. Prof. Edward Orton, Jr., secretary of the society, made a brief report, in which he stated that the roster was in a healthy condition, the membership now numbering 342.

Trip Through Cook & Co.'s Pottery.

Early Friday morning the party left for Ford City, the morning being spent in inspecting the Cook & Co. pottery. Mr. F. G. Mellor, vice-president and general manager, and H. B. Humphreys, assistant, acted as hosts. This is a large pottery, manufacturing semi-vitreous dinnerware, superior white granite and C. C. ware. The points of special interest to the ceramists were the sagger-making department and the continuous decorating kiln of sixty-basket capacity. The guests were taken through all the departments and allowed to wander about the pottery as was their pleasure. At noon the visitors boarded a train for Pittsburg, where, upon their arrival, they immediately repaired to the Hotel Fort Pitt, where an excellent luncheon was served, generously tendered by the Pittsburg members of the society. After this enjoyable repast, a trip to the Pittsburg Clay Pot Company finished the day's program.

Pittsburg Clay Pot Plant.

At the office of this plant we met Mr. J. E. McKelvey, the secretary, who gave us the glad hand and escorted us over the plant. Here we saw about the same method of manufacture as in the clay pot departments of the two glass plants, but on a much larger and more elaborate order. Here they use twenty to thirty different clays and have a storage for over 3,000 tons of raw material. We traced the raw materials in their journey from the bins to the finished products, saw the method of preparation, the grinding, mixing and pugging, watched the men at work building up the immense pots which weigh from 300 to 3,200 pounds, visited the five immense dryer floors, and viewed the square kilns in which the pots are burned. It takes one man and a helper one month to make eighteen of the usual-sized pots. These are allowed to dry for five months before being placed in the dryer, where they are dried from three to five months, as it may be necessary.

The Pittsburg Laboratories.

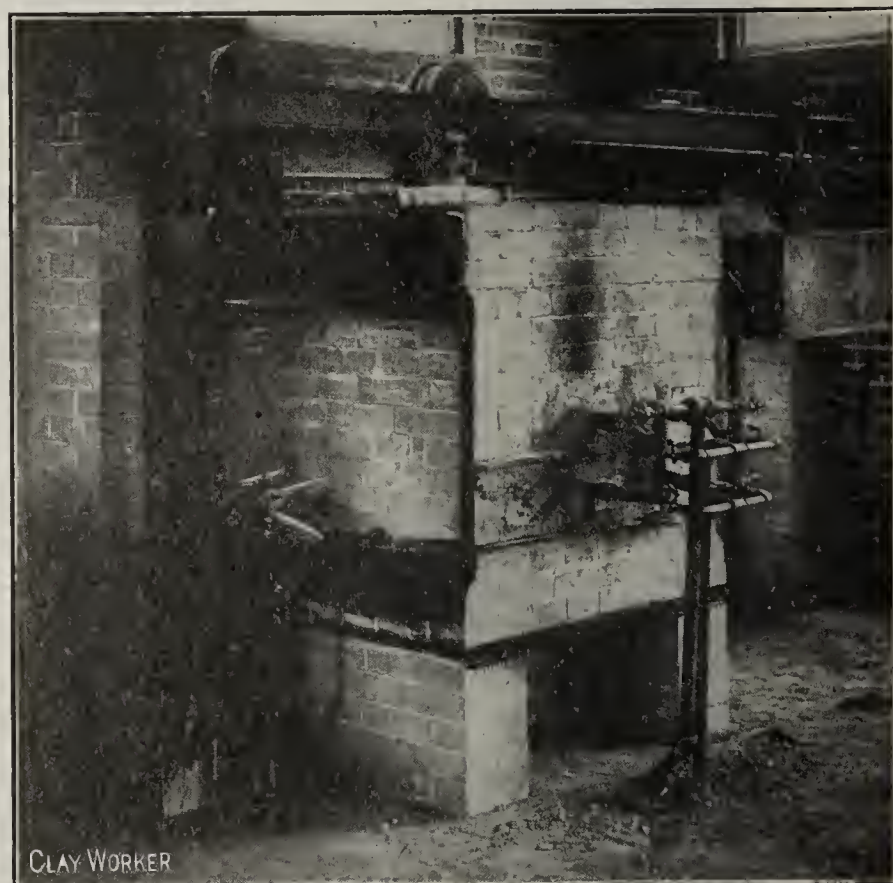
From the Pittsburg Clay Pot plant the visitors were escorted to the old Arsenal Grounds, where they were taken through the Clay Products Laboratories of the Technologic Branch of the United States Geological Survey, and were royally entertained by Messrs. Bleininger, Ashley, Brown and Dr. Holmes. Every department of interest to the ceramists was visited, the hosts describing fully the purposes of the different apparatus, and lecturing on the experimental work now under way. Of special interest were the immense testing machines, the physical and chemical testing apparatus, and the kiln for testing the crushing strength of fire brick at high temperatures. It was not until 6 o'clock that the party left the laboratory for the Fort Pitt.

At 7 o'clock sharp, Friday evening, we boarded a trolley for the Crucible Steel Company's large plant, where we spent over two hours of keenest interest. We watched them empty a large open-hearth furnace, filling a large thirty-ton ladle, after which the pouring attracted our closest attention. We visited every part of the plant, but the point of most interest to the ceramists was in the crucible steel department, where two giant workmen were pouring the intensely hot metal from 100-pound steel clay crucibles. The fire is so severe that these crucibles can only be used two or three times.

The rolling of the metal from short lengths into long pieces of tool steel was unusually interesting to those of the party who had never visited a large steel plant of this kind before. The trip through this plant caused a large number of the ceramists to long for their old-time swimming holes, so as a second choice we visited one of Pittsburg's largest natoriums, where a refreshing bath was thoroughly enjoyed after this near-trip to Hades.

Saturday morning the visitors were the guests of the Harbison-Walker Co., the party visiting their Hayes Station silica brick plant. Messrs. M. D. Carr, superintendent, and W. N. McKnight, sales agent, were our guides. The entire morning was given over to the trip through this plant, which uses over 500 tons of clay daily, making 150,000 silica brick per day alone, to say nothing of the various shapes and special work. Most of the brick are made by hand and set on dry floors, where they are dried by means of hot air driven through large pipes to various parts in the drying rooms by large fans. The construction of the kilns with their egg-shaped doors and the brick checkerwork bag walls, the handling of the green brick and the economical method of burning, the ashes being screened and sorted for further burning, were features that attracted the visitors' attention.

From the Harbison-Walker plant the party returned to the



Kiln at Pittsburg Laboratory for Testing Crushing Strength of Fire Brick at High Temperature.

Fort Pitt for lunch, after which the meeting was adjourned. Following is the list of attending members: C. W. Parmalee, Edward Orton, Jr., F. Gelstrop, C. F. Binns, F. W. Walker, Jr. and Sr., W. M. Alrich, R. C. Purdy, A. E. Mayer, A. Fulper, E. Mayer, W. M. Fickes, H. W. Bloomfield, H. P. Humphrey, A. S. Porter, J. McFarlane, J. E. Randall, Harry Smith, J. B. Miller, J. Pfeifer, R. B. Keeler, K. Takahaski, J. Y. Yowell, F. Sauereisen, C. A. Smith, H. Hope, L. C. Snider, H. E. Ashley, R. R. Hice, G. H. Brown, W. H. Hipp, A. R. Henbach and A. V. Bleininger.

J. W. Gates is optimistic regarding the steel outlook and the business outlook in general. He says: "Revival of demand for steel struck the country like a cyclone and shows no abatement. From now on we shall witness unprecedented prosperity, and record-breaking earnings will be in order. Republic Iron and Steel Company is putting millions of dollars into extensions, for no other reason than that we believe that the increased consumption of steel will warrant increased capacity.

"The general business situation is as sound as it can be, and we are on the eve of the greatest period of prosperity the country has ever witnessed."

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTHWEST.



THE BUILDING SEASON is now far enough advanced to make possible some estimate as to the relative showing of the year with that of former seasons, and it is now evident that the building totals will considerably surpass that of any previous twelve months in the history of the northwest. The cities of St. Paul and Minneapolis have seen an especially large number of large structures go up, and it is gratifying to note that they are practically all built substantially and of the best materials. Early in the year many members of the building trades felt very doubtful as to what the year had in store, and the public generally was nervous about investing in new buildings. That, fortunately, did not last long, it soon becoming apparent that money would be plentiful in this section, and that no reason would exist to prevent a heavy year's business. As the summer advanced, too, the wonderful crop prospects developed from mere prospects to greater certainty, and with the high prices of all agricultural products, removed all doubts of future prosperity and encouraged the last of those holding back to get into the game and begin the erection of their delayed new edifices. Residence building has continued unabated and there will probably be more money invested in new dwellings this year than there was last. On the other hand, large business buildings have been going up incessantly, whereas last summer the feature of the season was the lack of large buildings being erected. With a return of prosperity there has been a noticeable disinclination to use anything except the best of materials, and, as a result, the year's crop of buildings are quite a little in advance in quality of the past averages.

The demand for all kinds of building material has been brisk all season, and from many points throughout the northwest reports have come in of a material famine which has temporarily held up building. In this regard brick has been especially hard to keep the demand supplied with, and all the yards in the northwest have been running practically without rest all summer. Naturally, price conditions have been better and brick manufacturers have been able to conduct their business on a reasonably profitable basis.

Minneapolis.

John E. Andrus has commissioned Long, Lamoreaux & Long, architects, to prepare plans for a ten-story store and office building which he will have erected at Sixth street and Hennepin avenue at a cost of about \$1,000,000. It will be 187x237 feet in size and will be of pressed brick and terra cotta.

Kees & Colburn, architects, are at work on plans for two new church buildings to be erected in Minneapolis, each of which will cost about \$150,000. They will be the Fifth and Sixth Church of Christ, Scientist. Contracts for the foundations have already been awarded.

The Peteler Car Company is contemplating constructing an entirely new plant at University and Thirtieth avenues, S. E., at a cost of about half a million dollars.

Lindstrom & Almers, architects, are preparing plans for a new brick factory building to be erected by the Segerstrom Piano Manufacturing Company. It will be three stories high, 150x150 feet in size and will cost \$125,000.

Kees & Colburn, architects, are preparing plans for a brick addition to the Miles theater, which will be three-story, 40x50.

T. B. Walker and H. J. Burton will erect a new theater building near Seventh street and Hennepin avenue, on which The Schubert Theater Company has secured a twenty-year

lease. It will be 100x120, of pressed brick and terra cotta and cost \$200,000.

The Hill Crest Surgical Hospital Company will erect a hospital at Franklin and Harriet avenues. It will be of pressed brick, 100x110, three stories high, and will cost about \$50,000.

The Sheltering Arms Orphanage Society will erect a three-story pressed brick building, 54x95, near Minnehaha Falls. Plans are being prepared. Cost, \$65,000.

John Garrien will erect a six-story apartment building at Eleventh street and Hennepin avenue. It will be 66x150, and will cost about \$75,000.

An entirely new building code has been prepared by Building Inspector Jas. G. Houghton, and will be presented to the Minneapolis City Council shortly for consideration and adoption.

Minneapolis building permits for June have never been exceeded in the history of the city, except in December, 1888, when permits for the million-dollar court house and for the Guaranty Loan building brought the totals to over \$3,000,000. For June the totals were \$2,338,515, as against \$877,020, a gain of 167 per cent.

St. Paul.

Bids are being taken for the erection of the new Schubert theater building on Wabasha street. Marshall & Fox, of Chicago, are the architects, and Buechner & Orth, of St. Paul, will have charge of the erection of the building.

The Territorial Pioneers' Association and the State Historical Society and contemplating uniting and erecting a large fireproof building which will cost about \$500,000.

Boyer, Haulor & Tewes, architects, are preparing plans for a new Polish Catholic Church, to be erected at Gaultier and Charles streets at a cost of \$75,000. It will be 88x160 and will be of pressed brick and cut stone.

St. Paul building permits for June were \$1,709,189, as against only \$641,755 for June, 1908, a gain of 166 per cent. It is confidently predicted that the totals for the year will pass the \$12,000,000 mark. The totals for the first half of the year more than doubled that of the first half of 1908.

Northwestern Notes.

Travers & Johnson have bought out F. A. Parker's brick and tile plant at Sioux Rapids, Iowa.

G. Anderson will establish a brickyard at Badger, Minn., where he recently discovered a promising clay bed.

J. Marquardt has recently opened a brick plant at Hancock, Minn.

A company of local capitalists may be formed to buy the brick and tile plant at Lohrville, Iowa.

C. F. Niles, of Menomonie, Wis., is contemplating establishing a pottery plant near that city.

The brickyard at Wrenshall, Minn., owned by O. Duclos, has been reopened.

A company is being formed at Tekamah, Neb., for the purpose of establishing a tile and pottery plant near that city.

T. WIN.

DEMAND FOR SILICA INCREASING.

The Stowe-Fuller Co., of Cleveland, Ohio, with district sales offices in the House building, Pittsburg, report splendid business for the first half of this year. Their silica works at Alexandria, Pa., started the year behind on orders, and up to date have been unable to catch up, with the result that now the Federal works are practically without any stock of brick, as the demand for silica brick seems to be constantly on the increase.

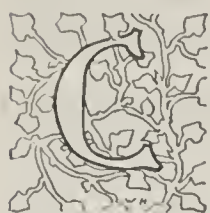
This company has recently closed several large contracts for stove brick, including stoves for Struthers and Canal Dover, Ohio, and Midland, Ont., also all the fire brick required for the complete lining of the furnace and four stoves for the Andrew Hitchcock Company, at Hubbard, Ohio, which business was placed through the office of Julian Kennedy.

They also report all their other works in very satisfactory shape as regards orders, and claim that conditions

throughout the country are materially improved and the demand for regular trade very much better than a few months ago.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



CONDITIONS WERE never before quite so good for builders in this city and surrounding country as at the present time, and the prospects are even better than the present. Contractors are taking work on a close margin yet, closer here in Kansas City than in other cities in this section of the United States, but that seems to be the fault of the contractors themselves. Material of all kinds, almost, has been cheapening some of late, and that is stimulating business in the building line, for there is every prospect for a good demand for buildings, and property owners are willing to take advantage of the opportunity to build cheaply at a time when the demand for the finished building appears so good.

The building permits for the month of July did not include any very expensive buildings, but just the regular run of the various classes of buildings, including fifty-one brick buildings and 149 frames, but the permits for the month show a big increase over the same month of last year. The total value was \$1,334,715, and of this amount over half, or \$713,400, was for the brick buildings. The total for the month was \$560,482 greater than for the same month of 1908. The building inspector of Kansas City, Kans., has also made his report for July, and says the total value of buildings for the month was \$180,647.

Reports from Nebraska, Kansas and Oklahoma indicate that the three states are going to have some record-breaking crops. The wheat crop has already been harvested and shows an increase in the three states of about 10,000,000 bushels over last year, and this increase is shown with a decreased acreage. All the other early crops have made a better than average yield, and the corn crop is having extremely favorable weather in Nebraska and Kansas, but not quite so good in Oklahoma. The indications are now for a crop of 690,000,000 bushels of corn in the three states in 1909, or over 200,000,000 bushels more than was raised in 1908. This big yield of the farms is bound to be felt in this city, which is so largely dependent upon the farms of the above-named states for its prosperity.

The cement companies are engaged in a big fight for business at the present time, regardless of profits. Some say that cement is even being sold at less than the cost of production, but it is generally believed that the price is about the cost of production. It is stated that cement can be purchased f. o. b. cars in this city for 80 cents per barrel, while the ordinary price is about \$1.50.

There has been some decline in the price of brick during the past month, along with other building material, and common brick can be purchased f. o. b. cars at \$6.75 to \$7.00, the supply being slightly ahead of the demand, but still not enough to make any great surplus. The supply of face brick has also increased to a point where the demand can be taken care of, but there has been no change of the prices in this direction, as there is no surplus, every offering being placed without any trouble. It is confidently predicted by dealers in brick that there will be plenty of brick to take care of all demands here from this time forward.

Robert Nesch, president of the Pittsburg Brick Company, sailed on August 3 for Europe, where he will spend a three months' vacation.

F. B. Clyatt has taken the place recently vacated by E. C. Hervey with the Kansas City Hydraulic Pressed Brick Company. Mr. Hervey has had charge of the country sales department of this company for some time, and his work was so good that he was called to the main office in St. Louis to take care of the same kind of work. While the Kansas City office is always glad to see one of the boys advanced, it is hard to lose the services of valuable men, and at the same time make the business showing that the management

always wants to show. Mr. Clyatt was formerly cashier of the local office, and bids fair to make good in his new position.

The Pittsburg Brick Company is putting in new fans in the dry kiln in Pittsburg, Kans., the construction work being under the charge of the L. E. Rodgers Engineering Company, of Chicago.

The Kansas City Stone and Brick Company, which has a crushed stone plant near Sugar creek, has decided to not put in a brick plant at the present time, and will devote its entire attention to the crushed stone business.

J. J. Nesch, secretary of the Pittsburg Brick Company, has been spending several weeks at the plant in Pittsburg, Kans., where they have been installing a hollow brick machine.

K. A. W.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE FIRST HALF year of the building operations in all Puget Sound cities has proven very satisfactory.

In fact, all cities in the Pacific northwest, including Portland on the south end, and Spokane on the east end, and Vancouver on the north, have had a good half year in building. Permits in all cities are running high, and, taking into account the buildings and building operations contemplated, the whole year will be all right. In Spokane the Old National Bank building is ready for figuring; this building will be the largest building in that section. Glazed terra cotta and press brick will be used in its exterior finish. Tacoma has just taken figures on its tallest building, a seventeen-story skyscraper, and according to the last reports the contract will be let next week. Roman brick and terra cotta will be used for the exterior. The architects are Heath & Twichell, of Tacoma. Seattle is contemplating to not be behind its sister cities, and will shortly have plans ready for two large skyscrapers. Vancouver is now erecting a twelve-story building, in which imported English brick and terra cotta are used.

The brick market is now in good condition, the supply equals the demand, and prices are steady, with only here and there small variations.

One of the largest deals in the clay manufacturing industries in this section was consumed last week, when the new Spokane Sewer Pipe Company consolidated their interest with the Washington Brick, Lime and Manufacturing Company. The new company will be named the Washington Brick, Lime and Sewer Pipe Company, and has a capitalization of \$1,000,000. A new plant for the manufacturing of sewer pipe will be erected at once with a cost of \$300,000. The new company bought large beds near Mica, and will manufacture sewer pipe of the same clay that the American Fire Clay's sewer pipe are made of. J. H. Spear is president; W. N. Bolby, of Mason City, Iowa, vice-president, and S. J. Beal, of Minneapolis, secretary.

The Newberg Pressed Brick Company, of Newberg, Ore., started up the plant again under new management, and are installing some new machinery.

The Dayton Brick Company, of Dayton, Ore., has just finished their first kiln of brick, and has found a ready demand for all their output.

Mr. Ed Shaw, of the Raymond Clay Machinery Company, has just returned from a very successful trip through Idaho and western Washington.

The Pacific Face Brick Company, of Williamina, Ore., has just completed their second round in the new continuous kiln, and the plant is now running full time. They had some trouble with their clay pits early in the season, but have overcome this part and are now turning out excellent brick.

The Denny-Renton Clay Co. has now installed in their Renton plant the largest brick machinery made by the American Clay Machinery Company, and are making 150,000 brick per day.

The Tacoma Trading Company has secured the brick contract for the new Northern Pacific passenger depot to be erected in Tacoma.

The Columbia River Clay Company, of Kennewick, is now turning out a large amount of brick. They just finished a

kiln of 350,000 brick. With several large business buildings contemplated on both sides of the river, the entire output of the plant will probably be sold out this summer.

Seattle, August 2, 1909.

SIWASH.

HOW TO SELECT AND ARRANGE ORNAMENTAL POTTERY.

THERE ARE five important things to consider when choosing ornaments, says Dorothy Tuke in *The Circle*—color, size, design, use and fitness. Yet I wonder how often due consideration is given to these points!

Unfortunately, we are not always able to choose our own ornaments; they are usually the gifts of our friends, and what a varied assortment they are!

How often do we hear some one say: "I will just send this bride a bit of pottery; it will fill in somewhere and one can't have too many vases."

Can't we, indeed. Poor little bride. She, too, will probably have to spoil the effect of her rooms by crowding them with "nick-nackery."

When we do buy vases, jardinières or pottery, we should take care to have them of a dull, subdued color, or colors, with simple lines, and suitable for holding plants or flowers. These will always be acceptable, and the poor little debutante on the day of her tea, rushing wildly from room to room searching for vases to hold her flowers, will not cry: "Vases, vases everywhere, but not one of any use."

If only those who don't understand the choosing of pottery would make a rule of only buying certain makes that are known to be made by reliable potters and overseen by those who understand color and design, or to buy from an arts and crafts shop, brides, debutantes and the world in general would be much better off.

Among the best wares for home decoration are the Bruges, the Grueby, the Teco, the Robinneau, the Dedham, the Volkmar, the Newcomb, the Rookwood, the Van Briggles and the Merrimac. They are all artistic.

The Bruges pottery comes from Belgium and is an inexpensive ware, most of the pieces being made of simple design and of a plain grass-green color.

The Grueby ware is marked by its simplicity and beauty. It has a soft, dull glaze, and is slightly decorated in self color.

The Newcomb pottery is made in New Orleans. It is marked by its beauty and originality of design and harmonious blending of colors. The designs are, for the most part, carried out in soft blue and greens. The workmanship is perfect and no two pieces are made alike.

The Teco ware is somewhat similar to the Grueby, but is less expensive. It is usually made in green and its distinguishing characteristic is its square handles.

The Volkmar is made in the dull matt glaze and often has a rough surface like an orange. It comes in greens, tans, and blues, and a great variety of shapes which can be put to many uses.

The Rookwood is made chiefly from clays found along the Ohio river, which gives it its characteristic brown-red and yellow colors. It differs from most pottery in that its decorations are applied to the wet clay before the first firing. The decorations are all made in free-hand painting, each decorator making his own designs.

The Van Briggles pottery is made in Colorado Springs. By the use of very high temperatures a dead glaze is produced, of a texture not unlike that of old Chinese pots.

The arrangement of pottery is an art which is inherent. But to those who are not blessed with the gift of giving the right finishing touch a few suggestions may be welcome.

Ornaments should not be spread out at regular intervals apart, but should be grouped, all the pieces in the group

being, if possible, of the same ware. Pottery, if big and bold, should be placed high up, on a mantel-piece, the top of a bookcase, or on a shelf in the doorway; other large pieces may stand upon the floor. Small pieces of interesting design should be where they can be easily picked up and examined. Vases suitable for flowers should be within easy reach. The right setting for a beautiful piece of pottery is just as important as for a beautiful picture, and very many of the same rules apply. A plain, neutral background always makes the best setting, as it does not detract in any way from the beauty of the ornament.

Pottery of bright colors and highly glazed should be placed in dark corners of the room, as it forms the bright spot of color most needed there. It is invaluable for introducing just the right note of color in a room, just as reversely a false note of color destroys harmony.

It is important to have pottery placed where it looks, and is, secure. Small ornaments on frail tables are jarring to the nerves and make a room seem trivial and unrestful. Large decorative pieces, however, give an air of dignity and repose.

Some one has said, and said wisely: "As to color and form in an ornament the balance should be struck between that which is neither too strange on the one hand, nor yet dull and commonplace on the other. Monotony is wearisome and depressing, while eccentricity or excessively violent contrast shocks and startles. That which provides a gentle stimulant to the imagination is agreeable; anything beyond that is apt to become an annoyance. Overseverity has the effect of repelling, while what is too lavish savors of vulgarity and ostentation." It is worth while to study artistic arrangement.

NEW BRICK PLANT FOR PHILADELPHIA.

A new brick plant for the manufacture of common building brick for the extreme western section of Philadelphia has just been started by Messrs. Harrigan & Mink. It is located on a macadamized road near Darby, and in addition to trade in the extreme western limits of the city, it is in a good location to supply brick for a number of suburban districts tributary to the city. They have several acres of good clay land, running from 6 to 14 feet in depth, and they are now burning their first kiln of brick. Open air drying is used, and four kilns are now under construction.

Chambers Brothers Company made the plans for the buildings and supplied all of the brickmaking machinery, the outfit consisting of a No. 0 clay disintegrator, clay elevator, pugmill, and one of their new pattern No. 10 automatic end-cut brick machines. Although the clay bank is not yet fairly opened, the machine is already making brick at the rate of over 100 brick per minute, on a guaranteed capacity of 40,000 brick per day.

Mr. Chas. Mink is a practical brickmaker, and has had a lifetime's experience in all departments of brick manufacture as conducted in Philadelphia. The prospects for the new firm are very good, and Mr. Mink feels very much elated over the favorable start that has been made.

This No. 10 style machine of Chambers Brothers Company is proving very successful, and is growing in popularity. They have just delivered one to the City Lime, Brick and Lumber Company, of Camden, N. J. The business of this concern has increased very rapidly, and they found it necessary to have a larger and heavier machine. Chambers Brothers Company has made an exchange with them, putting in one of these new No. 10 machines and taking out an old pattern Chambers machine that had been in continuous use for about twenty-five years.

ANTIQUITY OF TERRA COTTA PIPES.

Water pipes of terra cotta were used in Crete forty centuries ago. Those supplying drinking water consisted of a series of subconical tubes socketed into each other with collars and "stop ridges," so constructed as to give the water a shooting motion, thus preventing accumulation of sediment.

Written for THE CLAY-WORKER.

FAILURE OF ASPHALT.

THE GENERAL use of asphalt for paving purposes throughout the country is argued by some as proof of the success of that material. As a matter of fact, asphalt as a paving material has come into general use not because of its merit, but because skilled promoters have been employed by the asphalt companies, and these promoters have used whatever means at all necessary to accomplish their purpose. But for this method of promotion asphalt would be little used, for it is not a good paving material. The latter fact is proven by the failures that result wherever it is used to any considerable extent. Asphalt promoters claim that these failures are due to poor construction or improper mixtures, which, doubtless, is true in a sense, but the repeated failures prove that the material itself is not dependable.

Those who have studied paving problems and have observed the failures that have occurred in the use of asphalt, have generally come to the conclusion that these failures are due largely to the evaporation of the volatile oils which constitute a goodly part of asphalt itself. In various cities asphalt streets have proven so expensive through a lack of durability, that taxpayers have objected to its use, and to avoid these objections it is common practice for promoters to claim an improved form of asphalt and introduce same under a new name. This is particularly true of the various asphaltum or tar macadams which have been exploited of late years in different sections. These materials are much

stretch of pavement is now, after two or three years, in fairly good condition. This may be due in part to the fact that only light traffic or pleasure vehicles are allowed on this street. Signs have been posted at every corner, on which is printed in bold letters: "This boulevard for pleasure vehicles only." This prohibition of heavy traffic of any sort is enforced by mounted policemen. Nevertheless, the life of the pavement will probably be little, if any, longer than that of any good macadam road protected in a similar way. Of course, tar macadam pavements are some improvement over the ordinary macadam or broken stone roads, but not enough so to justify the excessive cost of such improvements. The upkeep of any macadam road is excessive, and engineers and roadbuilders who seek permanent pavements are demanding paving material more durable than any mixture of asphalt and sand, or tar and gravel.

A LABOR-SAVING DEVICE FOR BRICK PAVING CONTRACTORS.

The accompanying sketch illustrates a carrying device that is being used advantageously by a number of street paving contractors. It not only does more work in less time, but does it more effectively than the same amount of labor can be performed by men with barrows in the old-style way. By the use of three or four of these carriers, four loaders and three layers have laid as high as 1,500 square yards of brick paving per day. The conveyers are usually made 16 feet long, but can be made



Chutes Facilitate Handling Brick

alike, and, as a rule, are nothing more than a mixture of asphalt and tar, and in the nature of things can not prove a durable paving material. In various sections these materials have been introduced under the name of "asphaltic cement," "Wadsworth macadam," "bitulithic," "westrumite," "bitumineral," "bituminous macadam," "tar macadam," "tarvial bitumass," etc., etc., but to the initiated it is known that they are little better than makeshifts as paving materials. A durable paving material can not be made from a mixture of gravel, whether coarse or fine, with asphalt and tar. Pavements so constructed, whether subject to light or heavy traffic, are comparatively short-lived. Of course, the character of the mixture and the way in which it is applied may have some influence, but it does not take anything more than good horse sense to determine that the volatile oils in any tar or asphalt mixture are going to evaporate sooner or later from such tar macadam mixtures. Of course, the evaporation may take place more quickly in a coarse mixture than a fine one, such, for instance, as the original or old-fashioned sheet asphalt. Experience proves this, for wherever these coarser mixtures have been tried the result has been a pavement of comparatively short life. Paving engineers generally recognize this fact, and, as a rule, do not hesitate to so declare.

At the last October meeting of the Good Roads International Convention, it was the consensus of opinion that all such streets were but temporary in character. One of the best of this type of pavements that has come to the writer's attention is that on Capitol avenue, in Indianapolis. This

any length desired. The two timbers at the side carry between them a train of spools placed so as to have a clearance of $\frac{1}{8}$ -inch. Brick set edgewise on the spools at the upper end of the conveyer will slide down slowly to the bottom, where the bricklayers take them off. If the loader takes care to put the best side of the brick up, the layer is saved the bother of rehandling, so the work progresses very rapidly. On trial, it will prove quite a time and labor-saving device.

PENNSYLVANIA TO HAVE BRICK ROADS.

More paved road improvement is progressing in Armstrong County, Pa., than in any other in the western part of that state. State Highway Commissioner Joseph W. Hunter believes that in the use of brick, the state obtains a better and longer lasting road than by any other method.

For months Armstrong County has been the scene of considerable activity in the brick paving improvement line. All the work now in progress along the Clearfield pike, just out of Kittanning, is under the supervision of Harrison S. Rinehart, of East Liverpool, Ohio.

While the Clearfield pike improvement is in progress, the borough of Kittanning took up municipal improvements, and a portion of an unimproved street in that borough is being improved to correspond with the improvement in progress along the pike. The pike, however, after the borough line is crossed, becomes a street in Kittanning, hence the pike and municipal improvement is uniform.

As the pike specifications call for a crushed stone foundation, the contractors have their own plant in operation. An

overhead tramway or bucket line is used in this respect, and the crushed stone is brought direct from the hills to near the improvement, from where it is carted to wherever workmen are engaged on that part of the contract.

Paving blocks used in this improvement are from a Kittanning factory, and the large quantity required for the work can be well judged.

A COMPLIMENT WELL DESERVED.

The untiring energies of Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, have borne good fruit, and the cause of brick roadways has been advanced in many ways and in many different sections of the country as a result of his efforts. Mr. Blair has advocated brick pavements so enthusiastically and so wisely that he is now recognized as an authority in all paving problems by municipal authorities throughout the country. The following clipping from the Detroit Free Press indicates, in a measure, the wide influence of Mr. Blair and the organization behind him. It also proves that Public Works Commissioner Haarer is the right man in the right place. The taxpayers of Detroit will profit immensely as a result of his efforts if he stands steadfast for the policy he outlines. Intelligent investigation will prove conclusively that with proper methods of construction, brick paved roadways are the best, most sanitary, most economical and most enduring highways obtainable. Municipal officers of other cities will do well to follow Mr. Haarer's good example, and call to their aid and council the accredited representatives of the N. P. B. M. A.

Detroit Public Works Commission Determined to Get the Best Pavements Possible.

"For the purpose of satisfying myself as well as the public as to whether or not the methods we have been following in resurfacing the streets with brick are the best, I have invited one of the best known brick paving experts in the United States to visit Detroit and spend as much time as he may think necessary in looking over our streets," said D. P. W. Commissioner Haarer yesterday.

"The expert I have asked is a man named Blair, a total stranger to me. He is connected with the National Association of Brick Manufacturers, and my understanding of his official position is that, while he is employed to promote the general use of brick as against other kinds of paving material, he is distinctly not employed to promote the use of any particular kind of brick, and his interest lies solely in promoting the adoption of the very best paving methods, so that whatever make of brick is selected, the paving will give the best possible results.

"He has a national reputation as a paving expert, so I imagine whatever he says will be listened to with respect, notwithstanding he is prejudiced in favor of brick as against other materials. The question is not at issue here as to whether brick is better or worse than asphalt, or something else, but as to whether we have been laying the brick pavement in a way to give the best results.

"If we have not, I want to know it, and I want to know just wherein we have failed. If the quality of the brick is responsible for the bad spots in certain streets, I want to know it, and if the foundations or the manner of laying are at fault, I want to know that. I shall not go with him over the streets, but shall simply furnish him with the data and let him make the inspection he sees fit."

EIGHT BILLION BRICK MADE IN UNITED STATES LAST YEAR.

According to figures given out by the United States Geological Survey, there were made in the country last year nearly 8,000,000,000 common brick, every state showing some production. The value, per thousand, ranged from \$3.97 in Kansas to \$10.33 in Wyoming, the average being \$5.73.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

IN AND ABOUT Boston, the great business center of the six New England States, business is going ahead better than it has for several years. All classes of building are much more active than they have been for some years, and capitalists seem disposed to place their money at the disposal of those who have property to develop in one way or another at a reasonable rate of interest. Construction in Boston which requires brick is much more liberal than it was last year, but is not yet quite up to the expectations of manufacturers and dealers. The improvement is welcome and the sale of brick has increased so much, when compared with last year, or the year previous, that courage has been engendered in all directions, and business has developed accordingly. The yards within reach and those in New Hampshire, which furnish the bulk of the supply to Boston, are all feeling the difference in the situation and are busy getting out the required quantity. Not so much work of a public or semi-public character is being done, but there is business in the construction of large business blocks and other buildings, and a demand for brick in the development of residence properties which exceeds anything hitherto known in the vicinity. With this situation not expected, but actually here, there would seem to be no reason why New England makers should not be prosperous and should not have business beyond what they have had heretofore. It is a matter now of a continuation of this development, and that seems assured by existing conditions in all lines of business.

The Hampden Brick Company, Springfield, Mass., is enjoying a season of prosperity which is bringing in good business. The works are fully manned this year and a liberal product is being turned out. The demand in the immediate vicinity is sufficient to take substantially everything made. Considerable reconstruction of mills and similar work is being done near there, which furnishes an outlet for brick that is sure and profitable. The demand has increased perceptibly this year, though the company has had practically all it could do every season.

The New Hampshire brickmakers are busy and receiving sufficient orders to take about all they make as they go along. The weather has been favorable for manufacture and the building development within their own territory, or where their product is shipped, has been sufficient to create conditions which have cleared out about everything that could be obtained. Without being able to particularize, it is correct to say that the brick business is in the best condition it has been for some time. The increased use of brick in construction work where the cost of lumber is excessive is exerting an influence upon demand which is felt more or less liberally, according to local circumstances. As a whole, the Granite State manufacturers have little to complain about, and certainly have very much to be thankful for.

Many dwellings are being constructed of brick throughout Vermont. Formerly stone was a favorite material when lumber was not used, but now there is a return to brick. Lumber has always been so cheap in that state that brickmakers could not compete. Now it is different. Most of the remaining timber is owned by large syndicates who are holding it for manufacturing purposes, and very little of it can be obtained for home consumption. In fact, even though the state is one of the best timbered in the Union, a considerable proportion of all the timber used in construction is shipped there from other localities. This has been so for some years and furnishes a reason for the improvement in the demand for brick in most portions of the state.

HIRAM.

It is sometimes better to ride a hobby, especially if it is going in the right direction, than to stand still and not ride anything.

Written for THE CLAY-WORKER.

BUFFALO BRICK AND BUILDING NEWS.



BUSINESS CONDITIONS in the local clay industry, summed up in their entirety, may be said to be much better at present than for some time past. There is considerable activity in the local building business, which is a fair indication that Buffalo has recovered from the building depression of a year ago. Much business is in sight for the local brick men and the trade is quite optimistic over the future. Many new buildings are being erected here, including several immense additions to mercantile houses, which require material that the local trade is supplying.

"Business is very fair. It has improved quite a bit and there is plenty of it in sight," said John H. Black, of the Builders' Exchange, in discussing business conditions in the local trade. Mr. Black is supplying face brick and architec-

ness with his firm is very good and that a busy fall is anticipated by them.

"Business has been very good with us," said Alfred L. Lyth, of A. Lyth & Sons Co. "The future looks good and we expect to be busy right along. During the past month we shipped about 100 carloads of pipe for good roads and grade crossing work."

The ordinance is before the Common Council to permit the use of hollow tile fireproofing in buildings of the third class, which was sponsored by the local Builders' Exchange and Society of Architects, and has been suspended pending a revision.

O. W. Weir reports business to be satisfactory, with a bright future outlook. Mr. Weir is supplying brick to the



Fig. 1.

tural terra cotta for the new seven-story extension of the Lafayette hotel, now in course of construction.

"Business is all right with us. We are as busy as ever and the fall business looks unusually better than it has been for some time," said L. D. Walrath, of the Queen City Brick Association. This firm recently shipped a million brick to the Development and Funding Company for the erection of their new plant, which will be located in Echota, a suburb of Niagara Falls, N. Y.

"Trade conditions are very good and business is steadily improving," said N. A. Finch, of the Jewettville Pressed and Paving Brick Company. "It looks to me as though we are going to have an extraordinary good season. There is lots of work in sight and I believe the coming year will be better than ever for the brick men." The factory of this firm, which is located at Jewettville, N. Y., recently underwent extensive repairs and the erection of a new kiln will be started there this week.

W. T. Bray, of the Bray & Lukens Co., states that busi-

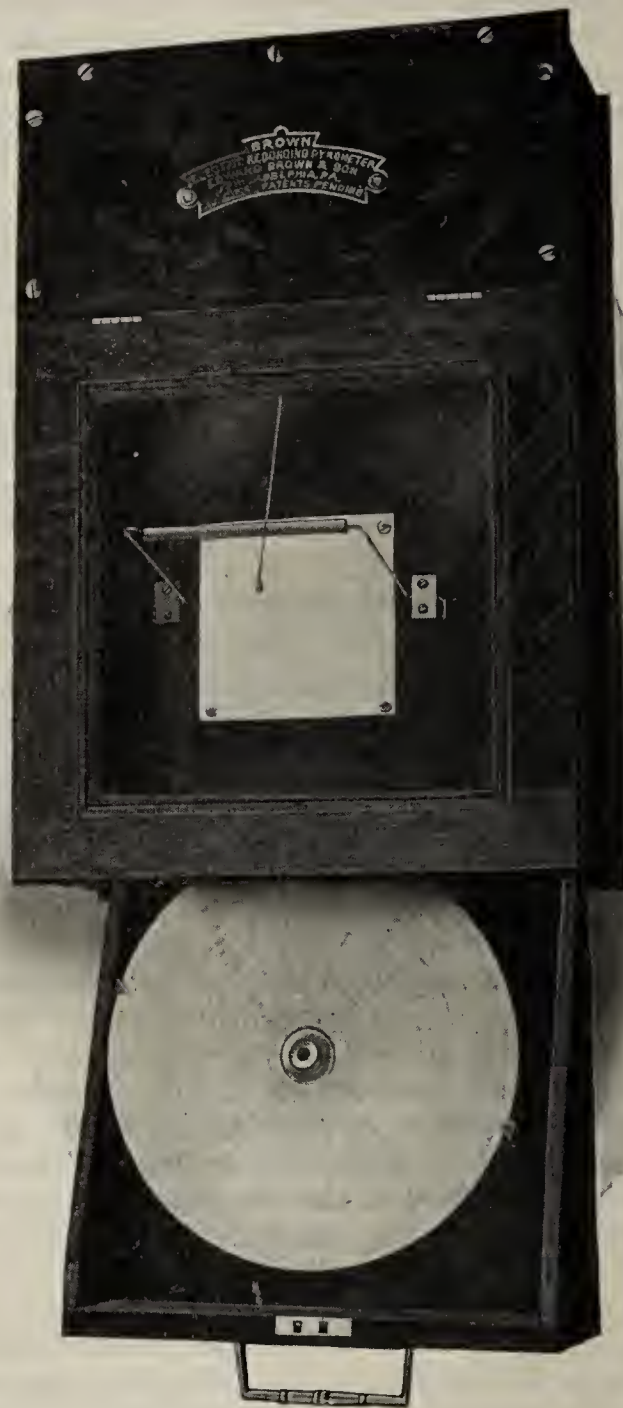


Fig. 2.

Lackawanna Bridge Company, which is building a bridge over Buffalo creek at South Buffalo.

Mr. Helmer, of Hall & Sons, reports business to be fair and steadily improving, with a very promising future. Mr. Helmer recently returned from a three weeks' automobile trip throughout New England.

Mr. Candee, of the Lyth Tile Company, reports business to be steadily improving, with an excellent outlook for the future.

C. S. A. Coe, of the Lancaster Brick Company, reports business to be improving. This concern is making large shipments of hollow brick throughout this country and Canada.

At the offices of the Ellicott Brick Company, the Berrick Brick Company and Samuel McCutcheon, business was reported to be fair.

KNICKERBOCKER.

THE NEW BROWN PYROMETER.

A new electric recording pyrometer, distinguished by its simplicity of operation and construction, has recently been designed by Edward Brown & Son, 311 Walnut street, Philadelphia, Pa., and for which they have been granted patents. The instrument is constructed for use in conjunction with a thermo-couple as a thermo-electric recording pyrometer, but this type of recording gauge could be used for very accurately recording pressures of steam and blast, volts, milli-volts, etc.

As a pyrometer, the complete equipment consists of a thermo-couple, as illustrated in Fig. 5, consisting of two nickel alloy rods suitably insulated and protected, the recording electric pyrometer and the leads or wire connecting the thermo-couple and the recorder. The length of the leads are



Fig. 3.



Fig. 4.



Fig. 5.

commonly of any length from 100 to 500 feet, and very frequently the same thermo-couple which generates the current for the recorder, also actuates as indicating instrument on the same circuit, but located near the furnace for the operator's assistance.

The electric recording pyrometer gauge consists of a milli-voltmeter system carrying a small drop of ink on the pointer or needle. As this milli-voltmeter system is in a horizontal position, there is no change in weight or position of the pointer with an increase or decrease of ink. A large 8-inch chart of stiff white paper is raised once a minute by a powerful eight-day clock and touches the ink pen, making a small dot on the chart. These continuous dots form into a fine line, and as the pen is only in contact with the chart a very short time, the pointer is able to fluctuate readily with the rise or fall in temperature. This momentary contact with

the paper is necessary in an electric pyrometer, as the milli-voltmeter system has not enough power to pass across a paper in which it is in constant contact.

In order that the chart may be readily removed from the instrument without the danger of striking the pointer or necessitating the moving of the system, the chart and clock mechanism are carried on a drawer which can be withdrawn, as illustrated in Fig. 2. This drawer is carried on ways or guides, causing the drawer to be lowered as it is drawn out, and preventing the pointer dragging a line across the chart. The drawer can either be withdrawn part way, as shown in Fig. 2, or can be withdrawn entirely, as shown in Fig. 3, and the chart removed and a fresh one placed in position. It is a much more simple matter to change the charts on a recording pyrometer when lying on a table or shelf than in the recording case.

Once a day when changing charts, a drop of ink is placed in the recording pen with a dropper or pointed article. Occasionally, also, it is desirable to pass a camel's hair brush dampened with water through the recording pen, in order to clean the pen and insure a fine ink line. To enable this to be easily attended to, a frame is raised from the base of the recording instrument as the drawer is withdrawn and forms a rest for the pen pointer. Although the parts of the recording instrument are well protected by the case, the

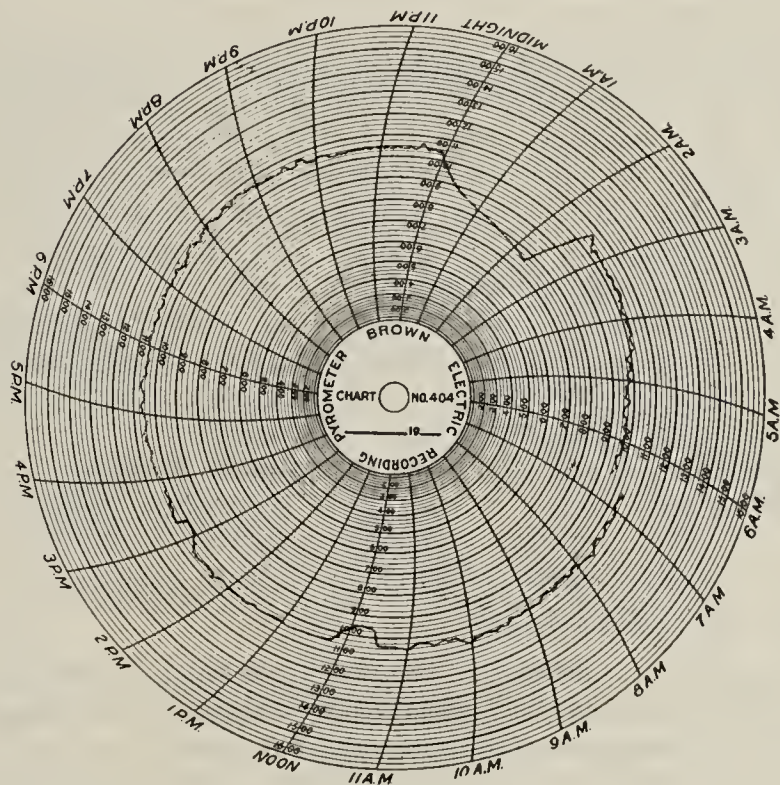


Fig. 6.

milli-voltmeter and the clock mechanism are both enclosed in metal cases as an additional protection from dust.

Where it is desirable to record the temperature of several furnaces, these recorders can be supplied to record one, two or four furnaces, all records being made in one case. Fig. 4 illustrates a quadruple electric recording pyrometer for recording the temperature of four furnaces, and this makes a very desirable equipment for many, large works.

The recording electric pyrometer can be supplied by the manufacturers for any desired range in temperature, and the record charts can be made to revolve once in twenty-four hours or seven days, if preferred.

In Fig. 6 a greatly reduced record chart is shown printed in one color only. This chart shows the form of dotted red line made by the Brown recorder and incidentally shows that the fireman attending this furnace was not "on the job" for several hours during the night, and the temperature in consequence dropped rapidly.

The Brown electric recording pyrometer has already been supplied for use at a number of blast furnaces, and for annealing ovens, glass melting furnaces, brick kilns, and other operations where a clear record of the temperature is desirable.

It may appear to some that this instrument is too simple in construction, but it is doubtful if this is possible where a recording gauge is subjected to general industrial use, and provided accuracy and durability are maintained.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Wants a Remedy to Toughen Clay.

Editor THE CLAY-WORKER:

We appreciate THE CLAY-WORKER very much, and would like to have some one give us, through your columns, a remedy for tender clay. Our clay makes fine brick and tile, but we have trouble with the ware crumbling when it leaves the mill, as though it had too much sand in it. Can anyone tell us how to obviate this trouble? R. MAYFIELD.

Good Cheer from Pennsylvania.

MY DEAR RANDALL:

Enclosed find check for \$2, covering our subscription for the years 1909 and 1910. I see you state in your letter when Uncle Sam issues an order we will all have to "sit up and take notice." I have always been of the opinion that when our friend Randall issues an order that most of us take notice, and that is why it gives me great pleasure to take notice of your communication of July 24th.

The brick business in this part of the country is extremely good. I have all that I can possibly attend to, and have the output of the factory sold until May, 1910. I know you will be more than pleased to hear of my success.

Trusting you are well, I am, with kindest regards,
Corry, Pa. D. WARREN DEROSAY.

Trenton Potteries Running to Full Capacity.

Editor THE CLAY-WORKER:

The pottery business in general in Trenton is on the upward turn, most of the potteries now running to full capacity again with promising orders for the fall trade.

On the night of the 7th inst. fire visited the Imperial Porcelain Works, manufacturers of electrical insulators and specialties, burning down the workshops and kilnsheds, causing a loss of about \$50,000.

Four firemen were seriously hurt while fighting the fire, but succeeded in getting it under control, saving the finished wareroom and office building, sliphouse and dieroom, where the dies are kept. Mr. Frederic A. Duggan, the principal owner of this pottery, is already getting out plans for rebuilding the works.

Trenton, N. J. Yours truly,
EDWARD C. STOVER.

Kansas Firm Working Overtime.

Editor THE CLAY-WORKER:

Enclosed, please find draft for \$2 to cover subscription, as per your invoice. We have been working overtime for the past few months to take care of our many orders, among some of which we might mention the Gayety theater, Woolf Bros.' building, Owen building, a duplicate cream glazed job to match the Woolf Bros.' building and the Smart building, of Kansas City, Mo.; four school buildings and an office building for Kansas City, Kans., the Moffat and Tammen residences, and the Armstrong, Knights of Columbus and Holden apartment buildings for Denver are among a few of the many orders now in work, and which will keep us busy for several months to come.

Thanking you for the many interesting articles published

in your paper, we remain, with best wishes for further successes.

Kansas City, Mo.

WESTERN TERRA COTTA Co.

A Voice From the Past.

Editor THE CLAY-WORKER:

I am greatly pleased to receive a letter from you, and surprised and complimented by your suggestions. I lack the information necessary to write a biographical and historical sketch giving the early history of brickmaking in this country. Looking backward excites in me no enthusiasm, and I would "let the dead past bury its dead." I could scarcely write a page without exciting criticism. There are no "chips on my shoulders," Mr. Randall. While I can not endorse it fully, I can appreciate the wit in Elbert Hubbard's advice: "If you want to escape criticism, don't say anything. Don't do anything, don't be anything." I could not write a historical sketch, for it would be limited by the narrow lines of my own life and therefore biographical. I have been so intensely interested in my own work that I have paid but little attention to the work of even my competitors. This reminds me of an incident. After making my little stereotyped speech, i. e., in favor of my machine to a shrewd brick-maker, he pointed to a colored picture on the wall representing the chariot race of Ben Hur, and said: "What do you think of that, Tiffany?" Oh, that's fine, a beautiful picture. "I don't mean the picture; what do you think of the machine?" he explained. Above the arena was a print of Brother Penfield's machine and the illuminated words, "The Penfield Ahead." Oh, if you want to know about the machine, you had better write to Mr. Penfield; he knows more about it than I. But say, I don't have to knock the other fellow's wheel off to get ahead of him.

You ask me to compare the "present status of the brick-making industry with what it was twenty to thirty years ago." I will give but little more than my first thoughts in regard to the subject, but must go back much further.

October 6, 1863, forty-five years ago next October, Cyrus Chambers, of Philadelphia, received a United States patent for a stiff clay auger machine embodying a mechanical feature covered by twelve claims. The patent was for fourteen years, with privilege of extension of seven years, which would protect the feature covered by the patent to October 6, 1884, twenty-four years ago. These features then became public property, and are embodied in the horizontal auger machine of nearly every brick machine manufacturer. What Cyrus Chambers has contributed to the modern auger machine is more than that of all others combined. Hence, I would award to him by far the greatest credit for its production.

But I think no machine ever built made so many laminations in a brick. But were we not told by Mr. Alsip in the N. B. M. A. Convention in Philadelphia, in 1889, that these laminations in the brick were like the grain in wood, and gave greater strength to the brick. In an essay before the same convention, I said that "a brick having laminations was not a fit brick to be laid." Such a brick may answer for filling and backing, but not for a weather brick. And it may answer for a paving brick if burned to vitrification.

But what is wanted is a machine and die that will mold a brick that, when burned to the heat required for common brick, will stand the weather.

The hand-molded brick of forty years ago would bear any exposure. As I have said of roofing tile, the tile that has lasted for centuries was free from laminations, so I will say of brick. The long-delayed success of the dry press and burning to vitrification have given wonderful encouragement to the making of a poor brick. It is very gratifying to me to see in your columns an ad of a company which proposes to correct laminations. After the convention above referred to, I rode to New York with Mr. Alsip and stopped at the same hotel. In the morning I asked him to go to Madison Square Garden, the front of which was being built with brick made at Williams, Pa. They were as free from laminations as a block of sandstone, and they had not been repressed. Mr. Williams thought they should be repressed

and wrote the architect that he would repress them, and received the reply, "The brick are all right; do nothing with them." The face of the brick was smooth, and the wire-cut surface for the mortar bond would have been injured by repressing. The perfection of these brick, I think, may be justly attributed to three factors, the molding feature of the old Centennial brick machine, which was a propeller running about six times as fast as the pug mill of the machine, and in an opposite direction, thus overcoming all tendency of the clay to swirl, and passing it directly through the die, the Neederases die, which received no more clay than could be compressed by the die, and which lubricated the different surfaces of the die in proportion to the friction of the surface, that is, the corners very freely and diminishing toward the middle of the sides and ends, and the nature of the clay. The clay was of the rock variety, crushed in the dry pan and passed through the pug mill directly into the brick machine. Like some persons who are said to be made of clay, it carried its own "grog." It had not that tendency to slip upon itself, which clays that are as "fine as silk" possess. The lesson is, that if a clay has not this element it must be added thereto.

The mechanical factors were imperfect, but their work indicates the path of future improvement. Strength of machine and quantity of output appear to have been the principal objects of the elder Chambers, and he attained remarkable success. The disciples of Cyrus can hardly hope to improve upon his work in the direction of capacity unless of Cyrus can hardly hope to improve upon his work, unless they can combine a steam shovel with his machine in such a way as to feed the hungry monster directly from the bank of clay.

To my mind the greatest improvement to be desired is the elimination of all laminations from clay wares. But you will remind me that I wrote an article on this subject in 1902, and that it is now receiving some attention. What I wrote then was what I learned from many experiments and long study and observation in practical work. I have no financial interest in the solution of any question pertaining to clay-making machinery.

GEO. S. TIFFANY.

TWO EXAMPLES OF THE IRONY OF FATE.

AT THE dinner table, recently, a boy whom I know asked his mother what was meant by the "irony of fate." With a somewhat cloudy definition the good lady gave some examples which were accepted. After a horseback ride the next evening the boy joined the family group with the remark: "Mother, now I know the irony of fate."

"Well, what is it?"

"It's when a hole comes in the seat of my trousers exactly in line with the hole in my drawers."

With a groan the mother told that boy he could make holes in one garment or another faster than she could patch them; but I think she forgave him the last one.

The manager of the Hayes Run Fire Brick Company ordered a chemical fire engine fully a week before the fire that recently destroyed the plant. The morning after the fire the engine arrived at their railway station looking very business-like and tagged for the company that needed it so badly a few hours earlier, but now, alas, had no use for its services.

The engine was there, but the fine buildings and machinery were gone—from an accidental blaze that started during working hours, when there were plenty of willing hands but not sufficient appliances.

Are some of our brickmaking friends in a similar condition? No more profitable use of a dozen empty oil barrels can be made than to fill them with water, place them conveniently about the building, with a half dozen round bottom galvanized fire buckets hung close to each barrel ready for instant use.

J. H. CHAMBERS.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



MILWAUKEE BRICK dealers report an unusually brisk trade in the brick business during the past month, with prospects for a large fall trade. The demand in this line of the building industry has made a great increase over the corresponding period of last year, and promises to grow even larger from present indications. Brick sales for July were much larger than for June, according to local jobbers.

"The brick trade has been very brisk during July, showing a great increase over June and over the same period of last year. Brick are more than holding their own for paving. From the orders that are now coming in we will have a large fall trade," said Edward F. Whitnall, of the Pennsylvania Coal and Supply Company, a big jobber.

The increase in the brick business is due to the present revival in all industries. Many buildings are now being erected. Business blocks and residences are springing up all over Milwaukee, while in the outskirts manufacturing concerns are erecting additions or new buildings on their plants. The city, too, is paving many of its streets, and bricks are being used more than ever for this purpose. Altogether, the present season is one of the most prosperous that local dealers have enjoyed in years.

The Clay Product Company, Manitowoc, Wis., has purchased machinery to manufacture dry pressed brick and also a dry pan to prepare the clay for use for that special product. The manufacture of dry pressed brick is a new line for Manitowoc factories, and is thought to be an important factor in developing the brick industry there.

The Hollandale (Wis.) brick factory has been completed and is now making 30,000 brick daily. The new plant has five kilns with a capacity of 480,000 brick. The supply from which the company draws will run the plant for a lifetime. H. H. Smith is manager of the new concern. It is said that the plant has cost \$40,000. The Pennsylvania Coal and Supply Company, of Milwaukee, has agreed to purchase the entire output.

The Washburn Brick Company, of Superior, Wis., plans to reorganize and resume the operation of their plant, which has not been worked this summer. The brick made by the concern have always been of good quality, but the factory has never been managed successfully.

Several blocks of brick paving on Pierce avenue, Marinette, Wis., have been completed and thrown open to traffic. The authorities are of the opinion that brick will give excellent satisfaction and that for general purposes it is the most durable, as well as economical pavement.

The cement pavements which were laid a year ago in Fon du Lac, Wis., have cracked badly recently, although there is no apparent cause for doing so. No excavations have been undertaken near the place where the pavement is giving away, and all precautions were taken when the cement was laid. At the time cement was chosen many considered it an experiment, but its small cost finally decided property owners in its favor.

Green Bay, Wis., is contemplating paving some of its downtown streets, and is considering brick as one of the materials that will give the best satisfaction.

The Stevens Point Brick Company, Stevens Point, Wis., sustained a loss of \$1,000 through a fire which was caused by sparks from the kiln setting fire to punk wood piled nearby. The loss is fully covered by insurance.

A. BADGER.

Money saved by the use of up-to-date trucks, cars and wheelbarrows is just as good money as that saved by the use of up-to-date machines, and it sometimes amounts to fully as much, too.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.



LONG THE Hackensack river activity reigns supreme. All yards have turned out several burnings and have shipped them, and others are in process of formation. Business has been good all summer, so good that it has enabled makers to recoup themselves for some of their losses during the past few years. Prices are the same as those in New York. In fact, this section is so close to the metropolis that there is little difference in the general situation. All trade is governed largely by what is done there, and the effect is the same as though these makers were located in New York. The bulk of the brick made here goes to New York, principally for the immense works which are in progress there all the time. Schooner load follows schooner load down the river, while there are numerous trainloads taken from the dock at Ridgefield Park. Makers in this section have always looked upon New York as their legitimate market ever since brick have been made upon the Hackensack, or about seventy-five years.

It is said that conditions in the Perth Amboy district are good and that substantially all plants are under operation. Conditions have favored the liberal operation of all plants this season and those which were idle last year are nearly all making this year, with a good demand for whatever is turned out, and with orders placed ahead for much of the product.

At Trenton the potteries are all enjoying a good business. With most of them this is the time of greatest activity, but trade has been good all the season. It shows no indication of reduction now, and operators confidently expect to go ahead upon the present liberal basis during the remainder of the active season, and are already planning improvements and supplemental facilities as soon as the present activity ceases a bit to enable them to do the required work. The development of the industry is well worth considering, and represents many hundreds of thousands of dollars in additional capital and liberal profits upon that already invested.

At Hightstown, the manufacturers of brick and tile, consisting of three firms, W. H. Dillon, A. L. Ellis and H. B. Reed & Brother, are doing a fair business this season. The slow trade of the past year or two had its effect here, as well as elsewhere, and apparently the same degree of energy has not developed this season. The business will be increased as prosperity improves, however, and there are inquiries for the product of these firms sufficient to indicate that the future is likely to be brighter than the past has been.

J. H. Gautier & Co., Jersey City, manufacturers of fire brick, are enjoying a good business, and are receiving orders about as fast as they want to fill them. The business has been in existence some years and has an established trade which is increasing yearly. Conditions are favorable for the enlargement of the present demand as the growth of enterprises in the immediate vicinity creates a necessity for more fire brick.

The National Fireproofing Company's plants at Keasby are in full operation, turning out finished product to their capacity. One of this firm's plants has recently resumed operation after a long idleness, the increase in demand requiring the resumption of business to fill orders. At these works there is plenty to do now, and the situation is so promising that it is believed by the management that they will have all they can do for a long time to come. The products of this company are used more and more in the construction of buildings, either small or large, and skyscrapers could scarcely be erected without them. This has increased demand heavily and the company has been sufficiently progressive to keep its plants always growing, while, as occasion has required, it has established new ones.

Adam Weber & Sons Co., at Keasby, making fire brick

and retorts, are doing a good business, which is steadily increasing. The season has been very prosperous with them and the future looks promising. The market for their products is constantly expanding, affording better opportunities for profitable sale.

Another prosperous firm in the same town is the Ostrander Brick Company, which makes fire and hollow brick, employing some 125 men in their works. They have gradually built up an enviable business and this season has seen largely increased orders for what they make. It is noted that the business is more active than it has been for some years and that sales have steadily increased, notwithstanding general business dullness, which has had a tendency to reduce demand for such products. The company's record is enviable in that respect.

A. L. B.

Written for THE CLAY-WORKER.

BRICK AND BUILDING SITUATION OF CLEVELAND.

THE BUILDING outlook in this locality continues excellent. Much work is being done on the various projects started earlier in the season and if the volume of new work being launched is not quite as large as earlier, it is a fact that more material is actually being delivered than for any period this year. It is noticeable that the volume of building keeps up quite as well as usual. Brick continues to meet with favor for all parts of the work, and the dealers here report a prospect of a record-breaking season with all the plants running to capacity.

One pleasing feature is the immense amount of rural brick paving which is being done throughout the country districts surrounding Cleveland. Thousands of tons of pavers are being hauled from the plants in this vicinity to the country roads which are being improved in this fashion. Hundreds of men are securing employment, the contractors housing large numbers in temporary shelters such as tents and small huts near their work. At the rate the work is going it is expected that every rural road in Cuyahoga will be paved with brick within the next three years.

One of the best indications that business is resuming its natural volume in Cleveland is the fact that many factories are beginning to enlarge. Permits for a number of good-sized jobs have been taken out during the past month. The Cleveland Foundry Company is erecting a large addition to its plant on Platt avenue and the C. & P. Railroad. The plans have been prepared by the Osborn Engineering Company. The building, which is to be of brick, will be 60x200 feet and five full stories in height. The National Malleable Castings Company is erecting a large brick addition to its already large plant. The building will be 100 feet long and 276 feet deep, with brick walls and steel roof. The F. B. Stearns Automobile Company has completed the foundations for a five-story brick factory addition 50x200 feet. This is the first of a series of new structures which are being added to the present group of frame buildings, all of which are to be replaced with brick structures as rapidly as the work can proceed. The new building is to be completed for use by October 1.

Anthony Carlin, who owns the Hotel Euclid, on Euclid avenue at East Fourteenth street, has had five houses wrecked on the ground just west of the hotel, and is preparing to let contracts for a five-story mercantile building, the upper part of which will probably be used by the hotel and the ground floor for stores. The building will have a frontage of 100 feet and a depth of 160 feet. Its front will be of a light-colored pressed brick. A. E. Sprackling is architect for the structure.

Manager Chapin, of the Hydraulic Press Brick Company, has been busy during the past two months in whipping the South Park plant of the Ohio branch into shape. With his experience in the operating part of the business, Mr. Chapin has succeeded in increasing the output of the plant 7,000 brick a day. He has plans for developing some new branches which he hopes to work out in a short time. For the present, however, the plant is being run to capacity in turning out enough

stock to keep up with local orders. The company has also become the agent for this territory of the American Terra Cotta and Ceramic Company, and is figuring on some good jobs here.

One of the best indications as to the popularity of the output of the Hydraulic Company's plant is the fact that a trainload of ten cars, loaded with 85,000 South Park "cherry red" brick, was dispatched during the past month to Vancouver, British Columbia, where a brick broker is finding a great demand for them, despite the fact that they cost three times as much money as in this state, because of the long freight haul.

A large number of the members of the Builders' Exchange attended the quarterly meeting of the organization on August 11, it being the occasion, also, of the annual watermelon feast. After the dinner, James R. Garfield, son of the martyred president, and former secretary of the interior, gave an address, in which he defended the Roosevelt onslaught on the trusts. Reports of the treasurer showed the exchange to have over \$21,000 in the bank, about \$54 per capita for each member of the organization.

On the afternoon of August 9, while going in an automobile to pay off his men on a brick road paving job near Royalton, W. E. Baldwin, of the paving firm of Baldwin Bros. & Graham, in company with a friend who had gone along for the trip, was held up by four Italian bandits and robbed of \$1,100. The thugs stopped the machine at the foot of a hill and demanded the cash, evidently knowing it was the pay car. Baldwin handed it over when four revolvers were thrust in his face. Despite the fact that the sheriffs and police forces searched the county for the men, they were not caught nor the money recovered. The pay cars on the suburban road paving jobs now carry several guards who are heavily armed. Over \$2,000,000 is being expended this year on these country road paving jobs.

The annual session of the Ohio Builders' Association was held at Cedar Point on August 12, 13, 14 and 15 of the present month and was pronounced a success, according to a number of Cleveland supply men attending the event. In addition to routine sessions and discussions on building materials of different kinds, the delegates enjoyed a summer outing.

A \$25,000 brick addition is to be made to the boys' school on the West Side. The contract for the masonry work has been let to the Skeel Bros. Company. The addition is to be ready early next year.

Architect J. Milton Dyer is preparing plans for a handsome brick and terra cotta building, six stories high, for W. M. Brown, on Euclid avenue, opposite East Twelfth street. The front, which will be in five large bays, will be of elaborately designed terra cotta, while the walls will be of brick. The foundations are being put in for sixteen stories, the ten additional ones to be added at some future time.

Paving jobs in Cleveland continue to cost the city less money than estimated by the city engineers. Contracts have just been let for seven brick streets which are all below engineer estimates. The sum of \$107,350 is being expended for this work. The paving is being done in different parts of the city. It is expected that over thirty miles of brick roadway will be completed in the city within the present year.

BUCKEYE.

PRODIGAL DAUGHTERS OF EVE.

How extravagant are American wives? Ever and anon we read that to be ruined by a spendthrift spouse is the normal state of man in this country. But we can see how easily such a conclusion might be jumped to from insufficient premises. For example, Jones finds that he is hard up; finds, also, that his wife spends a good deal of money. So he grabs the convenient lyre and sings of woman's prodigality, whose mortal taste brings death into the world and all our woe.

As well as we can judge from the census figures, five married women out of every hundred in the United States indulge in the luxury of keeping a hired girl, while only six out of every hundred are engaged in gainful occupation. Thus, as a net balance, only one married woman out of every hundred both does her own housework and supports the family. As a

great majority of American wives are able-bodied, this is, perhaps, a scandalous reaction upon them.

Deducting the number who wantonly keep hired girls and the number who are gainfully employed, we have about twelve million married females who just spend their husband's money and do the housework. They neither sow, reap nor spin, nor dig wells, fell timber, hunt seals, dive for pearls or plant rubber trees. In making over father's old pants for Tommy—after only ten hours or so of light, congenial exercise in the kitchen—they will throw away half a pound of very good cloth, and then spend eighty or ninety cents buying new cloth for a Sunday shirtwaist. Such is the riotous life of a large majority of American wives.—Saturday Evening Post.

Written for THE CLAY-WORKER.

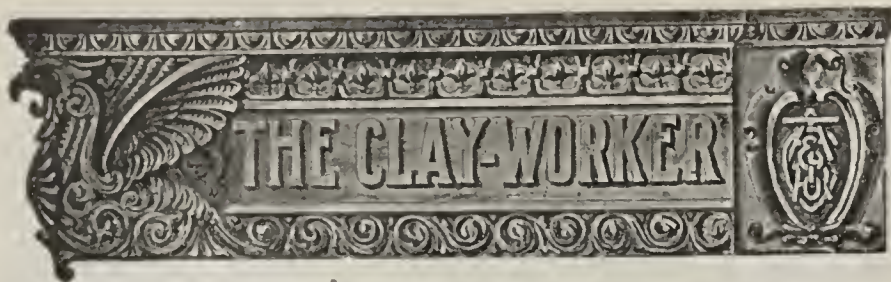
THE NEW YORK BUILDING CODE.

Perhaps no more illuminating or disturbing thing ever occurred in this vicinity than the discussion before the mayor regarding the proposed new building code, with its charges and counter charges of corruption and favoritism. Unfortunately clay products got hauled into that recrimination through the claimed advantage which was bestowed upon fireproofing by the code. It was stated that this favoritism was due to the fact that a number of prominent Tammany men are stockholders in the National Fireproofing Company, and that their influence was responsible for this state of affairs.

Of course, there is no telling where Tammany has influence. It has it everywhere, but the charges which were made and remade at the hearing were unfair. They were not honest and they did not tell the truth about fireproofing. Whether Tammany has any stock in fireproofing companies or not is no reason why the products of those companies should not be tested upon their merits, and if they are found to be more suitable for a specified purpose, then they should be used, regardless of who is a stockholder. It isn't the owners which are under trial now. It is the quality of a certain type of building material. Whether one class of product is better suited for a certain purpose than another, that is the whole question, and it should be determined upon its merits, not upon the merits of the owner.

When the advocates of fireproofing criticised cement and cinder concrete and a whole lot of other mixtures and concoctions too numerous to mention, they were well within the truth. There is no strength and stability to the building material made from these things, as numerous collapses of buildings under construction and afterward have demonstrated time and again. You don't hear of buildings constructed of fireproofing collapsing. That is the whole difference. One class of materials is suitable for the purpose for which it is made. The other class may prove suitable, but its maker can not guarantee that it will, and when it has collapsed and thousands of dollars' damage has been done, with the loss of a few lives, it is always blamed upon something else.

The mayor did quite right in holding up the entire proposition until fall by vetoing it and ordering a series of thorough tests to be made. No one can complain at that. The tests under scientific direction will demonstrate anew the value of fireproofing for building construction, and will prove beyond question that there is nothing in the other mixtures which should be used. It might be well to undertake an investigation regarding the ownership of stock of the cement and other companies which came so near wrecking the whole proposition. There is quite as much room for graft and favoritism in this direction as there is in the other. If the charge is made against one it might lie with equal force against the other. At any rate, those experts who framed the code so it practically excluded these dangerous experimental materials were honest, and unquestionably performed a task of public usefulness. It will yet be demonstrated that they were correct in their assertions and that fireproofing is the only material which should be permitted in these large buildings.



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AUGUST, 1909.

No. 2.

CURRENT COMMENT.

Vitrified paving brick have been doing quite well, thank you; and drain tile have been going some.

* * *

Common brick is cheap enough, goodness knows, and the wise builder will "git a plenty while he is gittin'."

* * *

The way to get good cheer out of life is to put plenty of it in, and, while waiting for returns, keep putting in more.

* * *

The distinction between ambition and greed is, one wants much and aims to merit, and the other wants more and aims to get it.

* * *

The pessimist can now take a vacation—and he needn't hurry back, for there is plenty of other work to occupy people now, and there will not be much room for him this fall.

* * *

The Germans cartoon our farmers as having diamond studded plows, because of the great number of diamonds bought by United States people. Well, if anybody is able to sport diamonds about now it should be farmers—or bricklayers.

* * *

A good way to kill a mosquito is to hit it in the head with a brick. Of course, that is too much trouble for general practice—and that is the way with most remedies suggested; they are too much trouble, or the people think they are, which is about the same thing.

* * *

It remained for an Arkansas town, Paragould, to do the reform business up brown. It was already a dry town, and had a 9 p. m. curfew for children, but now they have put into effect a 12 p. m. curfew for men. It must be that some husbands have been staying out too late down there, and the wives have taken a hand, but what inducements there are to stay out late,

other than 'possum hunting, it is hard for an outsider to see—and this is not 'possum season, anyway.

* * *

Please bear in mind that sea serpents and mermaids are barred from all fish stories and vacation incidents. Otherwise the season is now open for yarns.

* * *

Remind your real estate man that one of the first aids to good values is well-built brick houses instead of the flimsy frame structures that have long been the butt of jokes.

* * *

They may cause excitement and create temporary values in the Chicago grain pit, but we are now getting reports from where they actually grow the grain and make prosperity, and these reports look mightily like fat times ahead.

* * *

How many of us leave courtesy and old shoes at home when we go on a vacation? To judge from observations, there is a whole lot more pleasure that could be had by taking plenty of both courtesy and old shoes along, and the people we meet would retain a better impression of us, too.

* * *

When one interested in paving brick as a real article of merit sees a street in bad order from being laid with brick but little better than common building stock, about the only relief from the feeling of depression it gives anent municipal contracts is to find an asphalt street in the same city that is so cut up it needs repairs in less than three months after it has been laid—and this can be found.

BOOSTING THE HOME IDEA IN NEW YORK.

Home building is always commendable and to be encouraged, but it is not every day that we hear of home building being undertaken on the wholesale plan, as is now proposed. About two years ago Daniel E. Ryan addressed Mrs. Russell Sage on the propriety of using some of her wealth in building up homes in the suburbs for wage earners, and having urged the same thing in one form and another through the papers since, because it is a hobby of his, he is now naturally elated to see his dream coming true, assisted by improved transportation facilities that now enable the New Yorker to get out of town more readily. The Sage Founding Society, endowed by Mrs. Sage with ten million dollars, it is said, will undertake the building of 2,000 homes to sell at prices ranging from \$1,200 to \$1,500 each, on terms to working people as low as \$3 a week. We hope they will make a great success of it, and that they will start in right by building them of brick.

PLENTY OF BRICK ON THE STREETS, IF NOT ON THE PROGRAM.

The second annual National Good Roads Convention is to be held in Cleveland, Ohio, September 21 to 23, under the auspices of the American Automobile Association, the National Grange, the United States Office of Goods Roads, the American Road Makers' Association, the National Association of Automobile Manufacturers, the Association of Licensed Automobile Manufacturers, the American Motor Car Manufacturers' Association, and other national bodies in highway improvement.

As the program announces, it will be the privilege of the highway officials and delegates to witness a larger amount of road construction of various types than would be possible in any other locality within such a limited time, as the city of Cleveland and its various suburbs have let an unusually large amount of contracts for road construction during the present season. The majority of these contracts call for vitrified brick paving. Under the administration of the county engineers something more than one hundred miles of brick paving are now under construction, and twenty-two farmers' petitions are on file with the county commissioners asking for additional

roads of this character. It is confidently asserted that the brick roadways in the vicinity of Cleveland are the very best, all things considered—economy, durability, satisfaction in use, etc.—that can be built of any material whatever. These roads exemplify the greatest relief to the taxpayers, the best general satisfaction for ordinary and extraordinary travel, and are to the automobilist his only hope of a highway good in every season and in every kind of weather.

Therefore, we consider it strange and most unusual that this year's program of the National Good Roads Convention to be held in Cleveland, a brick-paved city, should contain papers on macadam, bituminous and other paving materials, but apparently without even providing for a discussion on vitrified brick pavements. We will be very much surprised if something is not done in the matter of giving vitrified brick paving its proper recognition before the sessions of this national convention are over.

THE BUILDING SITUATION.

Perhaps never before in the history of the building industry was the business as prosperous as it is now. Never before has there been such a promising outlook for a continuation of this desirable situation. The conditions which govern are clearly of the most favorable character, and so far as can be seen the future holds nothing but promise for the industry and those whose capital and energy are combined to develop it.

One firm of builders in New York has contracts aggregating \$17,000,000, and while this may be a large sum for one firm to hold, it is but an indication of the enormous business possibilities which are included in the building outlook for the next few years. Reports from other cities are of substantially the same tenor. It would seem from what can be gathered that the building industry is entering upon a period of development surpassing anything hitherto known.

Coupled with this may properly be included propositions for different classes of construction work of a public or semi-public character, such as subways, railroads, bridges and the like, which are far beyond anything heretofore known. And these are but the larger enterprises which are to receive consideration during the next few years. The smaller ones will be proportionately numerous, and while individually they will not make so much show, as a whole the aggregate will be quite as great, perhaps, as the aggregate of the other and larger works. In a majority of instances these assertions of what is possible do not represent possibilities, but are actually contracted for. The work is to be done. There is no longer any question of doubt. And they are said to be only a beginning.

One can scarcely refrain from saying that the possibilities before the brick men are the greatest ever known. We are just entering a period when he can secure business and develop his trade along the most liberal and most profitable lines. He should be ready to seize his opportunities and turn them into profits.

Timber as a construction material is becoming daily more difficult to obtain at a reasonable price. Stone is too expensive. Cement and concrete, while they look attractive so far as price is concerned, are unreliable for anything beyond the smallest and most insignificant structures. It is to clay, then, of which there are inexhaustible supplies throughout the country, that the builder must look for his material. Fortunately, a combination of clay and iron, or a construction of clay alone, will produce a building which is practically fireproof and weatherproof. And the expense is actually less in many instances than the same building would be if constructed of wood. The result of this is obvious. The future holds so much of promise for the brick and terra cotta man, as these materials are applied more and more to construction work, that it would seem as though he is coming

into his own and that the time will shortly arrive when clay will be practically the only available material for a moderate-cost structure.

It requires no erudite reasoning to see what the effect of this will be on the brick and clayworkers. They are to assume an importance never heretofore realized, and their business is to become one of the most important in the country, ranking with iron and other enterprises which furnish absolute necessities. The day is fast coming when all this will be true, but that does not alter the fact that the brick man should keep up his everlasting activity to secure increased business. In doing this he will help himself and hasten the day when this desired development will be a reality.

THE STORY OF BRICK IN 1908.

Every time there is a Geological Survey report on the clay products of the country for a year, one cannot help but be reminded of the fact that almost everywhere where there are homes or buildings of any magnitude there are also brick and brick works. Every State and every Territory except Alaska is represented in the clayworking columns, and while naturally some produce much more than others, and will continue to do so, still there is a remarkably close connection between settlement and civilization and brickmaking. Also, brick is steadily becoming more conspicuous as a home-building material, notwithstanding there was a falling off in the consumption of building brick last year; it was a year in which nearly everything showed a shortage.

Vitrified paving brick is one product that showed a gain during that exceptionally dull year of 1908, and drain tile was another. There is probably a sermon in this fact for the common brick people, if they can just get the lesson from it and apply it practically, for with building brick off nearly 24 per cent. in value during the year, it furnished an unusual opportunity to push brick for home building in competition with less worthy material. Quite a lot of that opportunity still remains, especially since lumber is now advancing in price, so it is up to the building brick men to read the sermon between the lines of the 1908 report, and then get busy.

The report shows that vitrified paving brick increased in quantity used during 1908 11.63 per cent. and in value 10.39 per cent., which we take to mean that the reduction in price during one of the hardest years on record was so small as to be insignificant. The exact figures are, for 1907, 876,245,000, valued at \$9,645,282; for 1908, 978,122,000, valued at \$10,657,475. It was good work, with a good product, and bespeaks still better things for the future. Ohio led, of course, with nearly a third of the total product, but every worker for the good of the cause of paving brick is to be congratulated.

Drain tile, the other product showing a gain for 1908, made an increase of 26.18 per cent., a very remarkable showing as compared to the general industrial depression, a showing that emphasizes strongly a fact already known, if we would but remember it, and that is that the agricultural sections are the ones making money and spending it in improvements. The largest users of drain tile are the States of Iowa, Indiana, Ohio, Illinois and Michigan, these States using, in fact, nearly 90 per cent. of the total. When all the other States fall in line right, what a showing there should be in drain tile in some of the future reports—and it is probably only a matter of time and mission work.

ALL IS WELL IN TEXAS.

Prosperity is spelled with a large P in Texas these days. In the building line unusual activity prevails, and, as a result, the demand for brick is keeping the brickyards going to their full capacity. This is particularly true in the larger cities, and especially in Houston and Dallas. The Texas Brick Manufacturers' Association recently held its annual meeting in the former city. Secretary J. M. Harry, of Dallas, reports that the meeting was well attended, and that the delegates enjoyed the

social features of the meeting immensely. A number of excellent papers were read, and trade conditions generally were reported as satisfactory. The rivalry between Dallas and Houston is well tipped off in the following from the Houston Chronicle:

Great Quantity of Brick Used.

Last night while J. M. Harry, secretary of the Texas Brick Manufacturers' Association, was explaining to the members of the local press the purpose of the gathering of that body in Houston, he let fall the remark that Dallas, his home town, uses 40,000,000 of brick a year.

"That's pretty good—for Dallas," said W. H. Lighthouse, of the Butler Brick Manufacturing Company, of Houston, who overheard the remark. "We use only 100,000,000 a year ourselves over here in Houston."

"One hundred million!" repeated Mr. Harry, in amazement. "Pish and tush and eke pooh!"

"That's a fact," insisted Mr. Lighthouse. "Conditions the past year have been unusual, of course. We have had more building going on the last twelve months than ordinarily. Look at the big buildings going up all over the city. Why, there were more than a million and a half brick used in the Scanlon building alone."

Then Mr. Lighthouse got busy with pencil and paper and produced figures which convinced the Dallas brickmaker that his assertion was correct.

The demand for brick the past year, he explained, has been so enormous that the local yards could not supply it. Out of the 100,000,000 used, 75,000,000 have been shipped into Houston by outside manufacturers. Demand for brick is good all over Texas, according to the reports of the delegates to the convention, and prices are satisfactory.

A BOOKLET THAT IS A TRADE-GETTER.

J. W. McMillan, of Milledgeville, Ga., has recently mailed to his trade an unusually attractive booklet, bound in a high-grade dark green cover, on the front of which in red on a yellow enamel paper appears a print of the McMillan brick, stamped with the firm name and address in bold letters. The body of the pamphlet is a light green enameled paper, the printed matter being in black, each page possessing an artistic green border. The subject matter consists of information relative to location, facilities and output of the McMillan plant, and letters of recommendation from some forty well-satisfied consumers of the Milledgeville products. There are thirty-six pages in this booklet.

Mr. McMillan is proprietor of the Milledgeville Brick Works, which was established in 1883. This plant manufactures a high-grade machine pressed building brick, repressed red brick, cream-colored pressed brick, fire brick and ornamental brick. Mr. McMillan is also a miner and shipper of fire clay needed in various refractory industries.

AMERICAN BLOWER CO.'S LATEST CATALOGS.

Three very attractive booklets have been received recently from the American Blower Company, Detroit, Mich. One known as No. 253, a hand book of information on blowers and exhaustives for glass factories, is well gotten up, and gives the reader a store of information relative to the A. B. Co.'s several types of steel pressure blowers and steel plate and Sirocco fans, including price list and capacity tables of same. The booklet also contains illustrated descriptions of their propellers, disc ventilating fans, blast gates and recommendations from several large plants using their products. Booklet No. 257 is quite attractive, especially at this time of year, the cover illustration being a marine scene in blue, green and black. The preface to this booklet reads: "An 'optical excursion' through this booklet will prove profitable, instructive and refreshing," which is true in every sense of the word, as it tells of the advantages of the A. B. C. ventilating apparatus. Booklet No. 258 is another attractive piece of advertising literature telling of the many merits of the Sirocco fans. Anyone interested in the question of fans and blowers, should write the American Blower Company, Detroit, Mich.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 213.]

FOR SALE. WANTED, ETC.

WANTED

Salesman familiar with selling to municipalities. Good salary to right man. Must be experienced. Address BOX 100. Care Clay-Worker.

ARTHUR KOPPEL CARS.

Four 1½ ton capacity side dump steel cars, 24-in. gauge. Used about 30 days; fine condition. Cost \$97.00, sell for \$65.00 each; a bargain.

G. W. B.,
81 d 1222 Stephen Girard Building.

WANTED,

Situation as superintendent of brick plant. Am thoroughly experienced in manufacture of dry pressed, stiff mud and paving brick. Can handle men successfully. Am in charge of a plant now, but for good reasons want a change. Best of references. Address 8 D, 81 d Care Clay-Worker.

FOR SALE.

A fine brick plant, located on two railroads, within eight miles of Pittsburg, Pa. There is an abundance of raw material and the plant is well-equipped throughout. Will sell either half interest or entire stock. Prolonged illness of owner cause for selling. Address Box 809, 81 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 206-208.



Save Your Screen Plates!

We can save you over half your screen plates.

This is the "biggest little advance" made in Clayworking Machinery economy in late years.

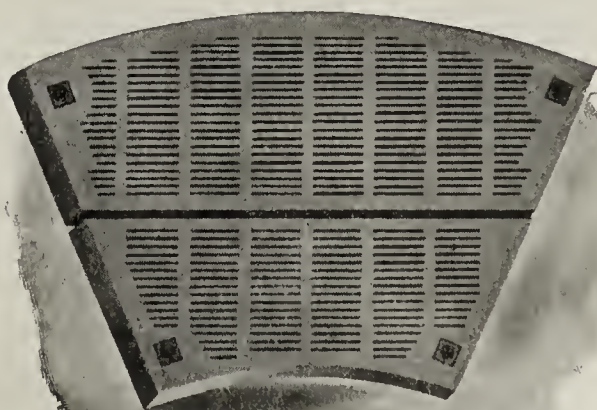
We construct our Dry Pans in such a way as to make it possible to have a divided screen plate. The part of the screen plates nearest the mullers wear out more rapidly than the outer part. The mullers do not ride on the screen plates, but the material to be crushed is often in large pieces which extend from under the mullers onto the screen plates and the weight of the muller is thus transferred to the screen plates, making them wear rapidly on the part nearest the mullers. Our divided screen plates make it possible, in cases of wear of this kind, to save the outer part of the screen plates. The outer part being the larger part, the saving on each screen plate is really more than half.

The divided screen plates are giving the best of satisfaction and are proving a big saving. The plates are bolted to the screen plate supports, and can be quickly changed when necessary.

Write for further particulars

**The American Clay Machinery
Co., Bucyrus, Ohio, U. S. A.**

The Only Builders of a Complete Line of
Clayworking Machinery.



Centrifugal Clay Screen



See Cut on
Opposite Page

Here is a radical departure in Clay Screens. The motion is centrifugal instead of vibratory. The life of the machine is thus lengthened and the capacity increased.

As the cut on the opposite page shows the screen is made up of two hoppers substantially mounted on a steel frame. The screen plate is circular with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft which is connected to the driving shaft by a pair of bevel gears.

Just beneath the screen plate is a steam coil heater arranged to heat the screen plate to prevent damp clay from clogging the perforations in the plate.

Surrounding the vertical shaft is a cast iron hopper or spout through which the clay is fed to the screen plate. This hopper can be raised or lowered to regulate the flow of clay on the screen. The hopper being always full of clay keeps an even flow to the screen. The screen as it revolves throws the clay from the center to the outside of the screen plate, the flow being even and regular. The larger particles of clay, too large to pass through the perforations, pass over the screen plate to the outside and fall through the outer housing to a spout conveying them to the grinding pan for regrinding. The fine particles of clay sift through the screen plate into the inner housing or hopper and pass to a conveyor and into the clay bin.

The whole operation is rapid and thorough and the principle insures great capacity and freedom from trouble. Many of these screens have been installed and are giving universal satisfaction.

In actual operation the No. 147 Screen, which has a screen plate six feet in diameter, is screening equal to the capacity of two nine foot dry pans. We also build this screen with a four foot screen which will handle clay to the capacity of our pan.

Full particulars as to the construction and operation of this screen will be sent upon request.

We build every machine and appliance required for the manufacture of every class of clay products by all processes. We are much the largest manufacturers of Clayworking Machinery in the world. Manufacturing as we do, every machine and appliance right in our own factories we are better prepared to serve you at a saving in time and money than others.

The American Clay Machinery Co.,

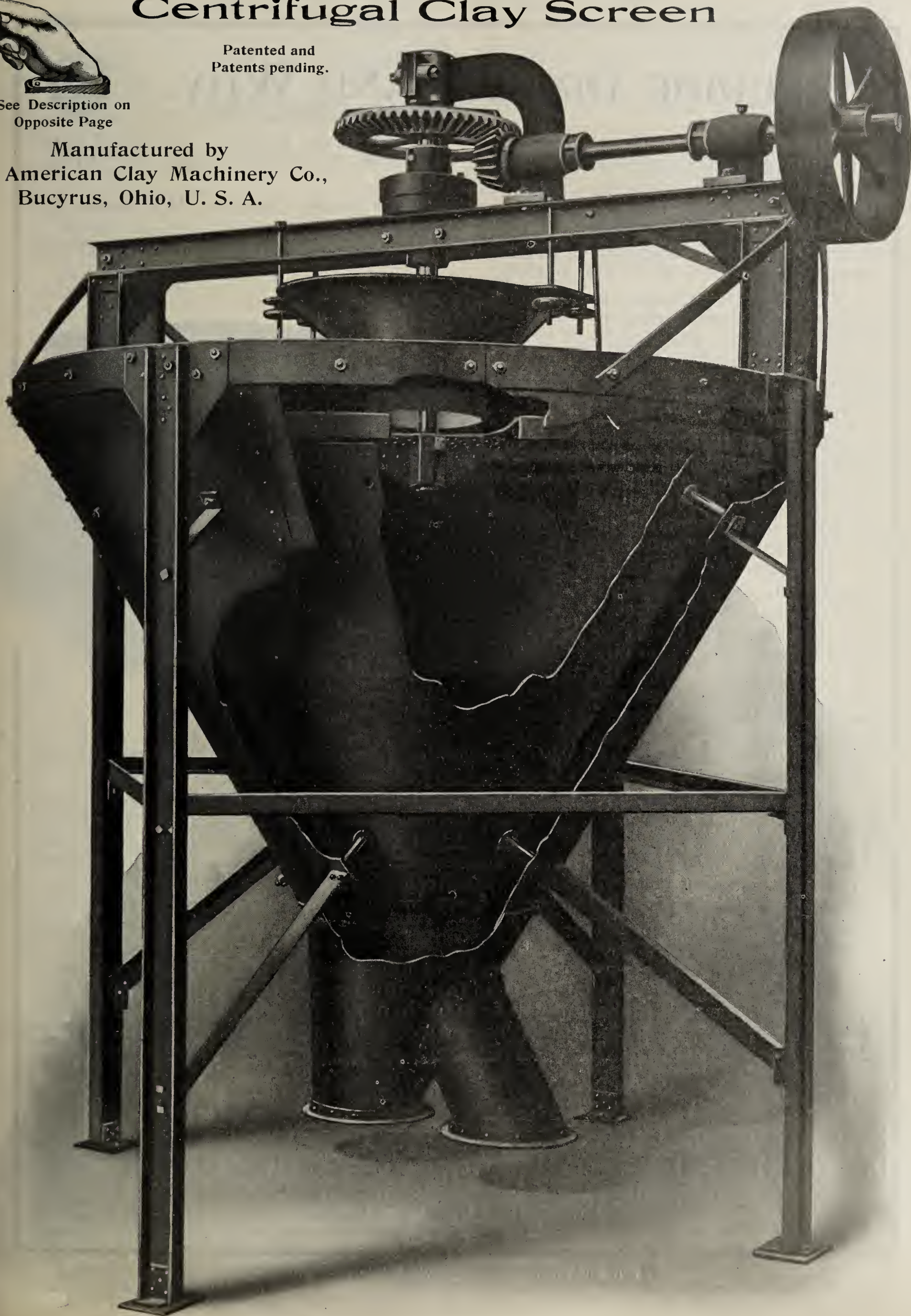
Bucyrus, Ohio, U. S. A.

Centrifugal Clay Screen

Patented and
Patents pending.

See Description on
Opposite Page

Manufactured by
The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



SUPERIOR DRYERS—AND WHY



The success of a Waste Heat Dryer is largely in the Blower. We know that our Blower Dryers are best because our specialists on Dryers design the fan to meet the needs of each case.

Because every fan for every dryer is built in our factory. We know its quality and can guarantee it.

Because we do not have to depend upon the workmanship of some other factory but build ALL OUR OWN FANS.

Because these fans are of extra heavy and substantial construction designed especially for handling the hot gases from the cooling brick kiln and are much heavier and more substantial than an ordinary fan intended for heating and ventilating factory or office buildings which are sometimes sold for installing in waste heat dryers and invariably give poor results.

Because the American quality is in our equipment and will maintain it a success.

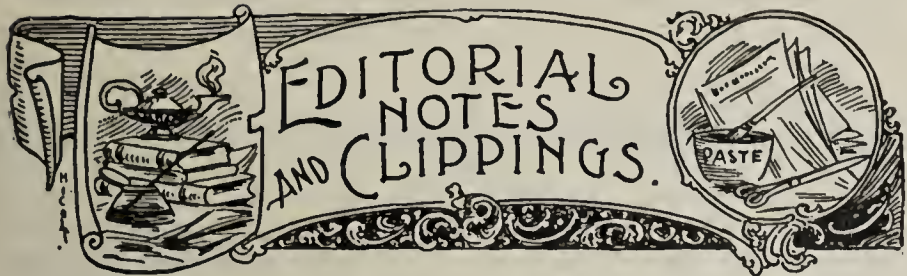
Because we have the best Waste Heat Dryer men in the country. With the best engineers, the best material and the long experience, we know that we can give you the best service and a better value for the money invested than can others whose equipment is assembled from various factories.

Then again we are Dryer Specialists in every sense of the word. We are not content with making one kind of dryer, but make every kind. We are, therefore, in a position to consider your interests without any bias or prejudice toward any one kind of dryer. This insures your getting a dryer which will most successfully handle your clay, whether the dryer be a Waste Heat, Steam, Hot Air or Furnace Dryer. We build a full equipment for every dryer in our own factory including Fans, Heaters, Car, Transfers, Turn Tables, etc. We also build and equip dryers to be operated by the carless system.

If you are in the market for a dryer let us look over your plant, consider the clay and conditions and design you a system that will be a success. Then if you place the order with us the equipment will be made in our own factory and will be of our standard quality. As it is with dryers so it is with every class of Clayworking Machinery. We build a full line for making Clay Products by every known process.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



Henry Wyman, of Danville, Ill., contemplates starting a drain tile plant at Omaha, Neb.

J. L. Pearson, of Altamaha, Ga., is in the market for a second-hand brick machine. Must be in good condition.

The Ladysmith (Wis.) Brick and Tile Company has landed the contract for 2,500,000 brick for the Ballou sulphite mill plant.

Branhall Brothers have their new plant at Durant, Ohio, ready for operation and will soon be running regularly, turning out brick at the rate of 60,000 per day.

Employees of the Rawson Tile Company, Findlay, Ohio, struck recently for \$1.75 per day, 25 cents more than they had been receiving. Their places were immediately filled.

W. E. Tripp, G. M. Appel, J. C. Bauer, A. F. Marting and F. B. Finney, of South Webster, Ohio, have incorporated the South Webster Clay Products Company, with \$100,000 capital stock.

The Kramig Tile Company has been incorporated at Cincinnati, Ohio, with \$10,000 capital stock by John G. Gartner, Robert E. Kramig, Charles A. Schoone, Edwin G. Peck and Alma H. Halstrick.

The West End Brick Company's plant at Punxsutawney, Pa., was practically destroyed by fire last month which started in the dryer. The loss is estimated at \$20,000, and the company carried no insurance.

The West Virginia Fire Clay Manufacturing Company, of New Cumberland, W. Va., has been granted a charter by the secretary of state. L. W., C. A. and L. B. Ballantyne, O. M. and R. M. Brown, all of New Cumberland, are interested.

Albert J. Capron, Ainsworth building, Portland, Ore., is in the market for a second-hand hollow building tile machine. Mr. Capron says the machine must be in good condition, and he wants price on such machine delivered at Portland.

The Columbia Silica Company has erected a factory at Portage, Wis., where they will manufacture sand-lime brick. The plant is equipped throughout with modern machinery with which they will turn out 20,000 brick per day. W. H. Roehm is general manager.

A queer combination of products will be manufactured by the Dillon Manufacturing Company, Dillon, Ohio, if they adhere strictly to their charter, in which the products of the company are given as brick, ice, coffins, caskets, doors and sashes. T. A. Dillon and C. F. O'Ferrall are the principal stockholders.

An order was issued by Judge Troup, of Omaha, Neb., recently to compel the city building inspector to issue a permit to J. H. Kittenbrink for him to complete his brickyard just southwest of Creighton's first addition. The court held that the ordinance declaring brickyards to be nuisances did not come within the police jurisdiction of the city.

The Raleigh Press Brick Company, Raleigh, N. C., of which T. T. Hay is president and C. N. Goodno, secretary, has had a very busy summer. The plant has a daily capacity of 40,000 high-grade brick, which are shipped all over the state. Good prices have prevailed all season, and the prospects are bright for a continuance of this happy condition of affairs.

A. P. Woodward and Mrs. Catherine S. Woodward have brought action against the Palmer Brick Company, Augusta, Ga., for \$8,000, which they allege is due them for a lease the brick company held on 300 acres of land. Mr. Woodward says the brick company leased the land for twenty years for the purpose of using its clay. W. D. Palmer represented that the clay would be worth 12½ cents for each 1,000 brick, and offered to guarantee the Woodwards \$100 a month for the use of the clay, and whatever in excess of that amount was made on the 12½-cent basis. The Woodwards now claim that no money has been paid them since 1904, the company claiming that it should pay for the clay only when it used it. The

allegation is also made that the company used larger cars, and got more clay on the 1,000 brick basis.

The Bloomsburg Brick and Construction Company, of Bloomsburg, Pa., has been incorporated. Capital, \$10,000.

On August 7, fire destroyed the Greathouse Brick and Tile Works, at Lewisport, Ky. The plant was owned by D. B. Greathouse, and will probably be rebuilt.

Thomas Hampton, of the Hampton Clay Products Company, Washington, D. C., has filed a voluntary petition in bankruptcy. He gives his assets as \$11,986.

The Giddings Pressed Brick and Gin Company, of Phoenix, Ariz., has been granted a permit to do business in the State of Texas; capital stock, \$30,000. Texas headquarters, Giddings.

The Stevens Point Brick Company's plant at Stevens Point, Wis., sustained a \$1,000 loss by fire which started from sparks from the kiln. Large quantities of cord wood was destroyed.

The Berthoud Brick and Tile Company, Berthoud, Colo., has completed the delivery of 1,100,000 brick to the army post at Ft. Russell, near Cheyenne. Orders aggregating 2,000,000 brick have been booked by the company.

The Fowlerton Drain Tile Company, Fowlerton, Ind., has been incorporated with \$10,000 capital stock. The incorporators are: Leslie and J. O. Spurgeon, Wm. J. and L. Nesbitt and C. N. Brown. They will manufacture brick as well as drain tile.

The Denton Press Brick Company, Denton, Texas, which is largely owned and operated by Fort Worth capitalists, is spending \$30,000 on extensive repairs and improvements, and will be out of operation two months longer. New machinery is being installed.

Papers have been filed in a suit for \$25,000 damages brought by Mrs. Nora Neal, of Sheffield, Iowa, for the life of her husband, who was killed last winter in a pit of the Sheffield Brick and Tile factory, by the premature explosion of a charge of dynamite.

The Don Valley Brick Company, of Toronto, Ont., has added additional machinery and improvements in the way of a new dry pan and other necessary equipment, amounting to quite a large order, having awarded the contract to the Taplin-Rice-Clerkin Co., of Akron, Ohio, which machinery was recently shipped.

The Black Hawk Clay Manufacturing Company will build an addition to its plant at Rock Island, Ill., for the manufacture of hollow block and vitrified brick. They are now operating a plant of 40,000 daily capacity, and the new plant will almost double that capacity. The company ships many brick to Iowa and Minnesota in addition to taking care of the local trade.

John A. McDonald has been appointed the receiver of the Dow Brick Company, Columbus, Ohio, under \$5,000 bond, on the application of D. W. McGrath, who says the company owes him \$10,864.63. It is claimed that the concern is solvent, but owes many debts and the creditors threaten to bring suit. The receiver is to protect the company and continue the business.

The Sterling Brick Company has been incorporated to manufacture brick at Olean, N. Y., with \$150,000 capital stock. The principal business office is to be at Olean, and the names of the directors for the said company for the first year are Fred H. Snyder, of Rochester; Henry Hasbrouck, F. L. Bartlett, H. S. Sartwell and C. R. Bard, of Olean. Mr. Hasbrouck is the manager of the plant.

The Lexington Brick and Tile Company has recently been organized by the Lexington Brick and Tile Company, Lexington, Texas. The plant will be equipped with Raymond stiff mud machinery from the shops of the Raymond Company at Dayton, Ohio, and will have a capacity of 45,000 building brick per day. The officers of the company are G. P. Dickson, president, and R. F. McGinty, secretary and treasurer.

The New York Roofing Tile Company has purchased eighteen acres of clay land at Malden Station, near Saugerties, adjoining the company's holdings. This gives the company forty acres of good clay land, and is the first step, President Washburn says, toward a larger plant, which, when completed, will give employment to 150 men. Work on the new plant will begin in a short time. The new buildings will cover nearly two acres of land and will consist of plain and glaz-

(Continued on page 198.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

ing kilns, dryers, engine and machinery houses, and will have a capacity of 3,000,000 tiles a year.

M. M. Louiz, an employe at the McNear brickyard, near San Rafael, Cal., met his death recently by falling from a scaffold across a live electric wire.

B. Clark, an employe of the Falls City Brick Company, Louisville, Ky., was caught in a cave-in at the company's clay bank and sustained a broken leg.

A. Klose, R. Klose and F. Olbrick have filed articles of incorporation for the Columbia Brick Company, Portland, Ore. The company is capitalized at \$100,000.

The Charlotte Brick Company, Charlotte, N. C., recently landed the contract for the brick for the new buildings to be erected for the State School for Deaf and Dumb at Morgantown, N. C.

C. E. Markeley, of Roanoke, Va., is at the head of a company that has leased the plant of the Webster Vitified Paving Brick Company at Blue Ridge, Va., and the plant will be put in full operation at once.

A company has been organized by M. C. Johnson to take over the plant of the Guyam Valley Brick Company, at Barboursville, W. Va. The new concern will be known as the Barboursville Clay Manufacturing Company.

The New Jersey Clay Pot Company, of Vineland, N. J., has been incorporated with \$25,000 capital stock. Those interested are C. Hankins, R. J. Rafter, V. Durand, Jr., of Vineland, and W. S. Richardson and H. R. Doerr, of Philadelphia, Pa.

The Windsor Brick Company, of South Akron, Ohio, is enlarging the capacity of its plant by the addition of five new kilns of 135,000 capacity and a new power plant. They are making a high-grade paving block and have orders for all they can turn out.

Archbishop John J. Glennon recently sued the Evens & Howard Fire Brick Company, St. Louis, Mo., for \$5,000, alleging damage to the property of the St. James Church at 1360 Tamm avenue, which adjoins the property operated by the brick company. He alleges that the church building was cracked and badly damaged and undermined at one corner by the company.

Mason City, Iowa, is to have another brick and tile plant. It will be erected by the Farmers' Co-operative Brick and Tile Company and cost \$400,000. This will make the ninth clayworking plant for Mason city. The officers of the company are: J. H. Brown, president; E. G. Dunn, vice-president; W. R. Flemming, treasurer, and George H. Hughes, secretary. Work on the plant will commence at once.

The Granton Manufacturing Company, of New Durham, N. J., is to erect and operate a 12,000,000 capacity brick plant of the latest improved type. Under patents of Hiram H. Walsh, formerly engaged in brick manufacture in New Windsor, the brick will be dried with heats that other manufacturers waste. It is said one-half of the cost of drying will be saved by the use of appliances covered by Mr. Walsh's patents.

The State Geologist of Kansas, Prof. E. Haworth, is preparing to make tests of clays from the different parts of the state at the University of Kansas, at Lawrence, several thousand dollars having been appropriated for this purpose from the university fund. Prof. Haworth has great faith in the clays of Kansas and thinks ceramics can be made one of the great industries of the state. The clay should be sent in packages of not less than 100 pounds.

The Rocky Mountain Fire Brick Company, of Salt Lake City, Utah, filed articles of incorporation recently in the county clerk's office. It has a capital stock of \$250,000, divided into shares of \$1 each. The officers are L. O. Ensign, president; A. F. Greaves-Walker, vice-president; S. L. Ensign, Jr., secretary, and John W. Ensign, treasurer. The company owns several claims in Utah county, where the corporation intends to manufacture brick, tile and crucibles.

The affairs of the Eggers Brick Company, Cleveland, Ohio, bankrupt, will be settled up through the bankruptcy court, Walter D. Meals, receiver for the company, which went into bankruptcy following his appointment, having agreed to turn over some \$4,000 in his hands to Trustee A. R. Manning. Mr. Meals had previously declined to obey an order of

Referee Remington to make such surrender because of claims against the fund from the common pleas court.

The dryer of the Day & Harvey Brick and Lumber Company, at Independence, La., was completely destroyed by fire August 7th, causing a loss of \$2,500.

R. M. Sellers, Leesburg, Ohio, is in the market for a good second-hand brick and tile outfit. Either a horse power plant or a small steam power plant will answer Mr. Sellers' purpose.

The Wilpicoba Clay Works, at Ragland, Ala., have been shut down for the purpose of building some new kilns and making extensive repairs and improvements which will cost in the neighborhood of \$40,000.

The stockholders of the Lamar Brick and Stone Company, Lamar, Colo., held their annual meeting recently, at which time they elected officers and declared a 5 per cent. dividend. L. Wirt Markham is president; W. C. Gould, treasurer, and J. K. Dought, secretary.

The brick manufacturers of Trenton, N. J., are considering the advisability of organizing for the purpose of correcting the abuses of the mechanics' lien law and weeding out contractors who have the non-paying habit. The organization will be called the Trenton Brick Manufacturers' Association. No effort will be made to control prices.

The Taplin-Rice-Clerkin Co., Akron, Ohio, recently furnished the Buckeye Fire Clay Company, Uhrichsville, Ohio, a specification of machinery, including a sewer pipe press and other equipment. This same firm has also sent a large shipment of machinery to the Pomona Terra Cotta Company, Pomona, N. C. Both of these firms have installed Taplin-Rice-Clerkin machinery before, and these repeat orders are very gratifying to the machinery manufacturers.

William Goodwin, of the Goodwin Tile and Brick Company, has purchased the Redfield Brick and Tile Works, Redfield, Iowa, and has already taken possession of his new property. Mr. Goodwin will use the Redfield plant as an auxiliary plant of his Des Moines works, and will push it to the front rapidly. J. H. Queal, who has been employed by Mr. Goodwin for a number of year, and who is a thorough brick and tile man, will be in charge of the Redfield plant.

The foreclosing of liens against the Summit Construction Company, of Chanute, Kans., has resulted in the property of the Chanute Cement and Clay Products Company, organized by Akron (Ohio) capitalists, going into the hands of a receiver. It is a \$5,000,000 corporation. An immense plant is about two-thirds completed at Chanute for the manufacture of cement and clay products. It is expected that the officers of the company will soon dissolve the indebtedness and remove the receivership.



A DOG-FIT.

A very small dog from Patee
Once chuckled and laughed with great glee.
"Although I'm a pup,
One thought cheers me up—
Pa's pants can't be made to fit me!"

--Judge (Illustrated).

NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

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Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



HE BRICK business in New York has taken a new lease of life this season. The barge and schooner loads which come down the Hudson and the train-loads which come in from other directions are sufficient evidence of this fact. Apparently there is ample demand for substantially everything made. Yards

which have been idle for two years are in operation this season and they are getting good orders. Business has not declined since the warm weather began. In fact, there is more activity now than was noted some weeks ago. Prices are holding up fairly well, though it must be admitted that there has been a disposition to shade prices on some of the lower grades, partly because of decline of demand and partly because the supply is too free for present requirements. But in the main the business is good. Building operations are liberal and the construction of other classes of work is taking a good many. Conditions promise to favor manufacturers throughout the remainder of the season. The demand shows no sign of slackening for a long time yet.

Up the Hudson the yards are all active. Business has been brisk all the summer and is still so. Makers have had an exceptionally good summer, without much rain, and have been able to build their business upon a basis which assured the production of desirable brick in any quantity. Buyers have been liberal with their orders and the market has been fairly steady all through the season. While it is impossible to give statistics which are exhaustive, it is known that 22,000 men are employed in the yards along the Hudson. Something like 20,000,000 tons of freight are annually floated down the Hudson river in one way or another, and brick constitutes the largest single item in this total. More than 6,000,000 tons of brick are annually shipped to New York in this way. The barges are made especially for this work, and some of them hold more than 500,000 brick. Others hold less. This is the enormous business which has developed along the Hudson river during recent years, and which is constantly increasing. Probably more brick have come down this year than for several years, and more are likely to come if the building business continues as active as it seems likely to be for the next few years.

A hitch has occurred in the construction of the proposed trunk sewer scheme which was to dump the sewage from a number of New Jersey's largest cities into New York Bay. The United States Army engineers have reported against the project, and there may be further legal complications regarding this proposition. Meanwhile various projects are under discussion and one is to construct an immense disposal plant, embodying the latest and best ideas out on the meadows. It is argued that this would solve the problem of disposal, and, at the same time, save New York Bay from any further pollution.

Brick paving in Greater New York has never had the attention it deserved, apparently, because of some innate objection among the powers that control such matters. But in Richmond, Richmond Borough, or, otherwise, Staten Island, there are a number of streets paved with brick where excellent work was done and where the paving is entirely satisfactory. It is not known whether this will be increased or not, but it is presumed that it will be. The inhabitants of that enterprising community are all well satisfied with their pavement, and believe it is quite the best that could be devised. The appearance is a big contrast when compared with the broken asphalt, filled with deep holes, or the splintered blocks which show the effects of heavy traffic. Conditions like these should be enough of an object lesson to create different ideas among some of those who have con-

trol of paving and influence them to experiment with brick upon some of the streets of New York itself.

Building of apartments and tenements has begun again in the Bronx, and the erection of buildings, which has been at a standstill for a year or two, is going forward again as it formerly did. The reason is that population has caught up with the buildings which were made some years ago, and a fresh demand has begun. It is necessary to erect the buildings to satisfy this population because there is a growth which nothing can check. Consequently builders are busy and capitalists are ready with the money. So, why shouldn't the brick man get his share of business as a result of this combination of encouraging circumstances? Surely he should and unless all indications fail he will.

As one goes about New York it can be easily seen that brick is coming to be used more and more in construction work. Fifty years ago it was the exclusive building material, and scores of dwellings erected at that time in substantially all the streets were built of brick. They have stood the wear and tear of time as no other buildings of New York have done and are in good condition today, so far as outside appearances are concerned. The return to brick construction of the class of buildings of which these were a type indicates that builders in these times have determined, after careful investigation, that brick is really the ideal building material. Conditions are the same now as then. Something permanent is wanted, something which will resist the weathering influences that always follow from long exposure to the atmosphere, particularly in those localities near the seas, where the dissolving effects of fogs and dampness are more or less pronounced. Brick does this as no other material can do. Further, it is the only fireproof material known. Stone will not withstand heat in serious fires as brick will, and stone is gradually giving place to brick and terra cotta in all modern construction work in New York. It is the ideal filler for the huge steel frames which are now erected for the skyscrapers, and it fills all the requirements of fireproofing and protection against fire from the outside. With these features well understood there is really no reason why brick and clay materials should not practically supplant all other classes of building material, provided its effectiveness and its value in these directions are thoroughly understood. Brick men are understanding this and are making their wares better known by judicious discussion of their merits and a better method of reaching architects and others who have the say in determining that this or that material shall be used in construction. It looks like a return to old times to see a brick New York springing up on the site of the old stone city which was erected thirty years ago or so. In the end brick promises to practically supplant everything else that may be offered.

This desirable result can be hastened if brick men themselves will use all possible influence in bringing their material to the attention of builders and others who are contemplating or directing construction work. The result wanted will follow in due course. Not that it will all come at once, but eventually the steady effort to accomplish something of this sort will bring about further changes and place brick upon a more popular and therefore profitable basis than ever before.

BURTON.

NOTICE

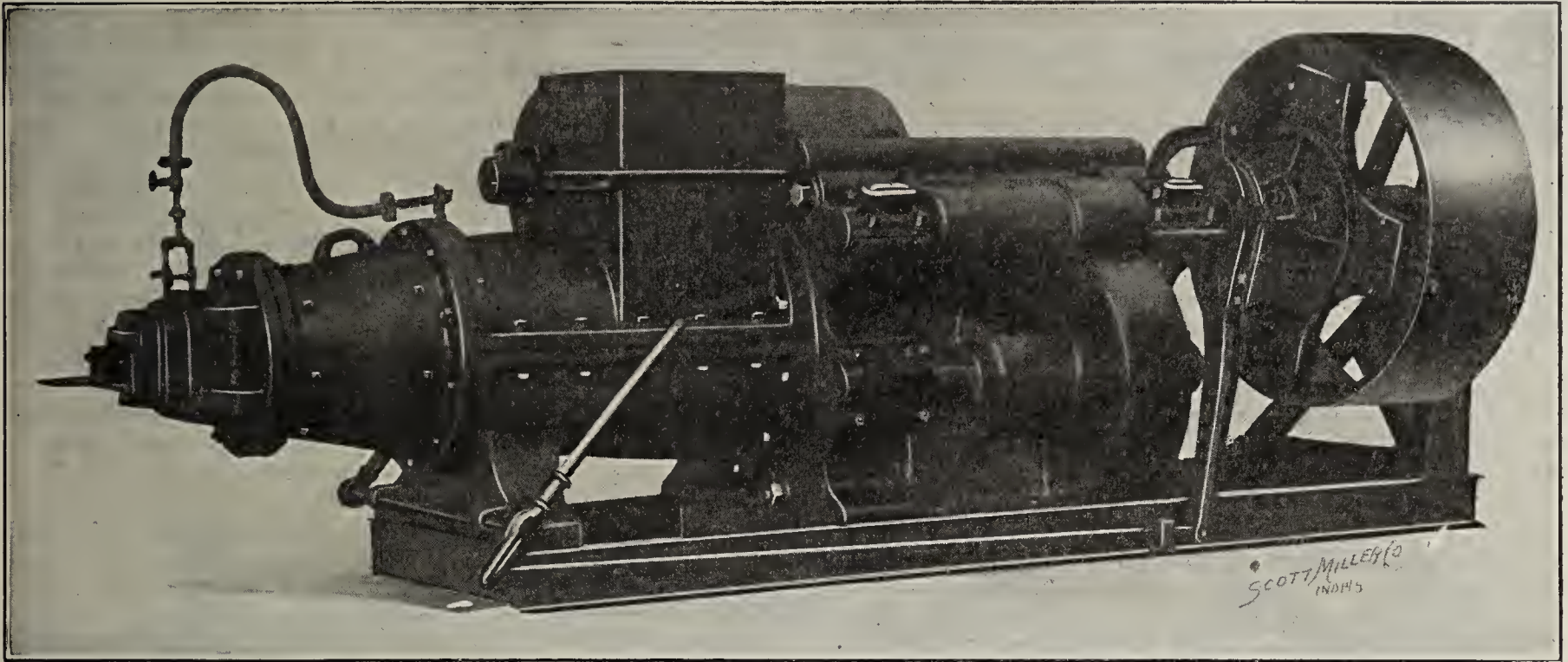
The trade mark

TAPESTRY

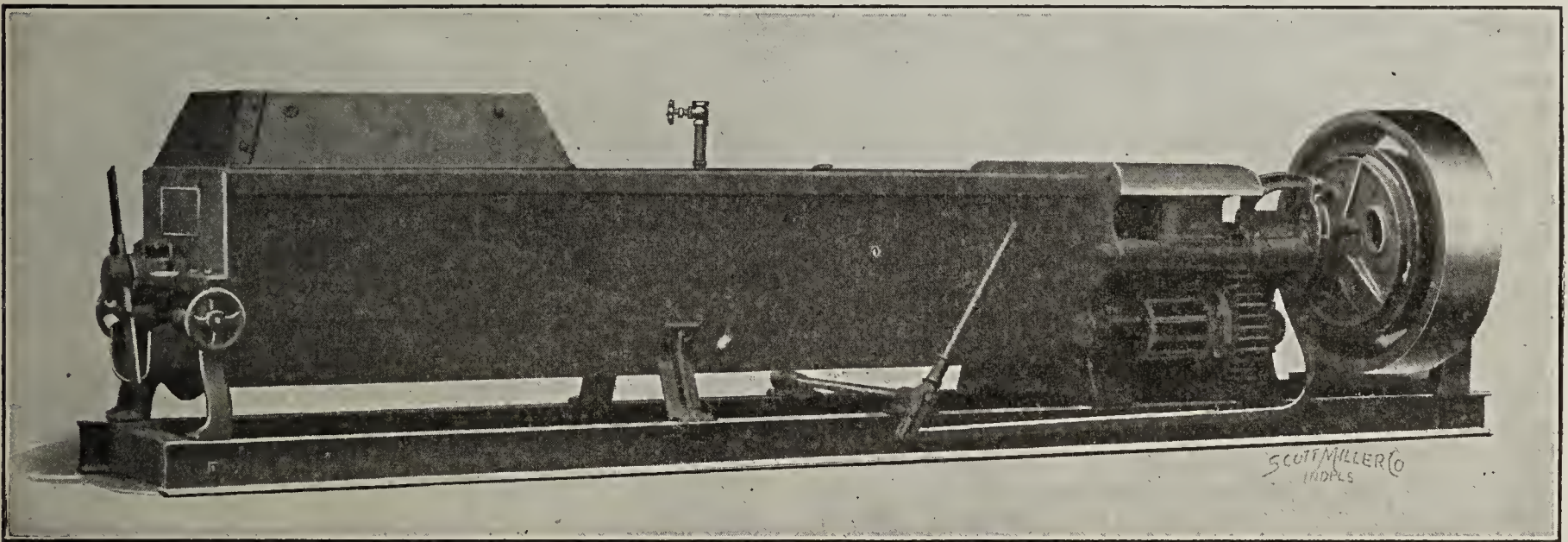
is registered in the United States Patent Office and is our exclusive property. It brands our best burned clay products. All manufacturers and dealers, except those selling our goods, are warned against infringement.

Boston **FISKE & CO., Inc.** New York

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

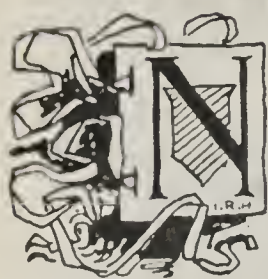
Galion, Ohio.

(Mention The Clay-Worker.)

See ads on pages 242 and 243.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



OTWITHSTANDING the apparently favorable conditions, the building situation on the Pacific Coast is not entirely satisfactory. While money is now comparatively easy, especially for improvements on real estate, and while general business activity throughout this section is rapidly increasing, all the principal cities of the coast show a falling off in building projects, the total valuation of buildings for which permits were issued last month being \$2,154,999, compared with \$2,853,173 for June. The record of July last year, when the city was only beginning to recover from the financial depression, was \$3,139,027. The present situation, however, is considered rather more favorable than last summer, especially in the brick business. There is still a large amount of work uncompleted on which large deliveries are being made, and quite a number of structures of unusual importance are in prospect. Much of the work in prospect has already dragged along much longer than was expected, and it is believed that quite a number of jobs will be let in the near future. The brick men are also supplying quite a lot of material for government, state and municipal work of various descriptions, which does not show in the permits.

One feature which is far more favorable than last year is that of prices. Common brick were then moving in this city at about \$6 per thousand, which, in this section, is hardly more than the cost of production. Except for a short time about the first of June, \$9 per thousand on the cars has been the usual price since the first of the year. There seems to be a little easiness in the market at present, however, and it is not unlikely that prices will drop off a little within the next month or two. While the producing capacity around San Francisco is by no means in full operation, it is pretty certain that many more brick have been made this summer than could be sold and some manufacturers are becoming anxious to dispose of their stocks, while the demand is hardly as lively as it was earlier in the season. Most of the manufacturers still quote the prevailing figure, but there are occasional rumors of price cutting, and, altogether, the market is in a rather unsteady condition. It is not believed, however, that under any circumstances the price will fall as low as it did last year.

Face brick continues in fairly good demand, and large deliveries are being made of all kinds of architectural terra cotta and tiling in a great variety of designs, colors and glazes. While there are a good many concrete buildings going up just now, practically all of them are to have a facing of pressed brick or terra cotta, and there seems to be rather more business in these lines than for several months past.

The Ione Fire Brick Company, of Ione, Cal., has increased its capital stock, and a number of improvements in the plant are contemplated. The present kilns are now in full operation and the output continues to find a ready market at all points within shipping distance.

Regarding the effect of the new tariff schedule, W. E. Dennison, president of the Steiger Terra Cotta Works, of this city, who is also a member of the State Harbor Commission, says: "I believe that California has fared as well in the proposed tariff bill as any other state in the country. The reduction on fire brick will have practically no effect on the business done in that line on this coast. The importations of fire brick have gradually lessened every year. We make, I believe, a better brick in this country."

A trade dispute between the plasterers' union of San Rafael and the bricklayers of San Francisco has been adjusted in favor of the latter.

The demand for sewer pipe has been unusually active for the last month or two, and most of the plants equipped for the manufacture of this article are now fairly busy. Deliveries are now going forward rapidly on some large contracts made last month, and several new lots have been ordered. In most places where new sewer systems are installed, house connections are required to be made within

a short time, so that the first contract usually represents only a part of the business. The Healy-Tibbetts Construction Co. has taken the contract for the construction of section B of the large Division-street sewer in this city, which will cost \$144,275. Bids have also been taken on several other local jobs. W. J. Schmidt has taken the contract for installing a sewer system at Turlock, Cal. Glass & Fisher, of Bakersfield, Cal., have taken a contract amounting to \$261,842 for a sewer system at Santa Fe, N. M. The city of Pedondo, Cal., has awarded a large contract for material for an extension to its sewer system to the Pacific Clay Manufacturing Company. Several new sanitary districts have been organized in the country east of Oakland, and large bond issues have been voted for the installation of sewers, though the work on these systems may not be started until next spring.

The paving brick question has come up in connection with an investigation by the San Francisco Real Estate Board into the finances of the larger cities of the coast. Property owners here consider that they are unduly burdened with taxes, and yet the streets of other cities are kept in better condition. The real estate board cites the brick-paved streets of Los Angeles, which, during the convention of the Elks in that city, were found in ideal condition.

It is reported that a new brickyard is to be started at Benicia, Cal., where a large kiln was formerly operated. San Francisco capitalists have leased a large tract of clay land on the waterfront near that place, and expect to start work immediately on a large plant.

It is reported that the Hyfire Brick Company, which formerly operated a plant at Vallejo, Cal., has been reorganized by A. Abrahamson, of Oakland, with a capital stock of \$100,000. The directors are: A. and G. Abrahamson, E. E. Kemble, F. E. Alexander and A. Mayer.

The Pymont Brick Company, of Lincoln, Cal., is laying a spur track, and is now shipping out considerable clay to other plants. The proposed improvements to the Pymont plant have not yet been carried out.

The Holt & Gregg brickyard, near Anderson, Cal., is now running at full capacity, and will be kept in operation until late in the fall, as orders have been taken for several million brick. The output of the plant this summer will be as great as ever before.

The Corona Pressed Brick and Terra Cotta Company, of Corona, Cal., is adding a large building to its plant.

It is reported that the Western Brick Company's plant, at Richmond, Cal., has been attached for claims totaling \$4,650 for wages. Operation has been suspended.

At its annual meeting the Corona Pressed Brick and Terra Cotta Company elected the following officers: President, N. W. Stowell; secretary, C. H. Bennett; directors, Newman Esbeck, M. W. Findley and J. T. Hammon.

The Simons Brick Company, of Los Angeles, has purchased a tract of clay land near El Centro, in the Imperial valley, and is now making preliminary tests of the material, in preparation for the installation of a factory.

San Francisco, Cal., August 10, 1909.

SUNSET.

Trained men are in demand.

Give the boy a technical education.

STATE COLLEGE of
CERAMICS.

ALFRED, NEW YORK.

Charles F. Binns, Director.

Catalog mailed on application.

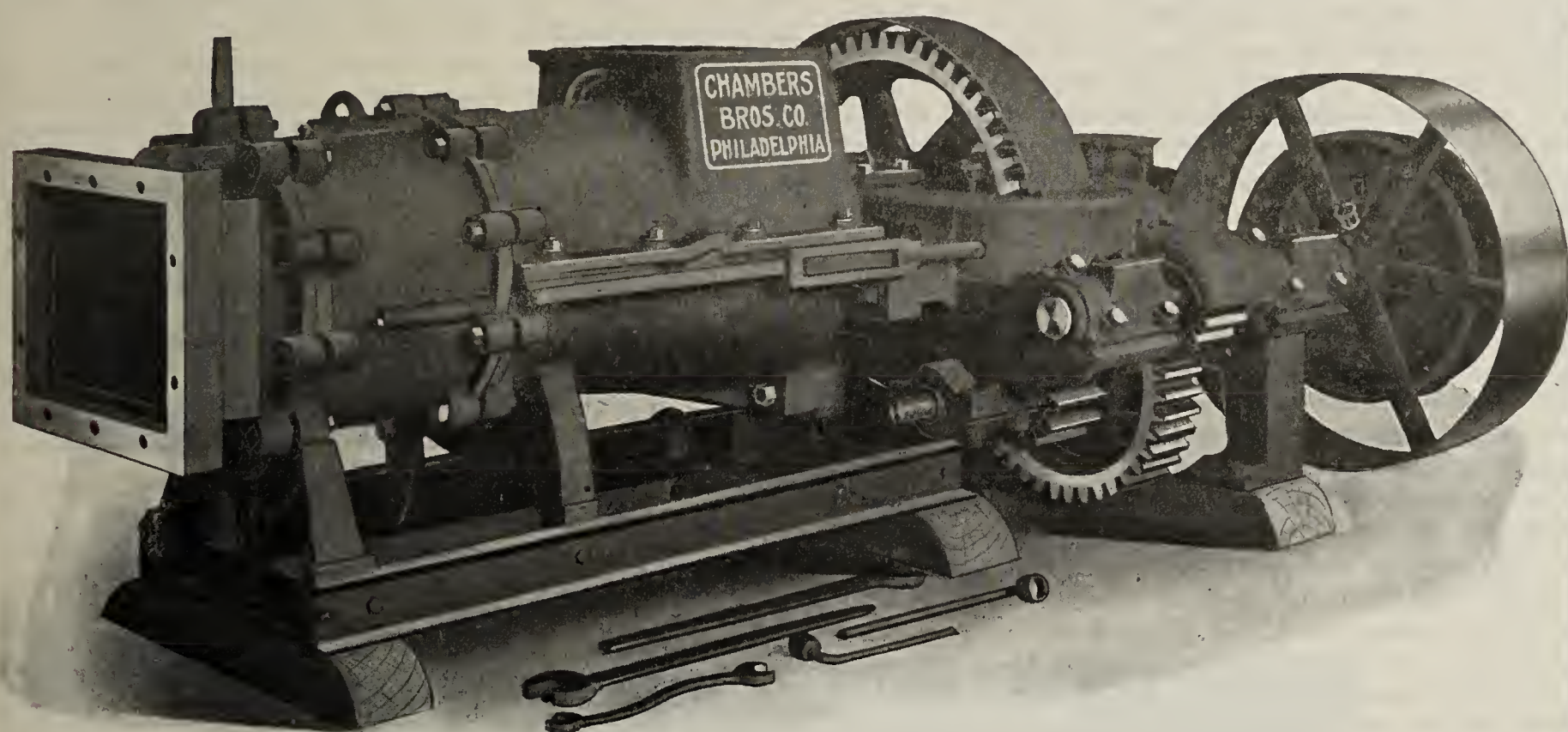


AUGER BRICK MACHINES

Chambers Brothers Co., Philadelphia, Pa.

Another New Member of the Chambers Family
Claiming Attention is the

FIRE-PROOFING SPECIAL



A machine that is different, both inside and out, from the usual type of auger machine.
The opening in the Die Case is

17 x 24½ Inches.

The main shaft on which auger and feed blades are mounted is a steel forging.

Semi-steel gears and steel pinions are used.

Built for and under the requisition of one of the largest hollowware manufacturers in the country.

This is not a pug mill, but a forming and expressing machine of enormous capacity.

CHAMBERS BROTHERS COMPANY

CLAYWORKING MACHINERY

PHILADELPHIA AND CHICAGO.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE KENTUCKY METROPOLIS.



WHILE THE situation in brick and kindred lines in this locality has not been as pleasing as it might have been during the past few months, there are now signs that betoken a very decided increase in this way, and this is the best news that there is to report. The number of large buildings erected here in the past few months as compared with some other cities has not been large, and the demand for brick has naturally been somewhat less active than it should have been. This condition is certainly improving now, and there are a number of more than ordinary structures being planned. The new Tyler hotel, at Third and Jefferson, will soon be started, which will be a very attractive brick structure. The Avery plow plant has been gotten under way, requiring 1,000,000 brick. The Union Depot, which will be rebuilt at a cost of \$85,000, will be of brick and stone. There are a very fair number of smaller buildings being planned, and on the whole the situation looks pleasing.

The new building ordinance has been made a law here and it is said to be equal to any in the country. There have been a number of changes made in same, and it will have a tendency to improve the conditions regarding all kinds of building here in the future. It was compiled after considerable labor, and the work is such as to make the people here take a just pride in the same.

There will be a very fair amount of street work done this fall in this city. In this the number of brick streets and alleys will be much larger than has been the case in some time, and will demand a very large number of vitrified paving brick. Some of the contracts have already been awarded.

The West Broadway Brick Company, which has been practically out of business for a long period, was formally closed out here on August 1. They formerly operated a brick plant in this city, but decided to close out the business. Henry Parke was president and George Feldman was secretary.

The Hydraulic Brick Company find that the situation with them in the building brick line has been improving of late. They expect to be operating all their plants by next month, as the indications now point to a very much better demand for brick during the fall months. The orders are increasing all the time, and they feel that there will be a far better demand than has been noted in at least a year. They are operating their plants now, but have been doing so only on part time.

The Kentucky Vitrified Brick Company say that they are doing a reasonably active business in street brick. The orders have been slower than they wished, but the prospects seem favorable and they are hoping that the situation will continue to show an improvement from this time forward. They have some out-of-town orders that are keeping them moving along.

C. O. Smith has been very fortunate in receiving some nice orders for brick in the past few weeks. Among these was the brick for the Avery plant. He has others in prospect that will make a very favorable showing for the present season.

The Southern Brick and Tile Company are busy at their plants. The brick demand is keeping up in a pleasing way, and they are sure that the fall business will be of the kind that will mean a very decided increase in the general business. In the drainage tile department they are preparing for a nice fall demand.

The P. Bannon Sewer Pipe Company have been short of men until within the past week, but this has been overcome and they are now in a position to operate on full time and

take care of the business that is being received. They feel that there will be a very nice fall business, and that there will be a pleasing increase in the general demand for sewer pipe that will be welcomed by them.

The Burrell & Walker Clay Manufacturing Co. note that there has been a better demand for a general line of clay commodities. This has been somewhat slow, but the fact that it is improving is one thing which gives them more hope in the outcome of the business.

The Louisville Brick Company are still selling a number of building brick. There has been at least a fair call for the above material this summer, and while it might have been greater, they do not feel that they have any right to complain.

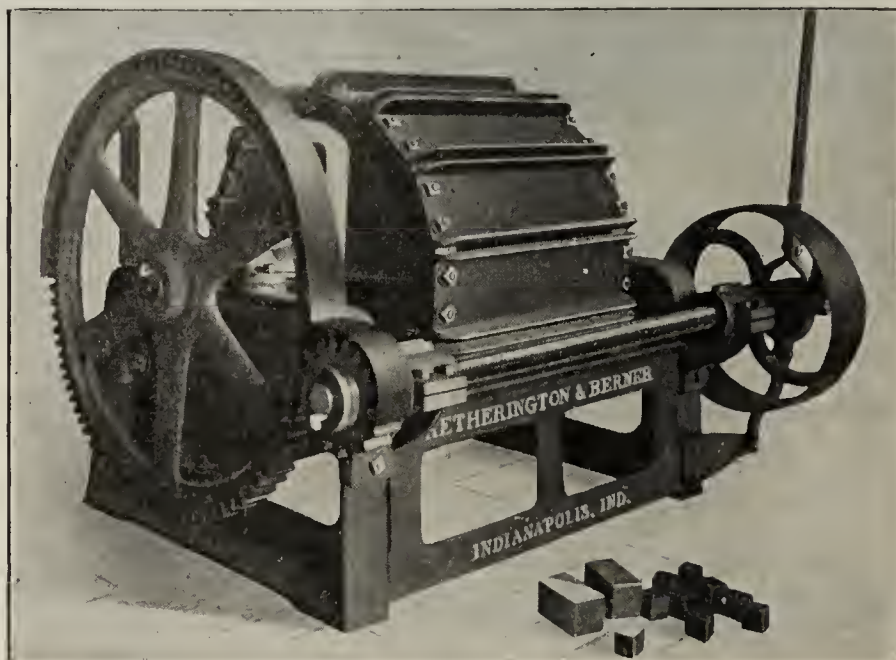
The West Point Brick and Lumber Company, at West Point, Ky., say that they are head over heels in orders and that they are now sold ahead. They are naturally delighted with the indications for a brisk demand, and are going to make such improvements as will make possible their ability to keep up with the demand. They will make at least 4,000,000 brick this year. In a recent issue it was stated that the number would be less by far than the above amount, and this was an error. They intend to install a new dryer and make some notable improvements this fall.

The Louisville Fire Brick Works, at Highland Park, Ky., are noting a slight increase in the general demand for brick. However, business could be improved upon. Mr. K. B. Grahn, president of the company, has been absent for a time in Germany. He will be home within a few more weeks, it is now believed.

COLONEL.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

The "EXCELSIOR" CONTINUOUS KILN

IS WITHOUT DOUBT THE MOST UP-TO-DATE CONTINUOUS KILN YET DESIGNED IN EITHER THE NEW OR THE OLD WORLD.

IT IS THE OUTCOME OF YEARS OF PRACTICAL TECHNICAL EXPERIENCE AS KILN BUILDERS AND CERAMISTS.

IT IS ECONOMICAL IN FIRST COST [THE CHEAPEST CONTINUOUS KILN IN THE WORLD.]

IT IS ECONOMICAL IN ACTUAL AREA TAKEN UP.

IT IS ECONOMICAL IN FUEL AND LABOR

AND IT WILL GIVE **ANY** OUTPUT REQUIRED.

If you want kilns of any description built in any part of the world consult

J. OSMAN & CO., Arundel Street, **London, England.**

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH THIS RED, DWARF SIZE, INK WRITING PENCIL AND THE CLAY-WORKER FOR **\$3.00**

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—A second-hand brick and tile outfit. A horse-power plant or a small steam plant will suffice.

R. M. SELLERS,
Leesburg, Ohio.
8 1 d

WANTED—Position with brick concern. Can fill any place from manager to head burner. Can build plants and set machinery by plans.

Box 839,
Care Clay-Worker.
8 1 d

WANTED—By a graduate of the New Jersey Ceramic School, a chance to learn some branch of clay business. Salary nominal. Some experience in the manufacture of terra cotta. Address Box 849

8 1 c
Care Clay-Worker.

FOR SALE—At a reasonable price, one Richardson repress, as good as new and in first-class condition; has never pressed more than 10,000 brick.

THE BEAVER CLAY MFG. CO.,
8 1 d
New Galilee, Pa.

FOR SALE—Very cheap, on account of owner retiring, brick and tile works. Seventeen acres of land, fine location in southwest Michigan. Plant up-to-date and doing good business. TEITSWORTH,

8 1 p
Hartford, Mich.

FOR SALE CHEAP.

One E. M. Freese brick and tile machine with cutter.

One Quaker mud machine.

One Chandler & Taylor engine and boiler as good as new, cheap.

GEO. F. PETERS,
8 1 p
Browning, Mo.

FOR SALE—A new up-to-date drain tile plant. Good clay, natural gas for fuel, located on a railroad in a territory affording ample market for the ware. No competition within sixty miles. It is not a cheap plant in the ordinary sense, but is a money-maker and will prove a splendid investment. For terms, etc., address

8 1 d
Box 829, Care Clay-Worker.

FOR SALE AT A BARGAIN.

One 2D three-mold American Clay dry press, together with radial, octagon and round-cornered pressure feet, with mold box, all complete in elegant condition. Our reason for selling is that our material will not make dry pressed brick successfully. Also, one Steele & Sons' end-cutter in good condition. The trade in this section prefers side-cut brick.

VICTOR CUSHWA & SONS,
8 3 d
Williamsport, Md.

FOR SALE.

One hundred and twenty-six-acre factory site, centrally located, containing all the requisites for the manufacture of all kinds of clay products. Tested for sewer pipe, pavers, etc. Good vein fire clay. Two trunk lines on the land; 6-cent freight rate to Chicago. Plentiful supply of operatives. A priceless site to the parties who can make use of it. Plans, surveys and farm crop thrown in. On account of permanent breakdown in health of owner, will sell at a bargain. Address

JOHN H.,
6 tf dm
Care Clay-Worker.

WANTED—An experienced and reliable tileburner for down-draft kilns. CORWITH BRICK AND TILE WORKS,
7 2 d
Corwith, Iowa.

FOR SALE.

Kaolin mine in Missouri, near railroad. Address
Box 879,
8 1 p
Care Clay-Worker.

WANTED—Master mechanic for brick plant. Man who is familiar with all classes of brickmaking machinery. Salary, \$100 per month. Only practical man need apply. BURKE BRICK CO.,
7 2 d
Ft. Smith, Ark.

FOR SALE.

Complete stiff clay brick outfit, consisting of Chambers machinery, dryer cars, T-rails, steam shovel, etc., etc. All in good order. Will be sold at a bargain. For full particulars address
Box 869,
8 1 d
Care Clay-Worker.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,
2 tf L
Cleveland, Ohio.

WANTED.

Situation as superintendent. Have a practical knowledge of the manufacture of clayware in all branches, enamel ware, salt ware, glazes, stoneware, flooring and roofing tile. Also all kinds of kilns and the setting and burning of same. Also familiar with the manufacture of paving brick. Address
ENGLAND,
5 tf d
Care Clay-Worker.

FOR SALE.

An up-to-date tile and brick plant. Oldest and best in southern Iowa. Incorporated in 1884. Reason for selling, death of head of firm and to settle estate. Splendid shipping facilities. Home trade alone will take all tile. No better opportunity for good, live, up-to-date brick and tile man can be found. Address

T. J. BROWN,
6 3 cm
Crawfordsville, Iowa.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
2 tf L
Richmond, Va.

BRICK PLANT FOR SALE OR LEASE.

A conveniently located brick plant on the James River, ninety miles from Richmond, eighteen miles from Newport News, and forty miles from Norfolk. All having good and steady markets for brick. Has fine clay for millions of brick. Easy transportation for large boats. Want to see plant in operation, therefore would make easy terms. Address

MRS. AGNES L. TURNER,
8 1 p
Ferguson Wharf, Va.

FOR SALE.

One 8-foot Taplin, Rice, Clerkin Co. wet pan.

One 40-inch Taplin, Rice, Clerkin Co. sewer pipe press, including multiple tile dies and hollow block dies.

One clay feeder.

One wet clay elevator.

The above machinery has only been used sixty days, and is in first-class working order. Will be sold cheap if sold at once. Address THE WADSWORTH BRICK AND TILE CO.,
7 tf d
Wadsworth, Ohio.

YOU ARE A LIAR

if you say these pallets are not cheap at \$12 per thousand; 15,000 pallets, 10x32; 3/4 to 1 thick; cleats, 1x1 1/4; 2 feet 5 inches between cleats.

THE ELLIS BRICK CO.,
7 3 c
Toledo, Ohio.

WANTED—Situation as superintendent of either paving or fire brick plant. Twenty-five years' experience. Strictly temperate and best of reference. Address

C. E. F.,
8 1 tr
Care Clay-Worker.

WANTED—Position as superintendent or manager of a sand-lime brick plant thorough knowledge of the business. by a man of wide experience and Best of references. Address
8 1 d
Box 899, Care Clay-Worker.

FOR SALE CHEAP.

One Freese combination stiff mud machine, capacity, 20,000; used but three months.

One Martin disintegrator, also cutting table, trucks, etc.

Address A. B. McCURM,
8 1 c
Kingwood, W. Va.

WANTED—For cash, machinery and complete working equipment for up-to-date drain tile factory. Give full and accurate description of everything, maker's name, length of service, original cost, etc., and your price f. o. b. point of shipment. Address
P. D. Q.,
8 2 d
Care Clay-Worker.

FOR SALE.

Good brickyard in western Iowa, equipped with Freese machinery, Drymore car system, steam dryer and Search down-draft kilns. All running full capacity and 500,000 order in advance. Plenty of clay and demand for all brick that can be made. Address
Box 859,
8 1 d
Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address
FRANK P. CLEVELAND,
965 Adams Express bldg.,
5 tf d
Chicago, Ill.

FOR SALE.

One two-mold Simpson dry press machine.

One three-mold Andrus dry press machine.

One E. M. Freese & Co.'s board delivery cutting table.

DUNLAP MFG. CO.,
5 tf L
Bloomington, Ill.

FOR SALE—Brick plant, consisting of sixty acres of land; 20,000 capacity. Machinery in good condition. Both surface and fire clay right at hand and no mining. This plant has paid as high as \$7,000 per year. Big demand for product. Only plant in city of 12,500. Address

H. H. BANKS,
6 4 cm
Columbia, Mo.

GOOD OPENING FOR CAPITAL AND EXPERIENCE.

For the purpose of making enlargements, would like to interest capital in clay plant; have dry press and stiff mud outfits, making fire brick, face brick, hollow building tile, fireproofing and common brick. Located in the west and have great advantage in freight rates over a good market on fire brick, fancy face brick, tile, etc. Have immense deposits of high-grade fire clay, several varieties of shale, and unlimited quantities of good surface clay. Would prefer to interest parties practical in clay-working and will offer good inducements. Box 889, Care Clay-Worker.

BRICK and MORTAR COLORING

For thirty years "COLORIFIC COLORS" have steadily grown in favor of Brick Manufacturers and Builders.

FREE SAMPLES ON APPLICATION.

JAMES M. WELLS CO., Ogdensburg, N. Y.

A. FLEMING.

P. E. DEMMLER.

S. P. BAIRD.

Charleston Testing Laboratory

Charleston-Kanawha, W. Va.

Consulting Ceramic Engineers and Chemists.

Troubles in manufacture investigated. It may be impurities in your clay or wrong process of manufacture. We have cured some aggravated cases of lamination.

General Analytical Work. Fusion Tests of Any Material. Rattler Tests on Paving Brick. Standard Cement Tests.

We are prepared to make full size sample brick from your raw materials, under regular working conditions, either by dry press, stiff mud, or sand-lime processes.

WANTED

An experienced salesman to take an interest in a clay machinery factory. A rare opportunity for a young man of energy and ability to obtain an interest in a paying business. Write, giving past experience, reference, etc. Address

BOX 819,

Care Clay-Worker.

81 d

NOTICE and WARNING.

We have entered suit in the Circuit Court of the United States, Western District of Pennsylvania, against R. H. Lydn, J. L. Hammond, J. B. Hammond and F. R. Hammond, trading as the Bolivar Terra Cotta Company, at Bolivar, Pa., on an infringement of our patent No. 685,410, for veneering bricks, and will prosecute all and every infringement of this patent.

ANDREW RAMSAY,

Mount Savage, Md.

246

WHEN WRITING TO ADVERTISERS

Mention the CLAY-WORKER.

FOR SALE—One Drake stiff mud machine; one Fate hand, side-cut cutting table; one 10x24 engine, price, \$300 cash.

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FOR SALE—One hundred and twenty acre factory site containing requisites for all kinds of clay products. Tested for sewer pipe, pavers, etc. Good vein fire clay. Two trunk lines with 6-cent rate to Chicago. A bargain. Address

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Care Clay-Worker.

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Complete equipment for brick machinery and brickyard supplies or any iron or wood-working business. About four acres land, brick buildings, railroad siding, foundry cupolas, cranes, etc. Machine and wood shops with machinery and tools. Will be sold separately or as a whole. Send for detailed list and description of property.

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THE HORTON MFG. CO.,

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BRICK PLANT FOR SALE.

One of the most complete stiff mud brick plants in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address

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The cleanest and most thoroughly rebuilt. All our own and in stock. Not scattered everywhere and merely listed.

ENGINES—

Corliss: 20x48 Wheelock, 20x42 Allis. 18x42 Hamilton, 16x42 Lane & Bodley, 14x36 Lane & Bodley, 14x24 Wright, 12x30 Allis, etc.

Automatic: 16x32 Buckeye, 15x14 Erie, 14¼x16 Buckeye, 14½x14 Ball & Wood, 13½x15 Taylor, 13x16 Erie, 12x14 Green, 12x12 N. Y. Safety, 10x10 Fisher, 9½x12 Leffel, 8x10 Allfree, etc.

Throttling: 18x24 Erie, 16x20 Chandler & Taylor, 16x18 Erie, 14x24 Atlas, 13x16 Chandler & Taylor, 14x14 Lewis Vertical, 10x16 Owens, Lane & Dyer, 10x12 Industrial, 9x12 Ajax, 8x12 Climax, 7x12 H., S. & G., 6x8 Clark, etc.

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Stationary: 72x19 High Pressure, 72x18 Standard, 72x16, 66x16, 60x20, 60x16, 54x16, 54x14, 54x12, 48x16, 48x14, 44x14, 40x12, 40x9, 36x16, 36x10, etc.

Fire Box: 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h. p., etc.

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All sizes, Open and Closed.

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All sizes, Single and Duplex.

SAW MILLS, LATH MILLS, EDGERS, CUT-OFF SAWS, TANKS, ETC. Write for list.

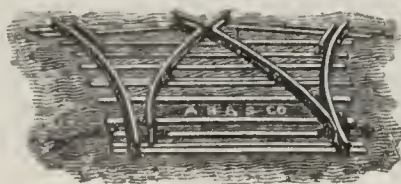
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Sole manufacturers of the celebrated "LEADER" INJECTORS and JET PUMPS. Send for circular.

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One 9-foot dry pan, iron frame.
One revolving screen.
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THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

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Established by the Legislature
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NEW BRUNSWICK, N. J.

Has a modern and complete equipment for
practical and theoretical instruction in the
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years; a short course of two years, designed for
the young man who has had practical experi-
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THE OHIO STATE UNIVERSITY offers complete
courses in all of the usual engineering branches.
It is prepared to offer especially fine facilities for
the study of the clay industry in its department
of Ceramic Engineering.

This department, located in a large new
building, is entering upon its 15th year. Sub-
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process. Its laboratories and equipment are the
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a limited amount of special study in these and
similar fields.

Tuition is free. Laboratory fees are low. Liv-
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is composed of specialists who have had good
practical experience.

For information or catalog address
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Director of Department of Ceramic Engineering.
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Terms First-class
reasonable. references.

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or Kilns, then consult

THE BRICKMAKERS' ADVISOR,

Julius J. Koch,

(25 years practical experience)

3325 Caroline Street, St. Louis, Mo.

Special attention paid to dry clay press
processes and down-draft kilns.

Contracts made contingent upon suc-
cess.

Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use

Cutting Wires For Brick Machines

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ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

Brickmakers Having Trouble

with old kilns, and those contemplating new ones, will do well to ask for particulars
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IMPROVED FLUE SYSTEM KILN.

Absolute Draft Control. Fuel and Time Economy.

This kiln has PROVED its worth with all kinds and grades of material, and IT IS
MAKING MONEY for all those operating it—IT WILL DO THE SAME FOR YOU.

You Owe it to Yourself to Investigate.

We invite correspondence and will cheerfully mail booklet and full information.
Kiln and Yard Rights, with working plans, license, etc., sold at very reasonable
rates. Address

GEO. E. SNOWDEN & CO., New Cumberland, W. Va.

White Pine Pallets

For Brick, Roofing Tile,
And Sewer Pipe Boards.

The Best Are the Cheapest.

Send Specifications and Get Prices.

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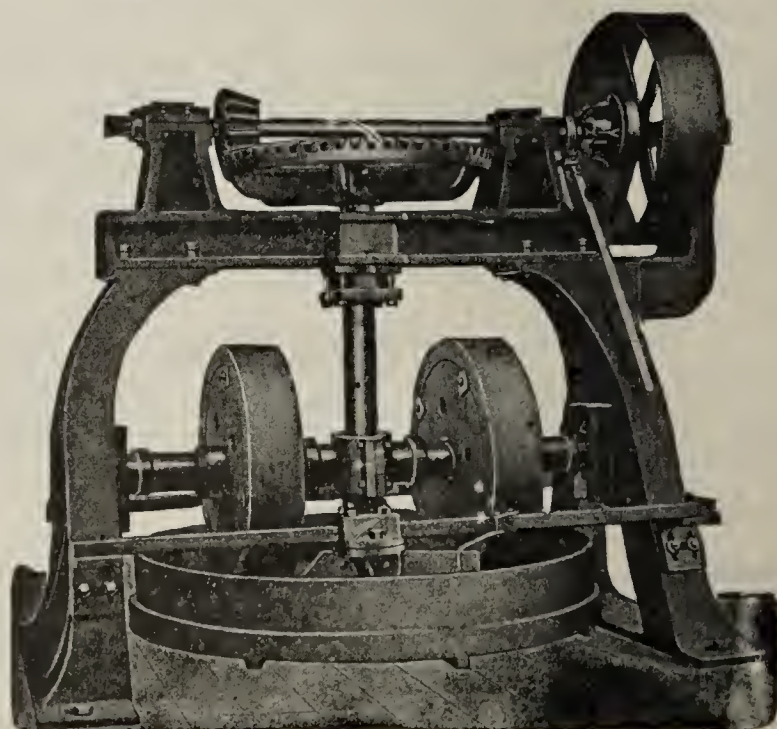
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Builders of
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Dry and Wet
Grinding Pans
for Brick, Terra Cotta,
Sand, Cement, Ore,
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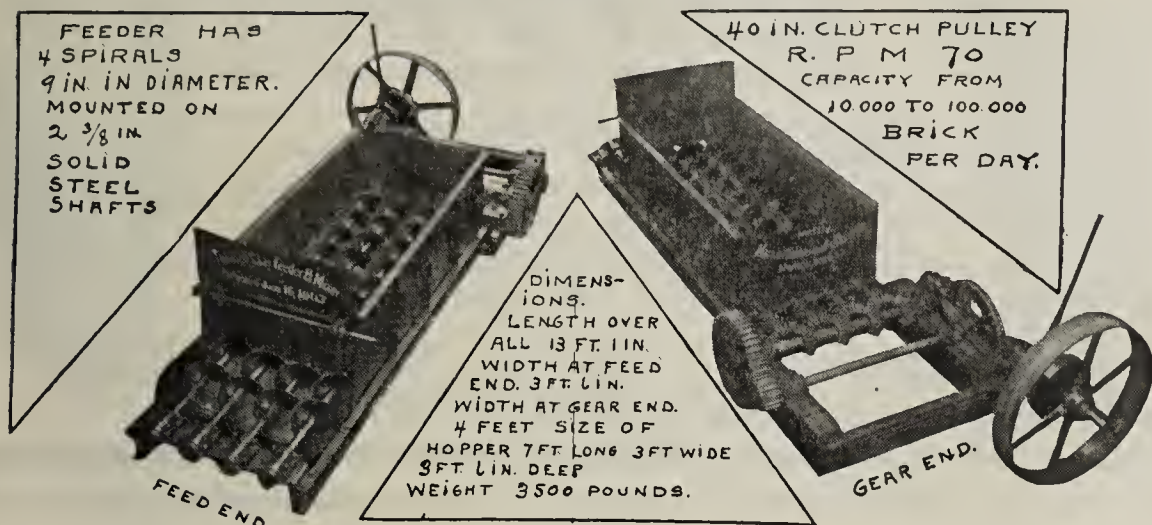
Also
Rock and Ore Crushers.

When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

Eastern Office,
Stephen Girard Bldg.,
Philadelphia, Pa.

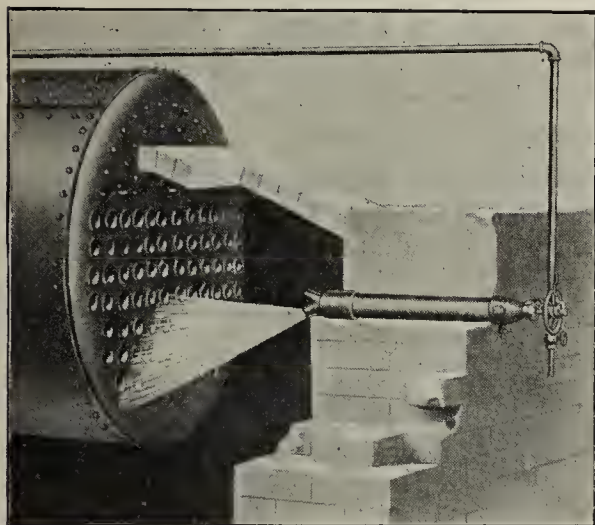


"FRONT AND REAR VIEW OF TYPE 'B' RUST CLAY FEEDER & MIXER"



The Rust Clay Feeder.

Don't let your profits run away. We can save you from \$500 to \$1000 per year through the use of this model Clay Feeder. Write today for our latest catalog fully describing this new Clay Feeder and Mixer.



The Marion Flue Blower

Patented Feb. 23, 1909.

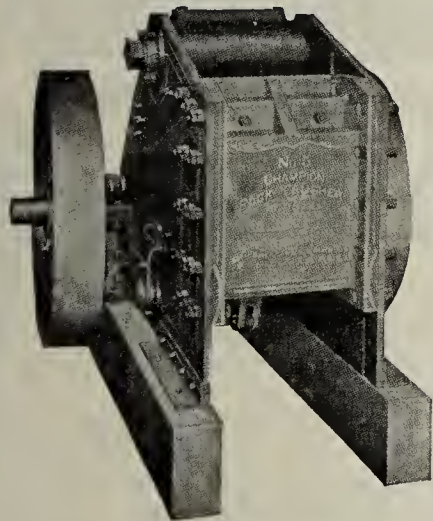
Will save 10% of your fuel—Will insure you clean tubes—Will prolong the life of the boiler—Will prevent the accumulation of soot—Will save the cost of steam hose—Will enable you to clean your boiler while in commission.

The accompanying cut shows how the Flue Blower is installed in the rear wall of your boiler. Each Blower is fitted with a nozzle which rotates, and each opening in the nozzle blows a section of the boiler tubes at a time. We furnish different size nozzles as required, and positively guarantee to blow each flue clean.

Please send for our latest catalog fully describing this useful invention.

Marion Machine, Foundry & Supply Co.
MARION, IND.

The Champion Crusher



NO. 5, 11x26 CHAMPION CRUSHER

In crushing Shale, Fire Clay, Rock and Other Hard Materials

HAS NO EQUAL

This Steel Rock Crusher is a prime favorite. Efficient and Economical in Operation. Convenient to Handle.

BUILT FOR SERVICE

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Write for Catalog.

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FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address

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MANGANESE

FOR ALL USES.

LUMP, GRAIN AND GROUND

60-70% 70-80% 80-90% OXIDE.

CLAY WORKERS GOODS A SPECIALTY.

SAMPLES AND PRICES ON INQUIRY.

METALLIC ALLOYS Co.

99 JOHN ST. NEW YORK, N.Y.

SUCCESSORS TO KENDALL & FLICK.



They Never Fade

Twenty-Five Long Years

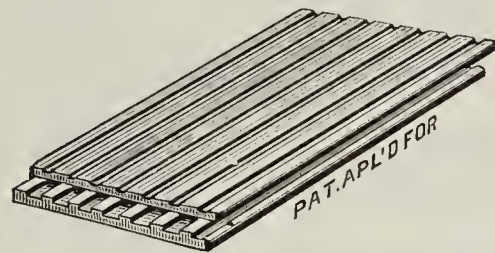
of time and weather have tried out Ricketson's famous Red Brick brand

COLOR

For Mortar, Brick, Cement, Stone, etc. Proved to be absolutely permanent. Red, Brown, Buff, Purple and Black.

Ricketson's Mineral Paint Works
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Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Anger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

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This is the most important improvement that has been made in the valve gear of duplex pumps for twenty-five years. Rock shafts are abandoned and one-piece levers substituted. The levers swing on steel studs having extra long bearings. Both levers are alike and they can be removed and replaced in five minutes. The stroke is long.

SINGLE AND DUPLEX PUMPS

JET AND
SURFACE

CONDENSERS

DEAN BROS. STEAM
PUMP
WORKS

INDIANAPOLIS, IND.

THE ANTON VOGT

Latest Improved

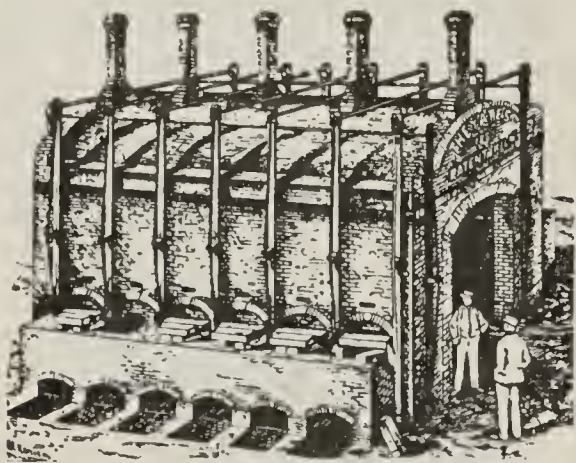
Down-Draft Kilns

for

Brick and Tile.

Write to

Anton Vogt, Mangum, Okla.



The Yates Patent Down-draft Kiln.
Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.; Shawnee Brick Co., Shawnee, Ohio.

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HELICOÏD SCREW CONVEYOR is heavier, stronger and better made than any other. Requires fewer repairs—no lapped and riveted joints to come apart—flight all one piece. We are the only people who actually roll a continuous flight conveyor by either the hot or cold rolling process. All other steel conveyors have sectional flights. Our No. 28 Catalogue explains the difference. Elevating, Conveying and Power-Transmitting Machinery.

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**Fire Brick for
Building Kilns.**

Factories:
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Sewer and Culvert Pipe. Locomotive Tile.
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Flue Lining and Chimney Pipe.
Sanitary Earthenware. All kinds of Fire Clay Products.

"Mitchell St. Louis No. 1"

Brand of

FIRE BRICK

Awarded Gold Medal at St. Louis for
Kiln Construction.

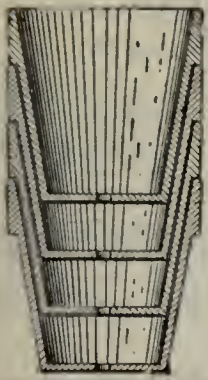
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ST. LOUIS, MO.

\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR, (IN ADVANCE)



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WITH THE ONLY SUCCESSFUL

Flower Pot Machine

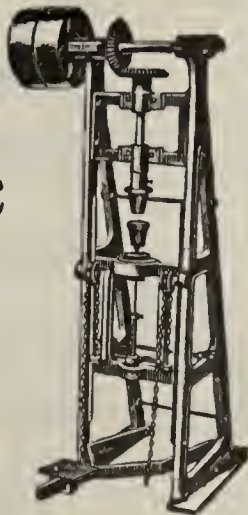
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No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;
4,000 four-inch " 2,000 seven-inch "

Write for Circular and prices.



The Rockwood Mfg. Co.,

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Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

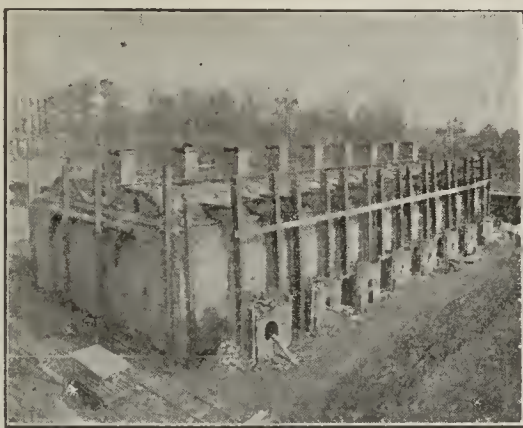
Some Claims Made for the Dennis Double Chamber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

I can surely improve the quality of your brick. Write me for information.

Wood burning up draft kilns changed to down draft coal burners. Brick plants installed and put into operation. Write for printed matter.



Double Up and Down Draft Kiln.

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Brick and Mortar COLORING.

Correspondence solicited.

Samples and estimates cheerfully furnished
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Chattanooga Paint Co.,

Chattanooga, Tenn.

Manufacturers of

Red Oxides for Brick-
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Eclipse
Mortar Colors,

Red, Brown, Buff, Black.

Clinton Metallic Paint Co.,

CLINTON, N. Y.

Largest and Oldest Manufacturers
of

Brick and Mortar

COLORING

Be sure you get the genuine with the
"Little Yellow Side-Label"
on each package.

Let us tell you about Side-Walk Black.

GABRIEL & SCHALL

P. O. Box 1712.

205 Pearl Street.

NEW YORK.

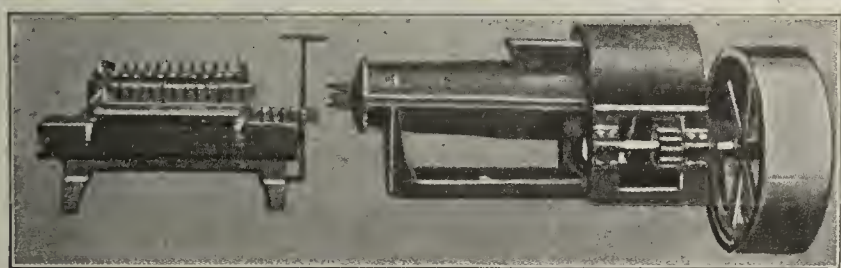
Sole Importers in the United States of the

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or Barytes

The only preventative for scum and discolor-
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Water.

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Kells Brick and Tile Machine

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It has had few rivals and no superiors. Improved from
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Strength, Simplicity, Durability, Efficiency and Quality

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ADRIAN, MICH.



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of...**

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MINERS AND GRINDERS.

MANGANESE

For All Purposes, Ground or Lump.

Also Large Quantities of Rich Manganese Dirt.

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**Our Scientific
Round Point**

Two of Our Special Makes

Of the Mikola Patent Shovels

... 70 STYLES AND SIZES ...

Especially designed for handling shale, crushed stone, iron ore, clay, etc. Save time, labor and money by using shovels made just for your line of work. Write us about your needs and for Catalog Department A.



Shovel Specialists

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\$2.00 THE CLAY-WORKER \$2.00
ONE YEAR (IN ADVANCE)

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Style No. 8. For Rack Cars.
(Patented.)



Made from No. 13, 14, 16 or 18 Gauge Steel.
5/8-inch Roll running full length and across ends.
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The —
ROESSLER-HASSLACHER
CHEMICAL COMPANY,
 100 William Street,
 NEW YORK.

As a Preventative of Scums Use

CARBONATE OF BARYTES

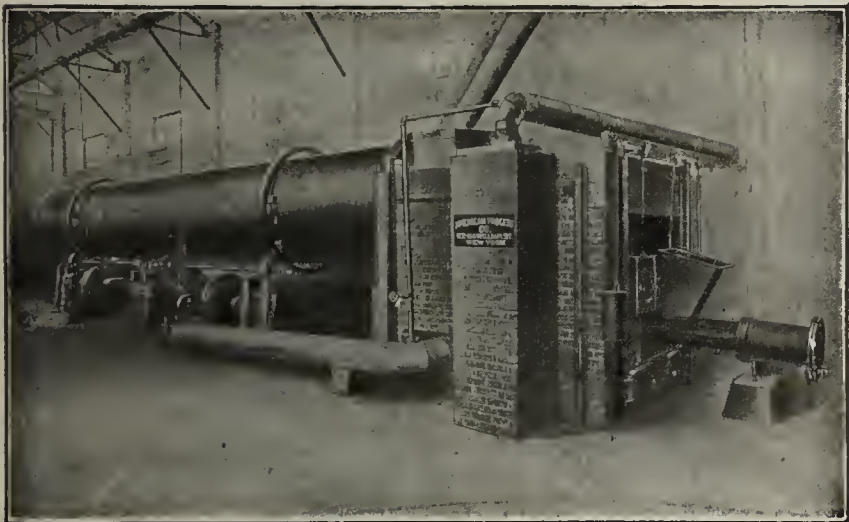
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Oxide Tin,
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 Green Oxide Chrome,
 White Oxide Antimony,
 Black Oxide Manganese and
 all Chemicals used by the Clay Trades.

The Richardson-Lovejoy Engineering Company

Manufacturing Propositions Investigated. Clayworking Plants Designed and Construction Superintended.
 Dryers and Kilns of every type, adapted to the special conditions and purposes.
 Pamphlets, "Ceramic Engineering" and "Brick Kilns," free.

SCHULTZ BUILDING, 232 1/2 North High Street, COLUMBUS, OHIO.



Automatic Improved DRYERS

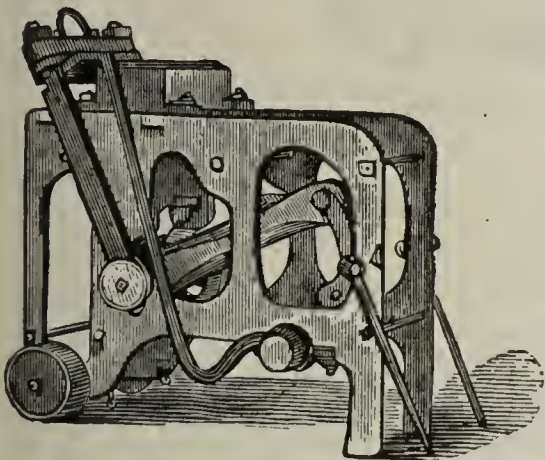
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For Clay, Coal, Sand, Marl, etc.

Send for Catalog "C. B."

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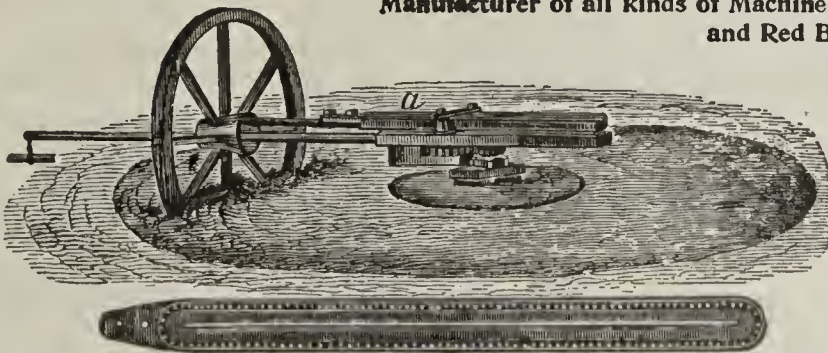


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire and Red Brick.



These Tempering Machines can be driven either by Steam or Horse Power. The latest improvement requires less power to run than the old style Steam Gearing, and fitted up 10 per cent. cheaper.

Send for Circular and Price List.

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Mention The Clay-Worker.



The fact that we are selling Leviathan belting to concerns who have been buying of us from ten to twenty-seven years, we have already set forth. The evidence thereof we have a certain pride in submitting on request, such requests being very welcome.

A few days ago a customer of seventeen years wrote us that he has reduced his manufacturing cost by the tremendous durability of Leviathan, as compared with other belting in use in concerns similar to his.

We want your orders squarely on giving you the greatest value for each dollar you pay us, and standing responsible for that value throughout the life of each belt. May we send you some "evidence?"

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118 Pearl Street,
305 Broadway
908 Ellicott Square,
33 Terminal Way,

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CHICAGO
BOSTON
NEW YORK
BUFFALO
PITTSBURGH

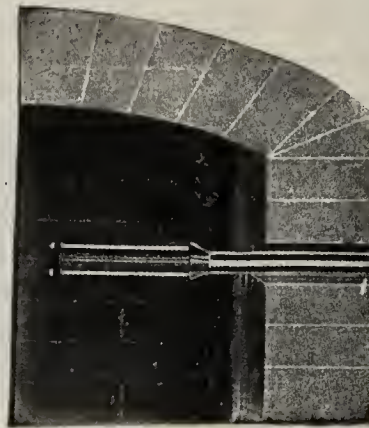
Hampton's Patent Down-Draft Kilns

BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

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For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

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CLAY HAULAGE

Reduce cost of transportation
by using a

Davenport Industrial Locomotive.



Small Size—Reasonable Cost—Especially built for use of clay products manufacturers, for hauling clay or shale from pits or mines to plant.

CHEAPER THAN HORSE TRANSPORTATION

and will reduce costs of delivering your material to your plant, thus increasing profits.

All About Modern Industrial Railways

Write us for particulars.

Davenport Locomotive Works,
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Pulsometer Steam Pump



THINK

of the name of a Clay-Pit pump. Pulsometer, of course.

But can you think of the name of another? That's the point. There are others and you do not know it—others that look like the Pulsometer and are based on the

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You know the Pulsometer name because of the superior qualities of the Pulsometer steam Pump. To get these qualities you must get the pump that bears the word-symbol "PULSOMETER" our Trade Mark. You cannot get them in some other pump that is trying to imitate the Pulsometer virtues.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,
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The only maker of genuine Pulsometer Steam Pumps.

Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade Missouri semi-flint fire clay.
A large stock of Number One brick and shapes always on hand.
Let us quote you prices and we will save you money.
Samples sent upon request. Address

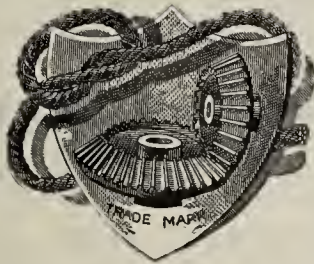
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MEXICO, MISSOURI.

Let Us Tell You About Our

GEAR SHIELD

An Adhesive Compound Lubricant that will accomplish WONDERFUL saving in LUBRICATION and PRESERVE the wear of GEARS and PINIONS by preventing NOISE and METALLIC CONTACT between the gear teeth.



THE OHIO FILLER & SHIELD CO.,
Columbus, Ohio.

The New Champion

Brick Mould Sanding Machine

The ORIGINAL, Light Running, Always Running.

CHAIN DRIVEN and BELT DRIVEN.

Patented Spring Feed Rack.

Hundreds in Use.

ONE COMPANY HAS FORTY.

FOR PALLET OR GROUND YARD.

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& Machine Co.,**
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JUST PUBLISHED.

BRICKLAYING SYSTEM

By FRANK B. GILBRETH.

Ancient as the art of bricklaying is, there has never been a real book on the subject before. Indeed, astonishingly little has ever been written about brick masonry, and, so far as the economics of the subject is concerned, nothing has heretofore appeared in book form. It is a large subject, and one of growing importance in spite of the advent of concrete. In fact, scores of concrete buildings are faced with brick, or have brick curtain walls.

Gilbreth's "Bricklaying System" is a book whose 330 pages are filled with rules and hints for his foremen and bricklayers, designed to increase the output of the workmen and to enable men of moderate skill to do difficult work in the best manner. There are 73 charts showing different bonds, ornamental and plain, some of which would be exceedingly hard to execute were it not for the methods explained in the text. To the architect, 73 ornamental charts alone will prove of great value, for practically none of them can be found in any other book, and no other book has more than 8 different bonds.

Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

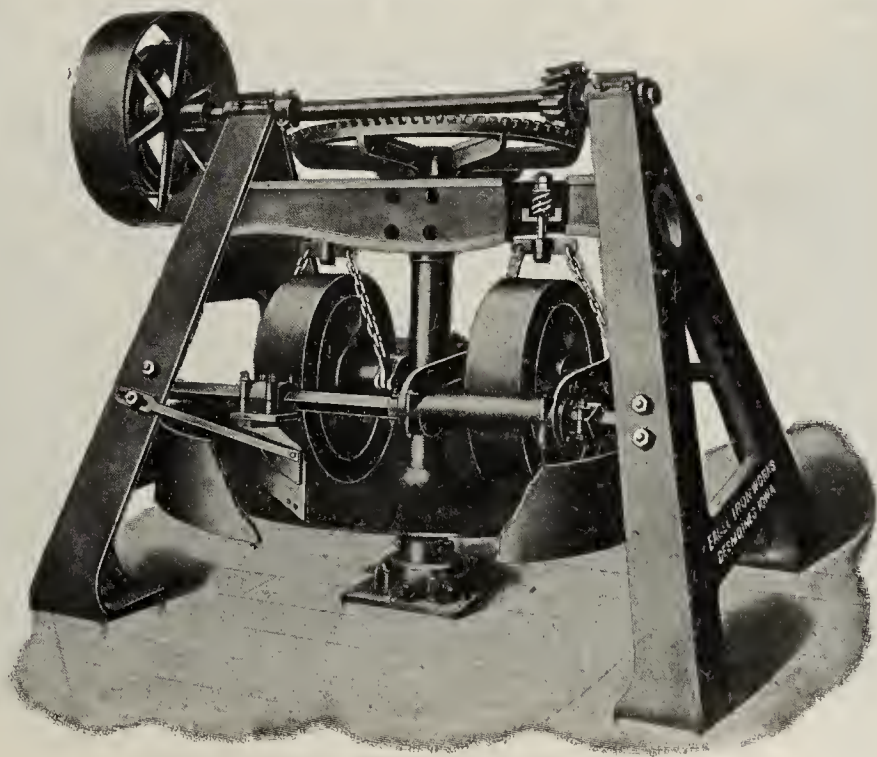
The "fountain trowel" is another money-saving device. Space prohibits mention of more.

The book is now off the press, and ready for distribution. Its size is 6x9in., 330 pages, 167 illustrations and 73 bond charts. The price is \$3.00 net, postpaid.

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NOVEMBER 1908	Num- ber of Kilns	Num- ber of Fans	Single Fan Wings	Dryers	Length in feet of the fire canals worked with fan draught	Total annual out- put of these works in bricks of 10" x 5" x 2½"
Recently erected Works	132	133	170	95	41,980	732,500,000
Works in Con- struction, 1908	16	14	15	13	4,790	79,000,000
Total Amounts	148	147	185	108	46,770	811,500,000





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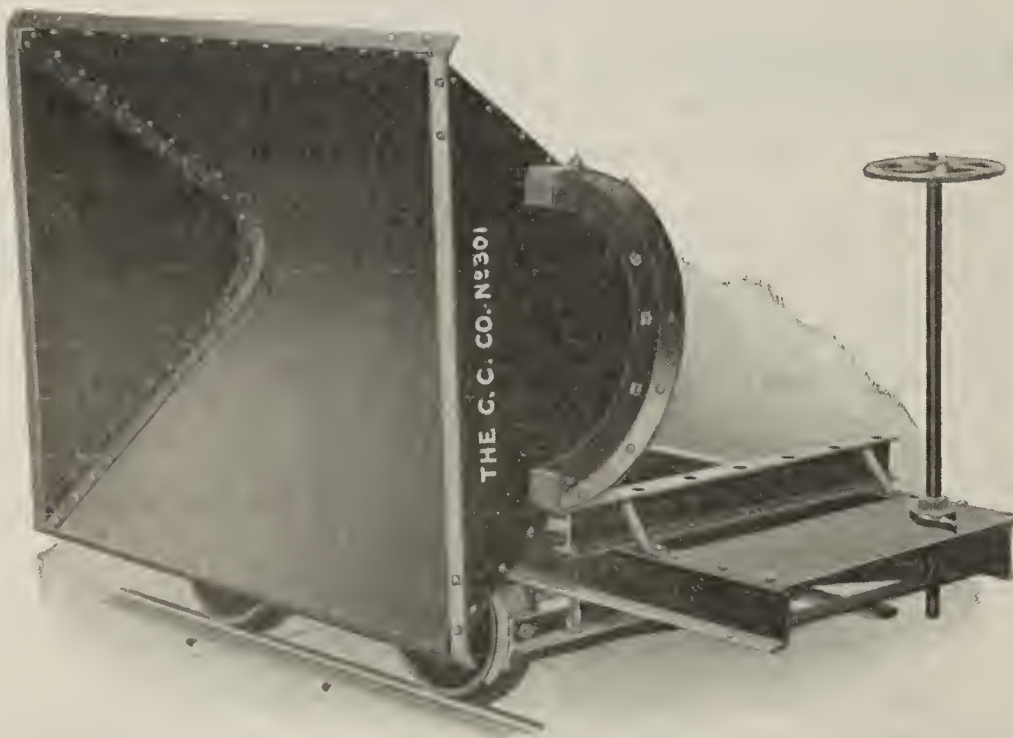
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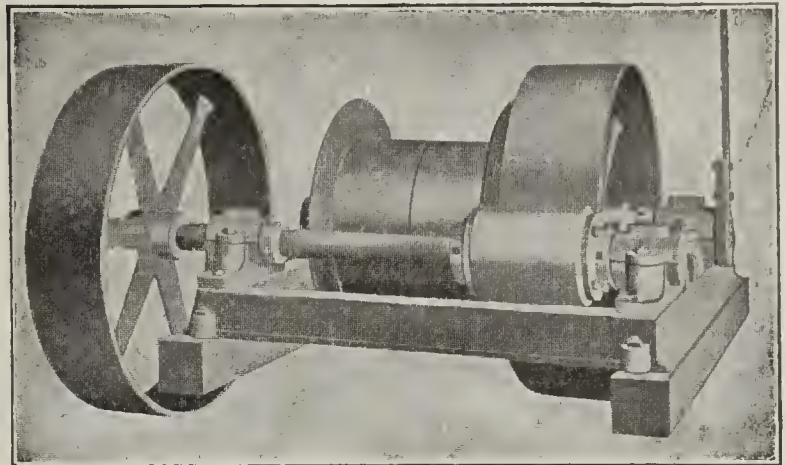
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FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

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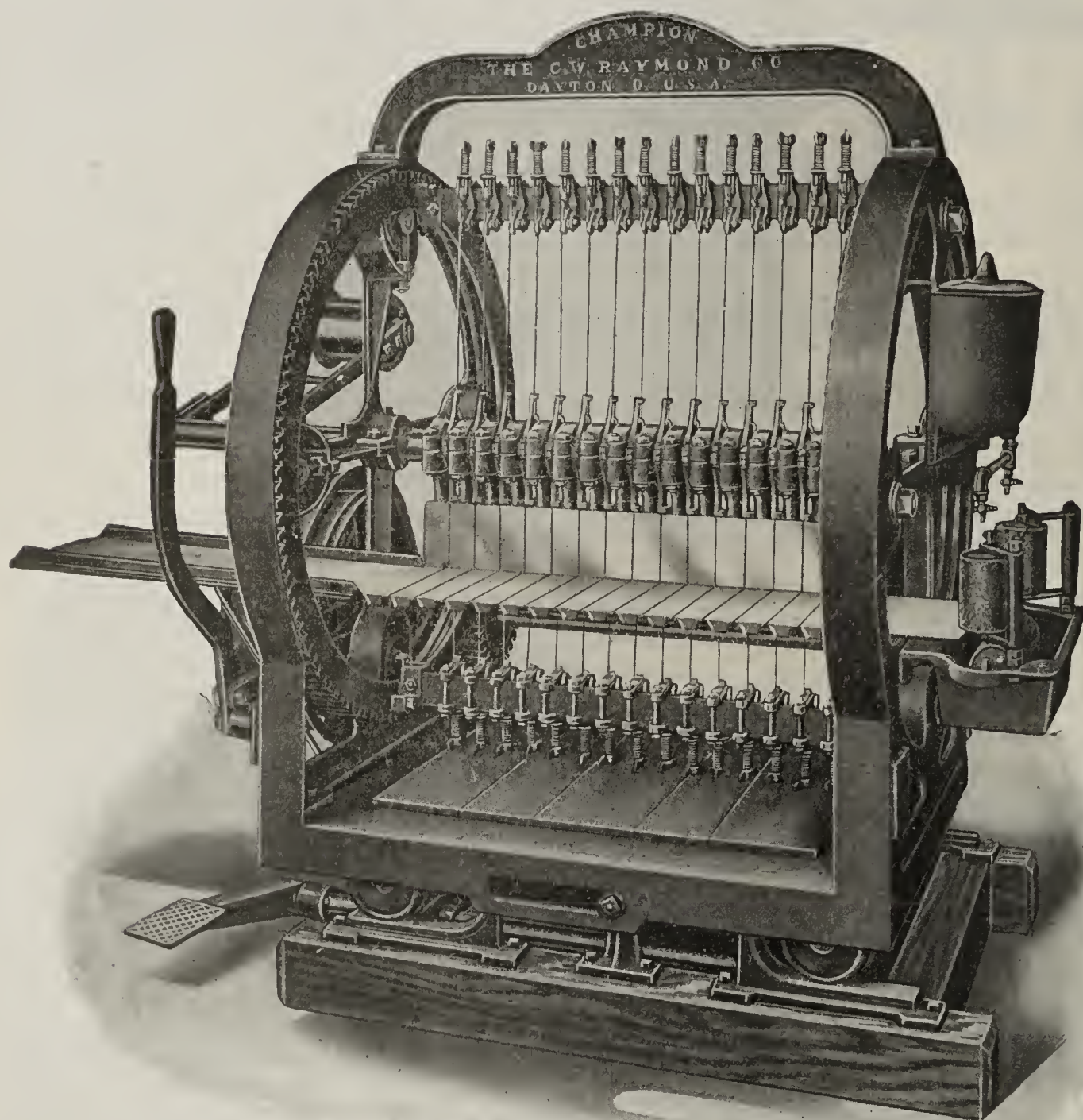
Cable Address "SUCCESS," Memphis, Tenn., U. S. A.

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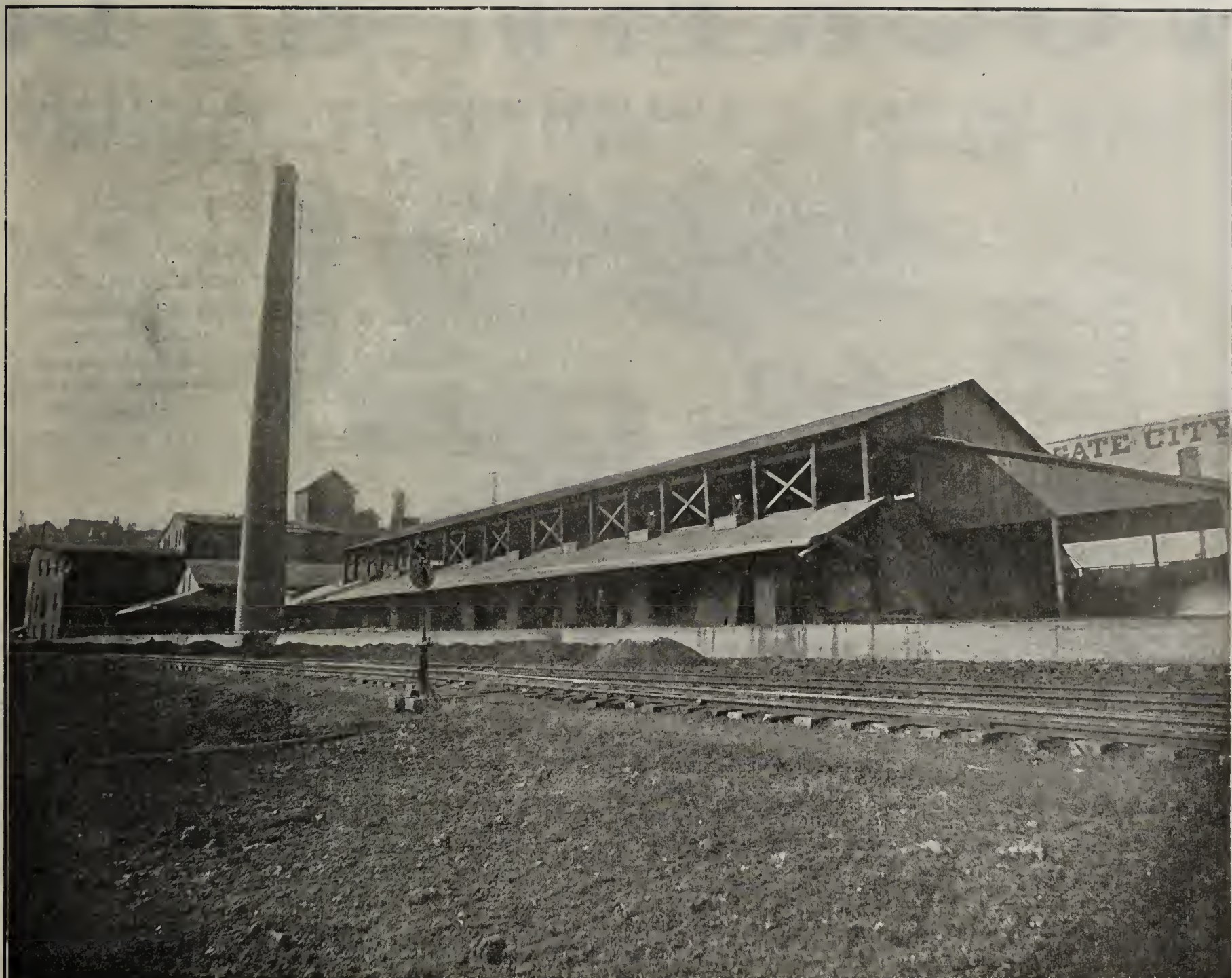
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We are now ready to furnish licenses for the building of the Youngren Continuous Gas Fired Kiln.

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4. Wire Cutter.
5. Wire Pliers.
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8. Screw Driver.
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This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

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Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

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THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

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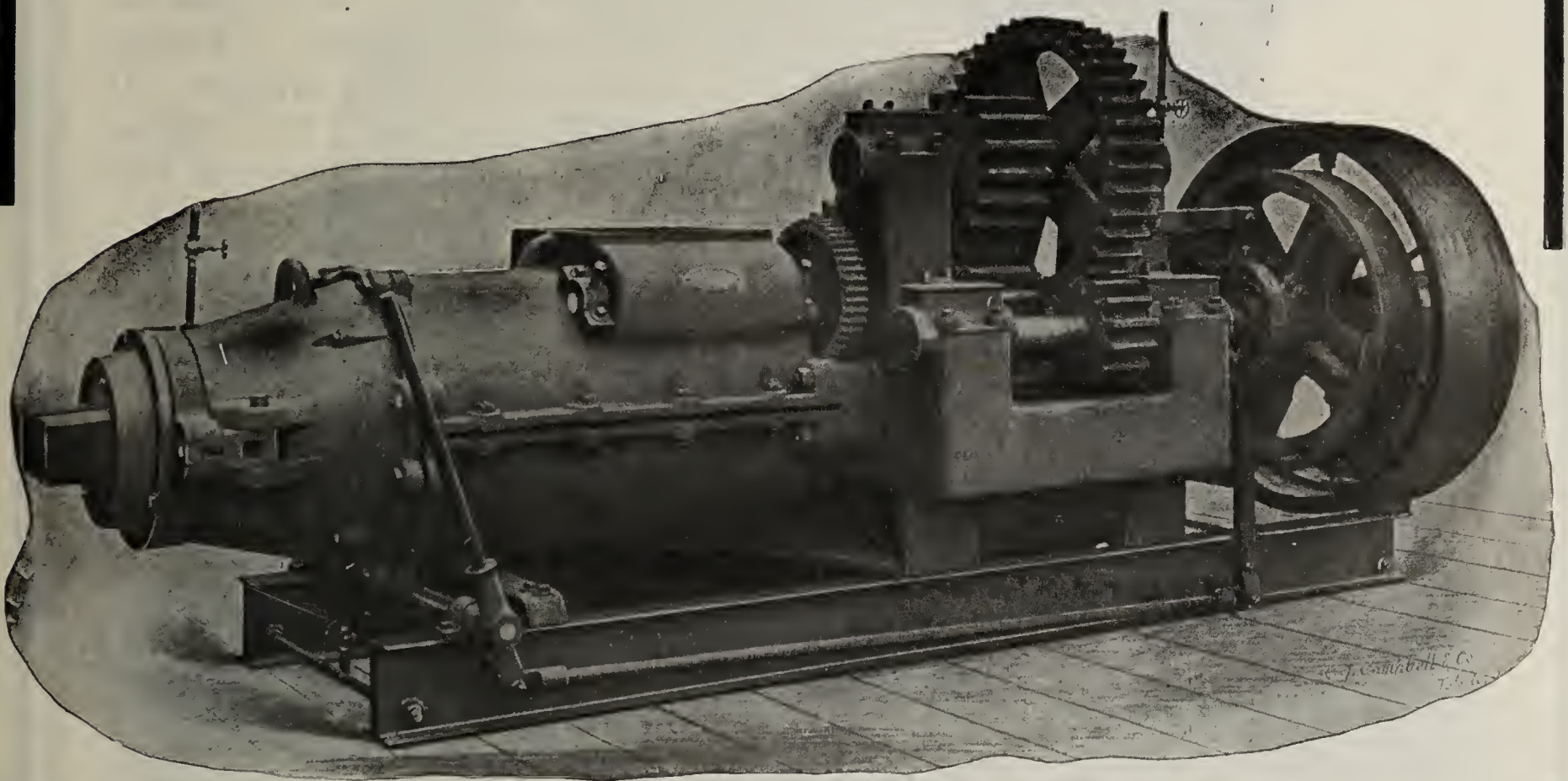
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Brewer Horizontal Brick Machines are built in three sizes ranging in capacity from 2,000 to 5,000 bricks per hour, in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 brick per hour is making 3,500 and the 5,000 machine 7,500. The rated capacity is low, the weights are high in proportion.



Some Features of Construction.

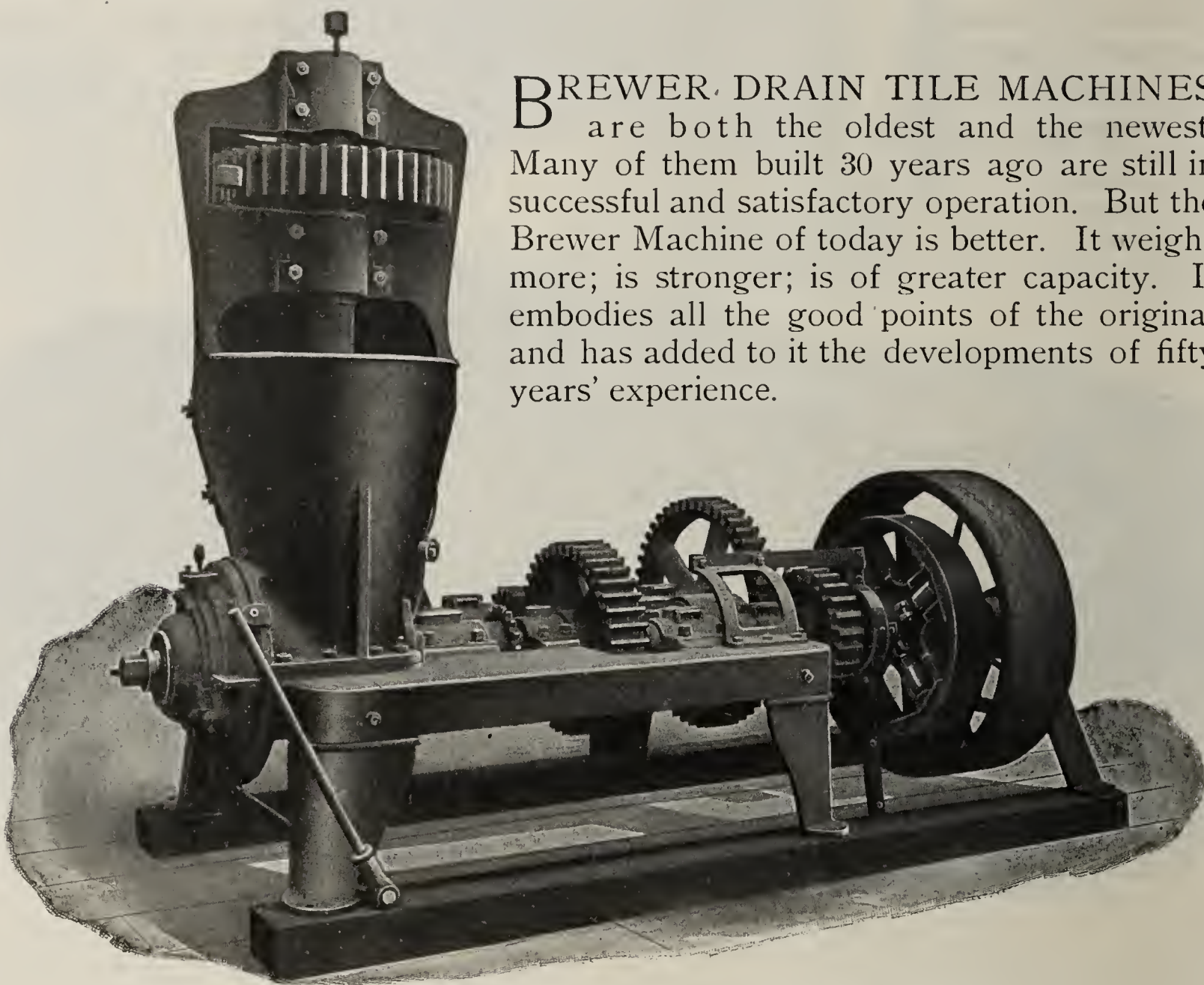
The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

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BREWER DRAIN TILE MACHINES are both the oldest and the newest. Many of them built 30 years ago are still in successful and satisfactory operation. But the Brewer Machine of today is better. It weighs more; is stronger; is of greater capacity. It embodies all the good points of the original and has added to it the developments of fifty years' experience.

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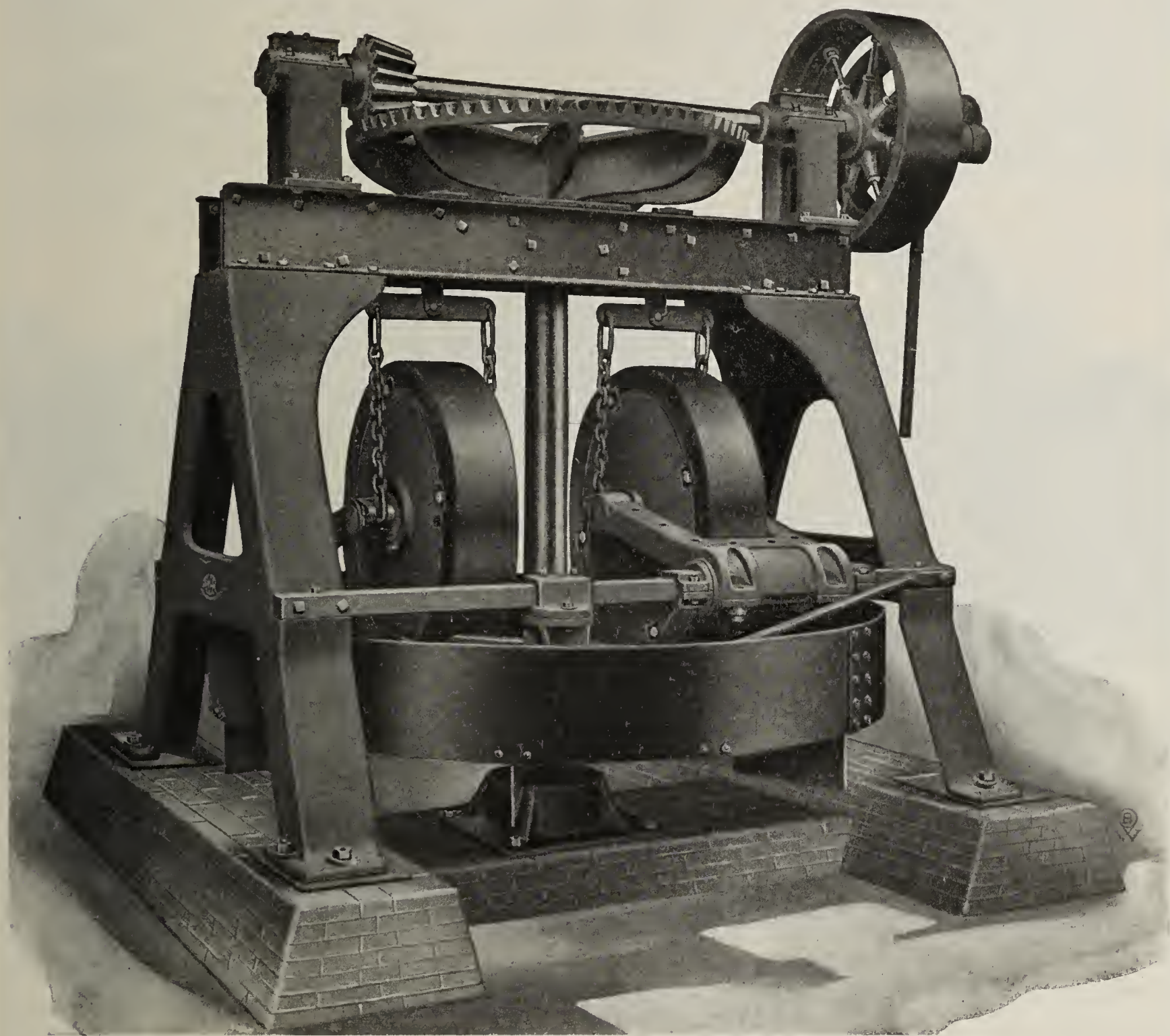
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The Brewer No. 67 (nine-foot) and the No. 66 (five-foot) are the same except size. They are rated and sold as standard machines, but are as heavy and capable as the so-called "heavy duty" pans.



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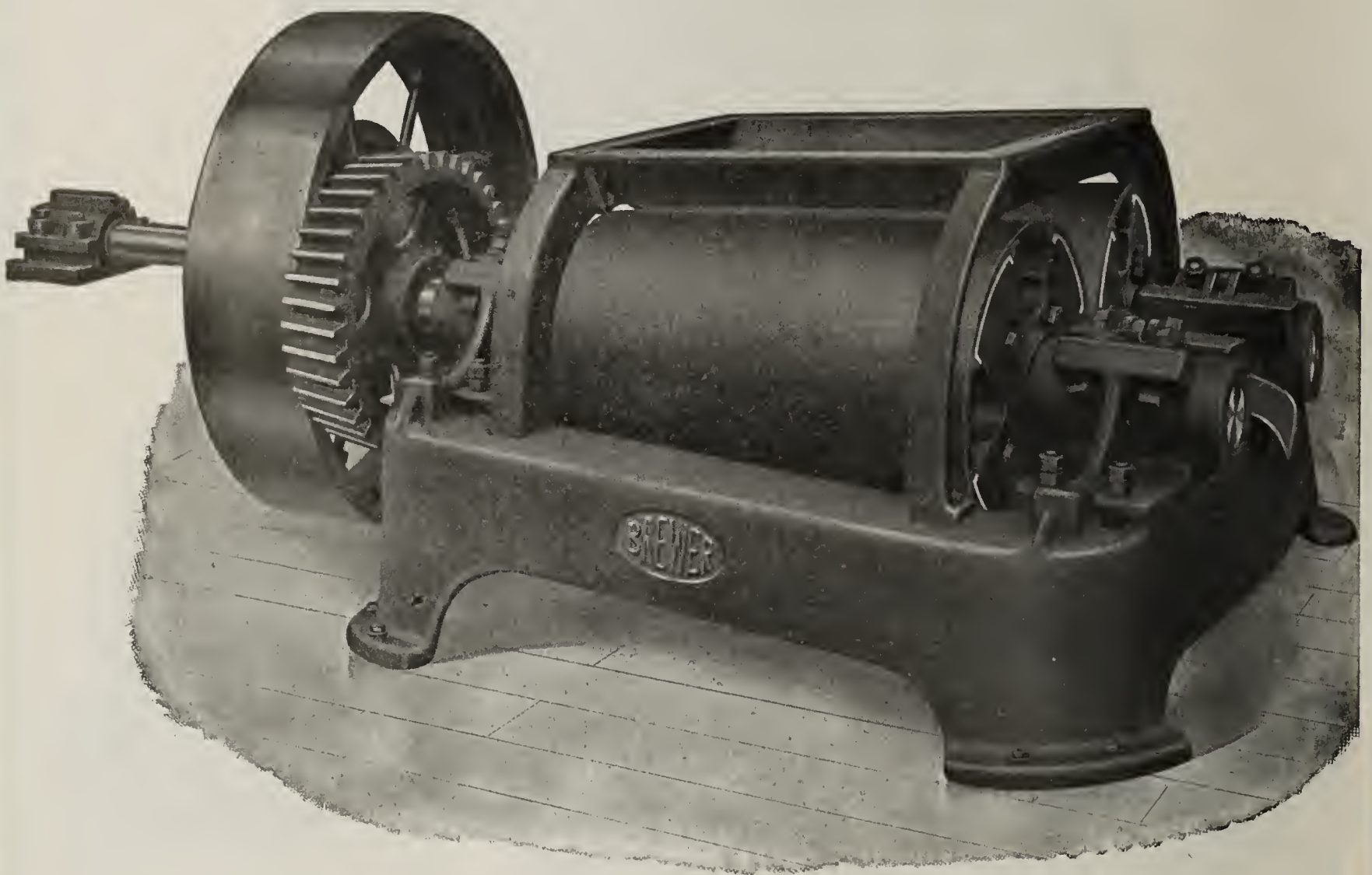
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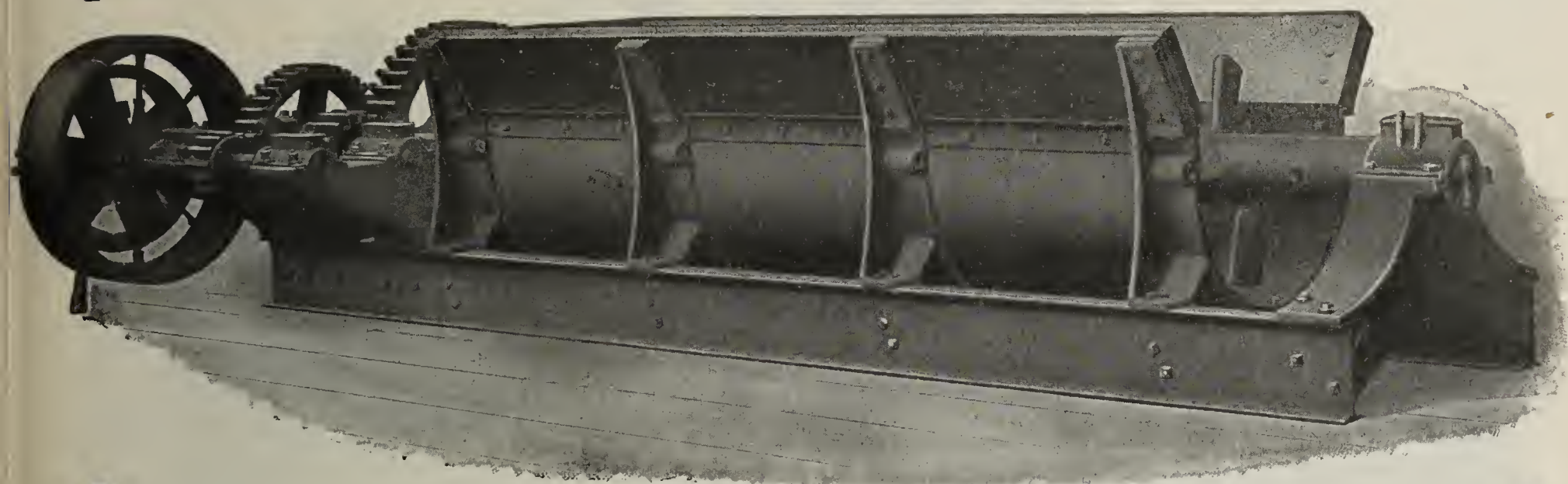
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Too many plants are running without Granulators, but it isn't our fault. We have them in large, small and medium sizes, spur and bevel geared drives, pushing and pulling patterns. A Granulator to suit every plant. Something into which you may dump a carload of clay, and from which you may get a uniform delivery with large lumps reduced to a size which the machine ahead can handle.



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is a spur-gearred pushing granulator of the large size. It weighs 18,000 pounds. The tub is 12 feet long. The granulating shaft is 10 in. diameter. The knives (48 of them) are forged from hard, high-carbon steel, and each one is independently adjustable for pitch. The back thrust bearing is of the grooved marine pattern. The main gears are 8-in. face, semi-steel. It is big and strong enough for anybody.

The smaller sizes range down in weight to 5,000 pounds.

See our catalog for details and specifications.

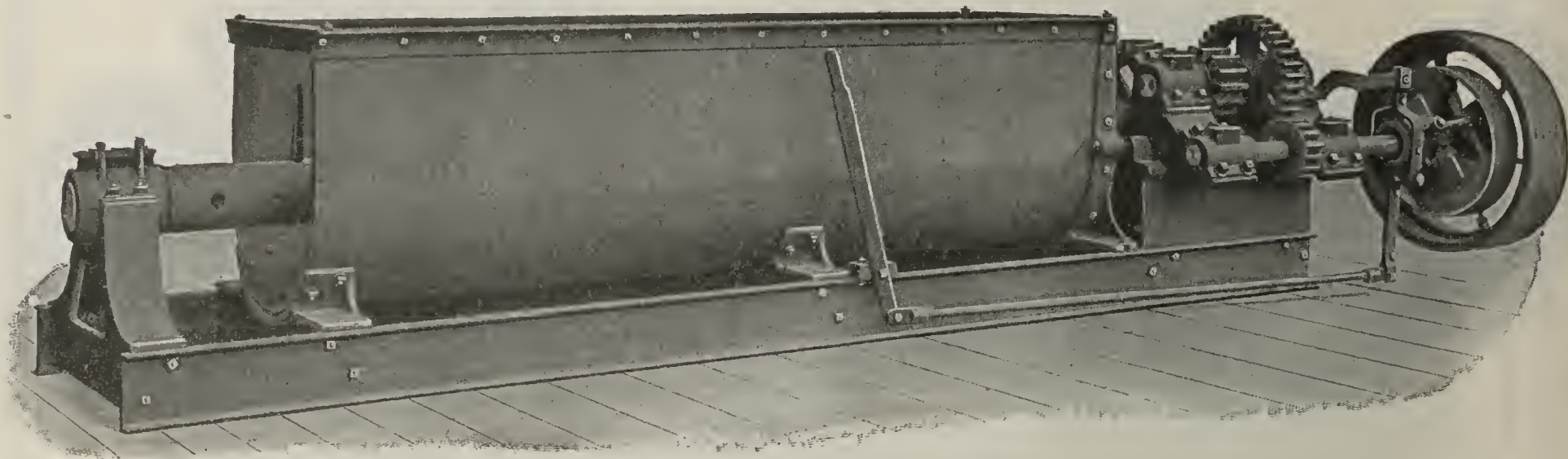
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The top and front end are open but each knife being independently adjustable for pitch, a few front knives are set flatter than the others. This holds the clay in the mill a length of time proportional to the difference in pitch of the front and rear knives. You can set the knives so that the mill will run over at the discharge end if you want to.

The clay is delivered in a loose, granular form, easily fed to other machines; not in large irregular shaped chunks which clog the hoppers and chutes.

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It Explains These Pug Mills Fully

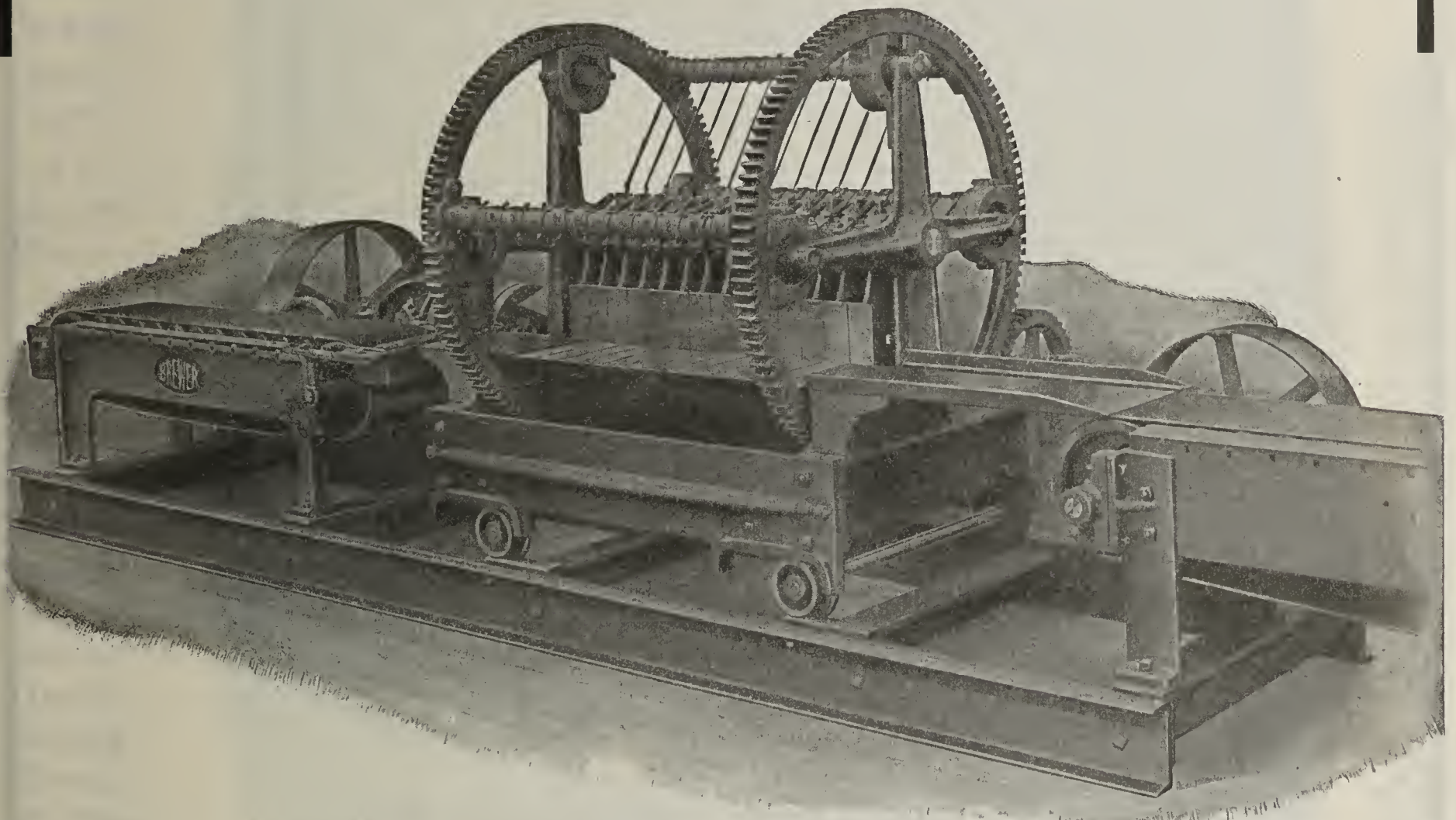
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The striking feature of all Brewer Automatic Cutters is SIMPLICITY. Few parts and none of them small or intricate. Complicated mechanism has no place in automatic cutter design and you will not find it in any Brewer Machine.

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The Brewer No. 36 Side-Cut Rotary

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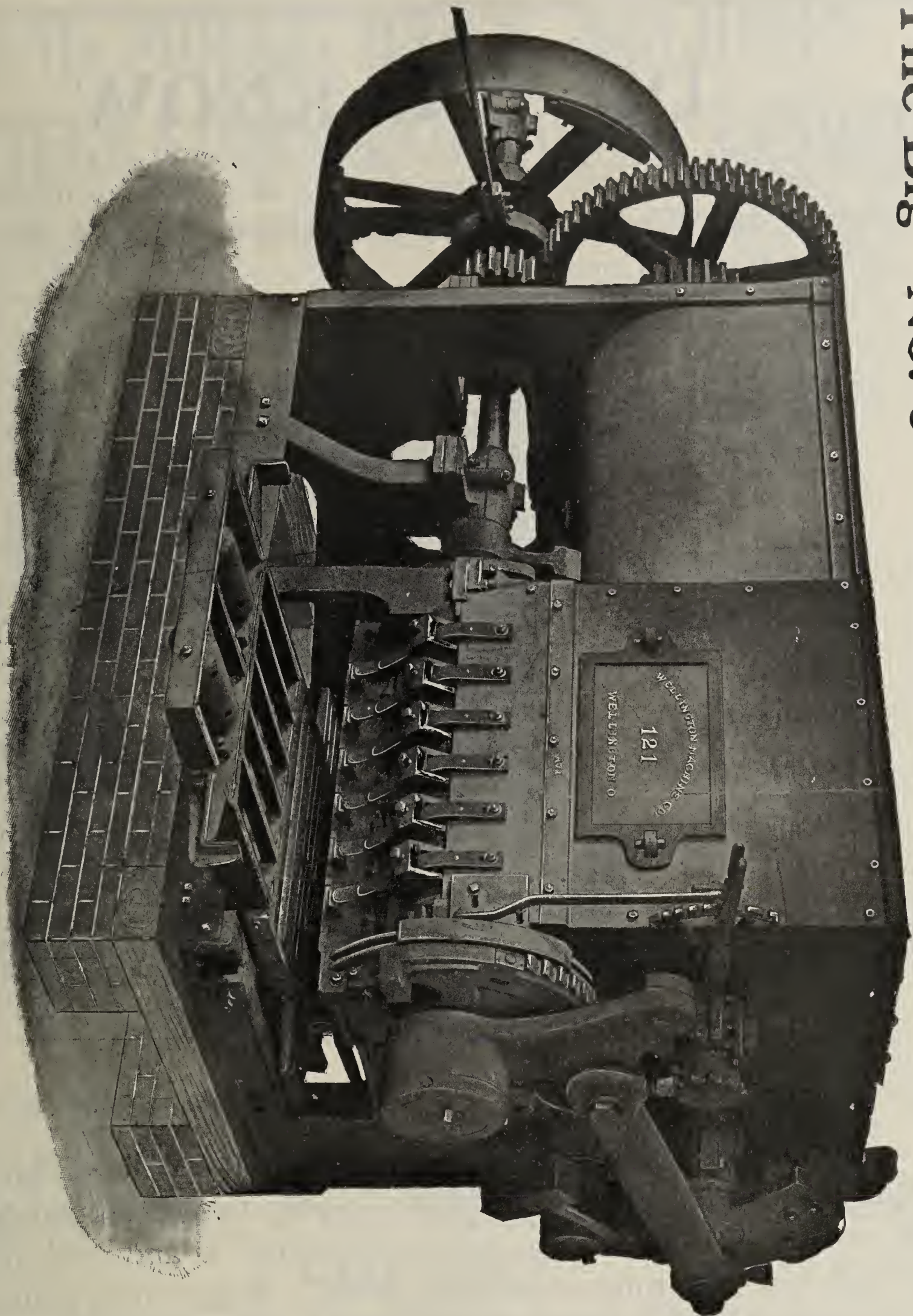
This is a Heavy Bevel-Gear Pattern

It is No. 28. It weighs 3,000 pounds. The drum is 20 in. diameter, 28 in. between flanges and the flanges are 30 in. diameter. The journals are self-oiling, the gears 4 in. face, the brake band 5 in. wide. Can be made right or left hand. Illustration above is left hand. It is enough of a hoist for the biggest plants, and we have smaller ones for the others.

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The Big "No. 6" "Monarch" Brick Machine.



OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
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in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
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Castings.

REMEMBER:

You are losing
money wheeling
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ROLLER-BEARING
BARROWS.

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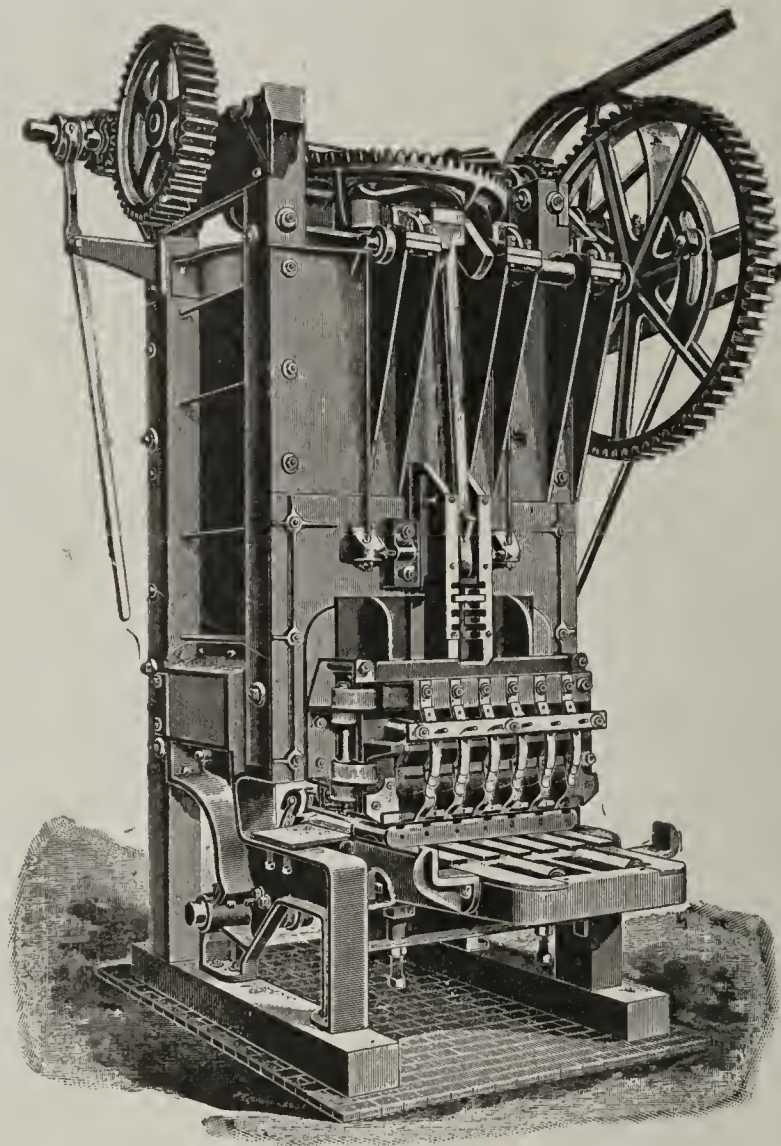
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DO YOU KNOW

that more than eighty-five per cent of all the brick made in New England today are made on the New Haven Brick Machines made at New Haven, Conn.?

Catalogue
and a Good
Line of
Testimonial
Letters for
the Asking.



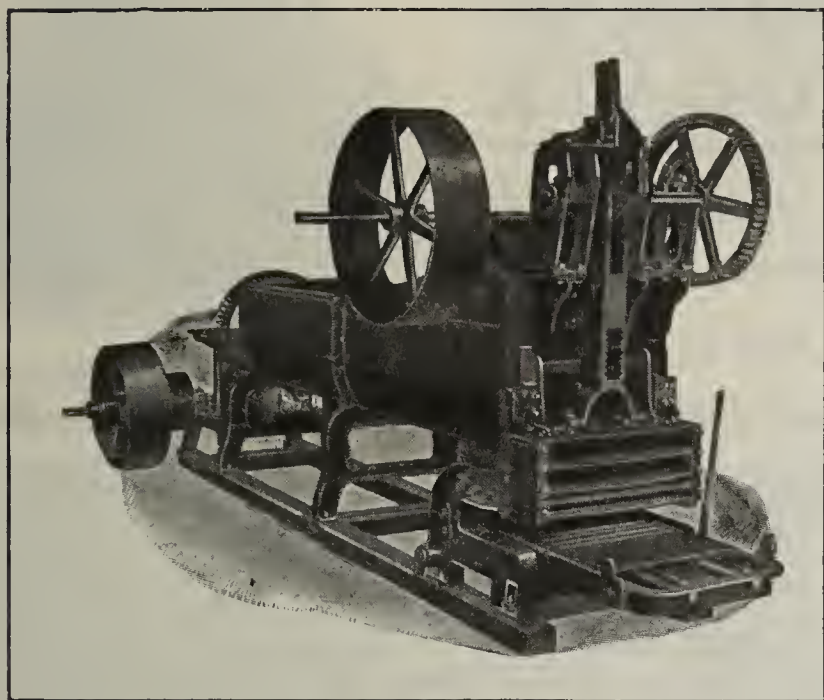
We will be
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"New Haven" Vertical Brick Machine.

We have made a good reputation for our New Haven Soft Mud Machines, and the Machines live up to that reputation, turning out Good brick day in and day out, week in and week out, year in and year out, without breaking down. Repair bills reduced to a minimum. Brickmakers who buy of us get their money's worth.

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POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
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equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.

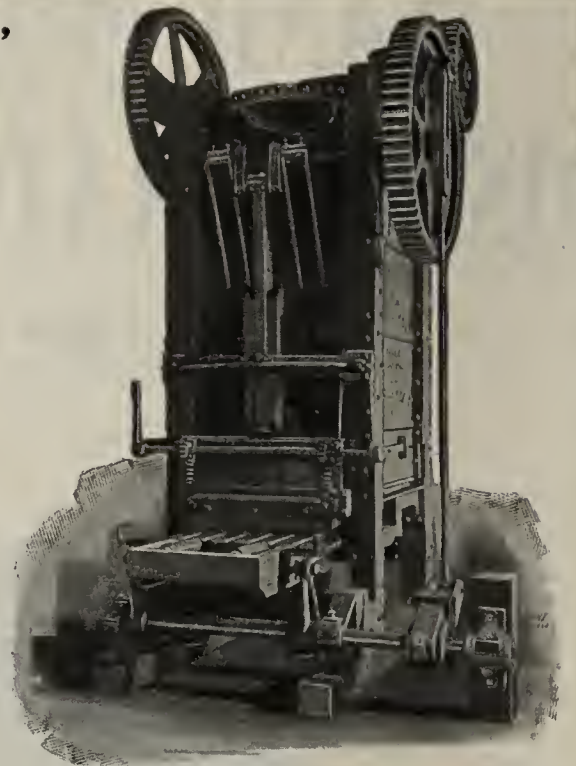
ANIMAL POWER
MACHINE

THE "MARTIN"

PRACTICAL BRICK-MAKING MACHINERY DOWN-TO-DATE

"We Furnish Everything
the Brickmaker Needs"

From CLAY BANK to KILNS

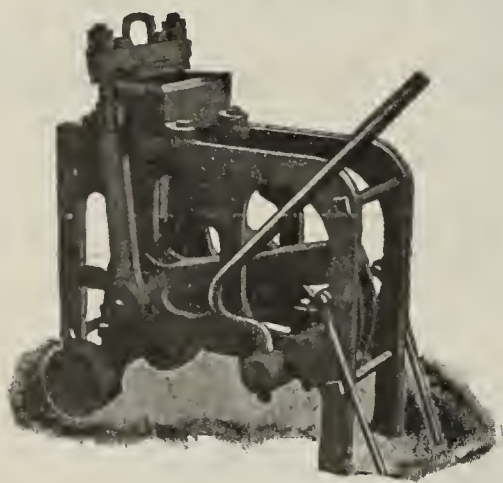


STYLE "A" BRICK MACHINE

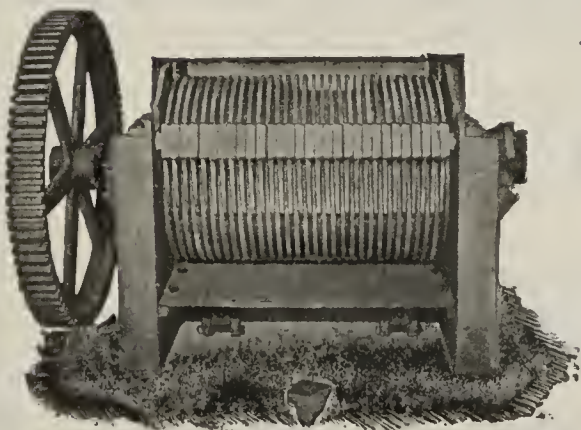
THE OLD WAY

Of Handling and Drying
BRICK--GET WISE

Let Us Figure With You on
the Most Complete and
Labor-Saving System Yet
Devised--The "Martin" Way
--The ONLY SURE WAY



HAND REPRESSES

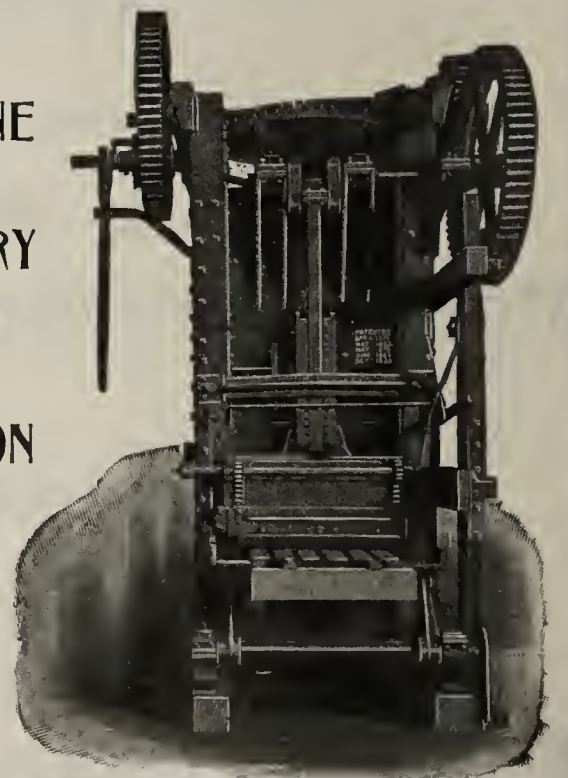


CLAY SCREENS

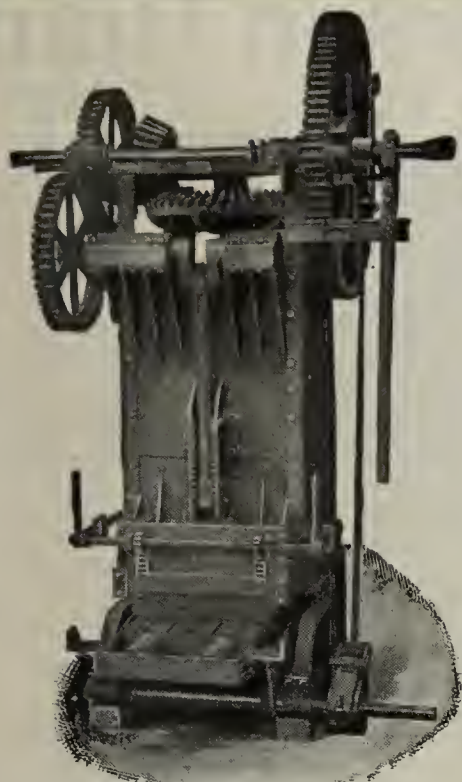


THE MARTIN COMPANY
HAS THE MOST COMPLETE LINE
OF HIGH-GRADE CRUSHING
AND PULVERIZING MACHINERY
LET US KNOW YOUR NEEDS
AND GET OUR PRICES
WE GUARANTEE SATISFACTION

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE



STYLE "P" BRICK MACHINE

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED

Feb. 22, 1898 == 599509
Oct. 10, 1905 == 95520
Nov. 14, 1905 == 804489
May 26, 1908 == 888831

UNITED STATES & CANADA

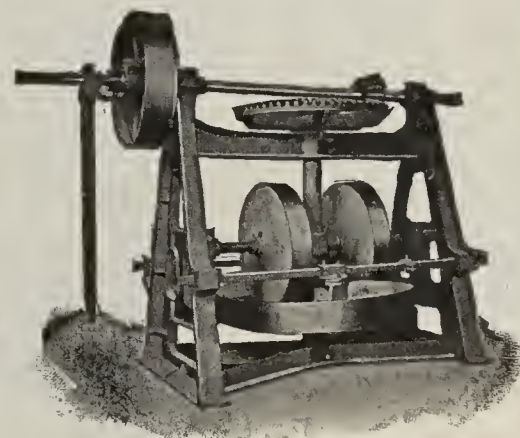


MARTIN'S SAND DRYER

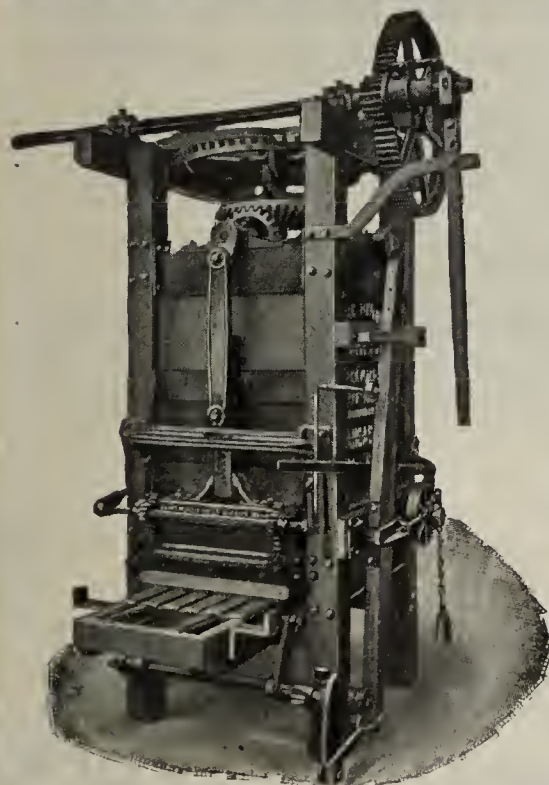


THE NEW WAY
Of Handling and Drying
Brick==INVESTIGATE

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem--Quick to Install and
Low in Price==Write Us.



DRY OR WET PANS



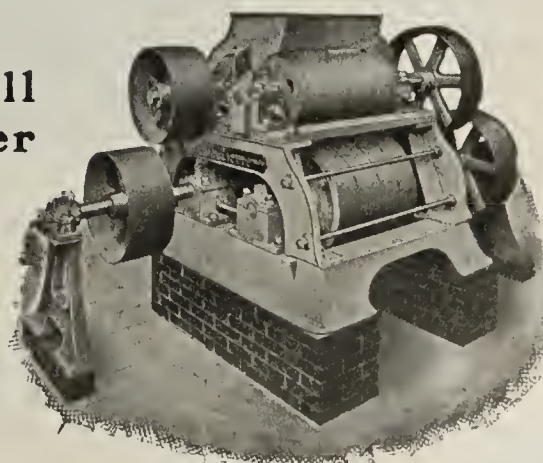
STYLE "B" BRICK MACHINE

THE "MARTIN" COMPANY
AT LANCASTER, PA.
Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



DISINTEGRATORS

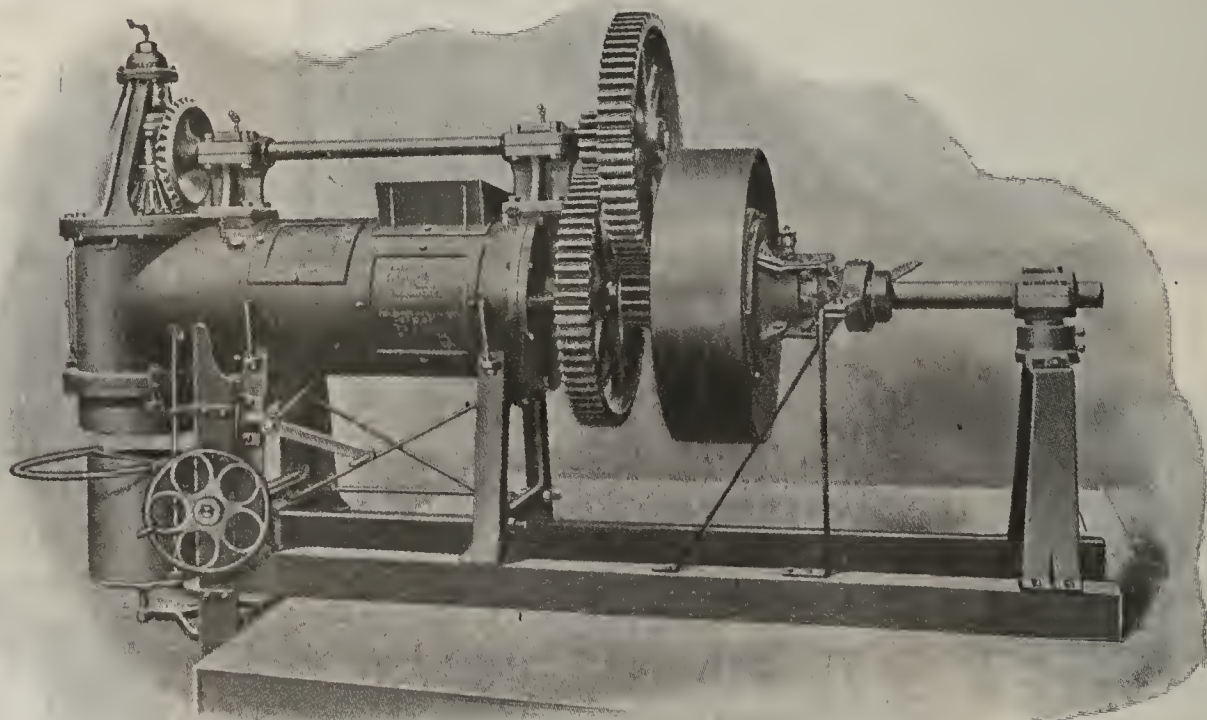
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

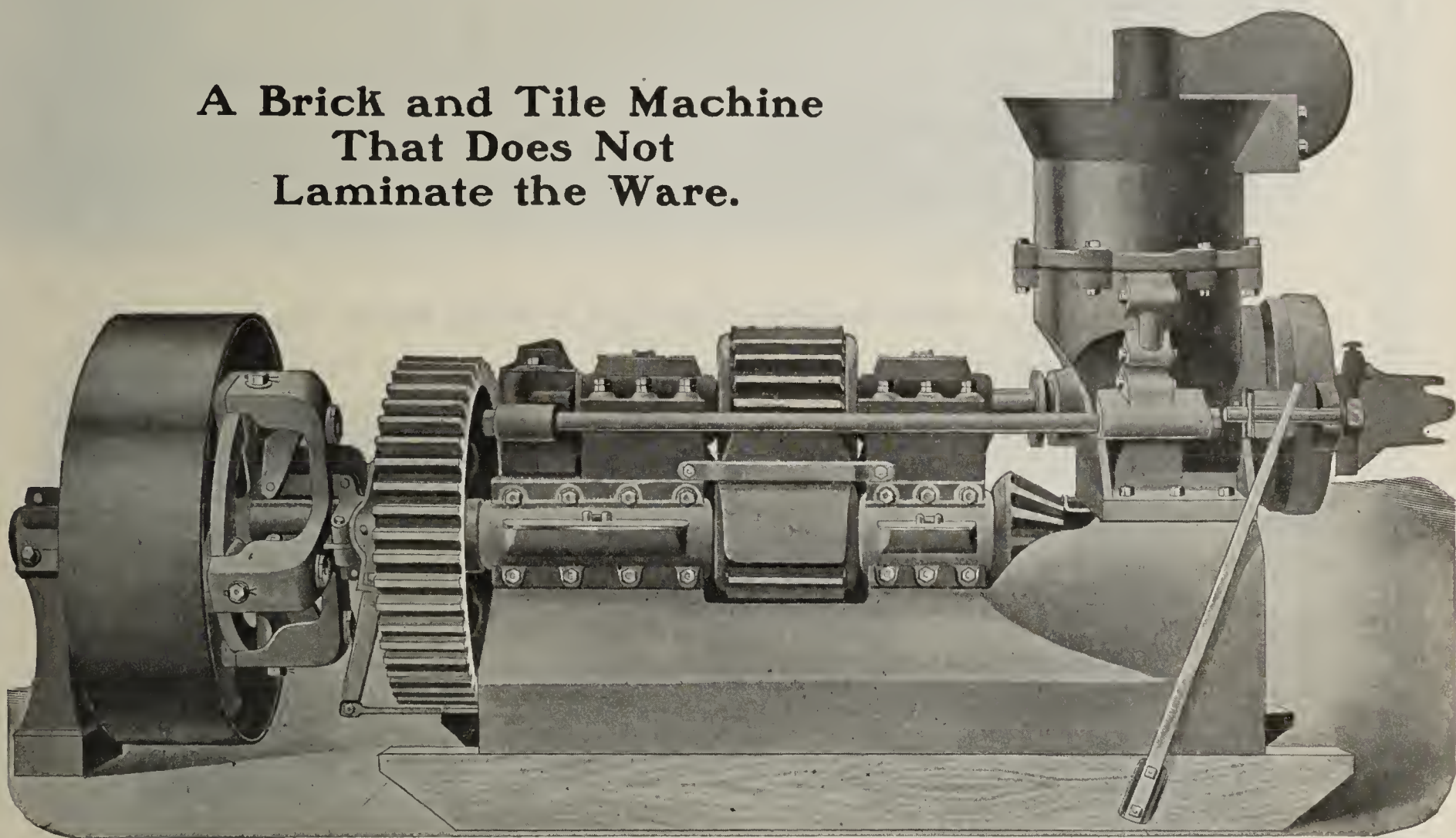
See ad on page 131.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



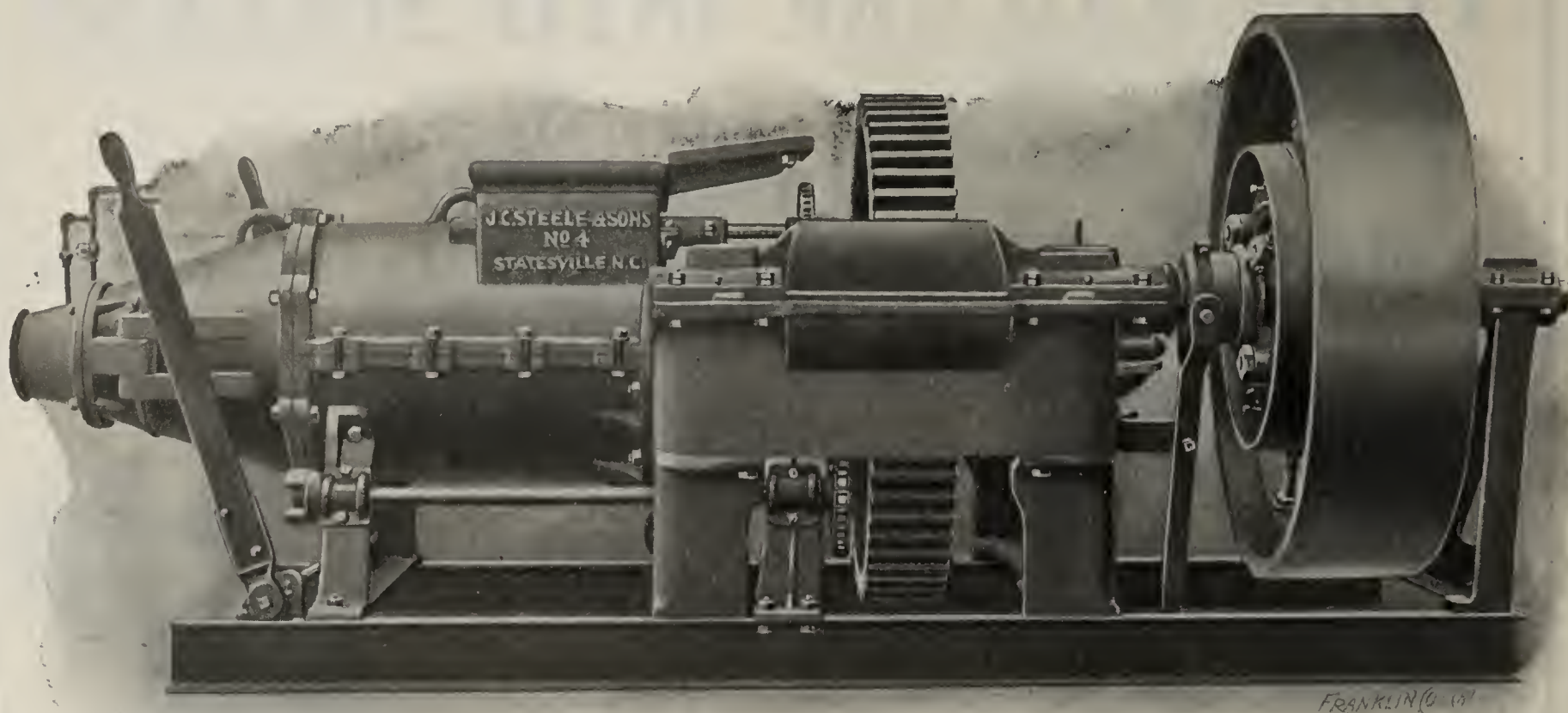
The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

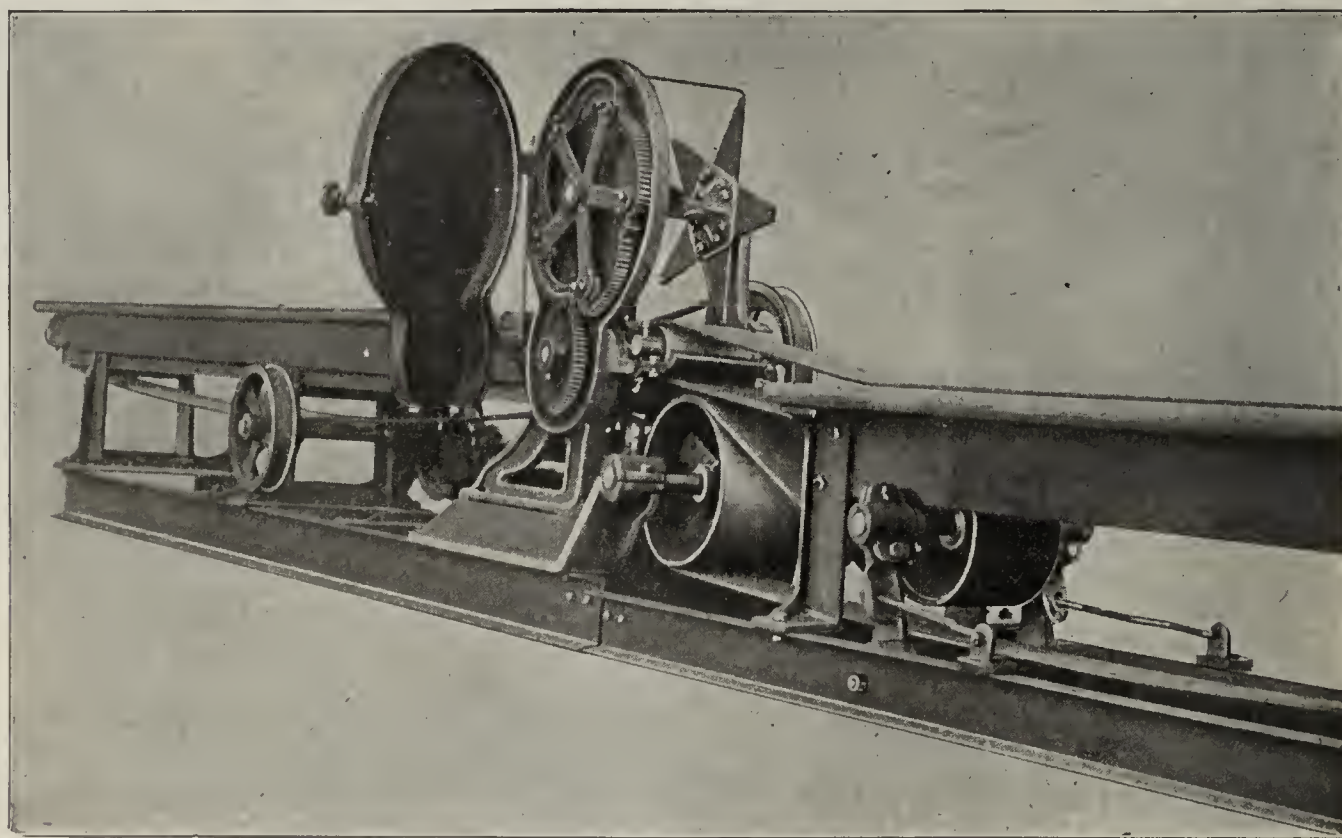
THE WALLACE MFG. CO.,
FRANKFORT, IND.

Ask the Man Who Owns One.



No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

J. C. STEELE & SONS

STATESVILLE, N. C.

Success Brick Machinery Co., Memphis, Tenn., Western Agents.

Mention The Clay-Worker.

Modern Clayworking Machinery



THE CANTON SPECIAL
125,000 Daily Capacity.



NO. 11 AUGER MACHINE
100,000 Daily Capacity

Single and
Combined
Brick
Machines
of any
Capacity

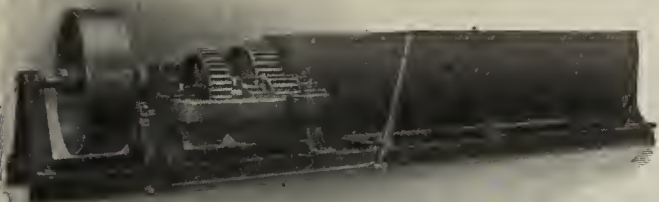


NO. 14 COMBINED MACHINE
25,000 to 40,000 Daily Capacity

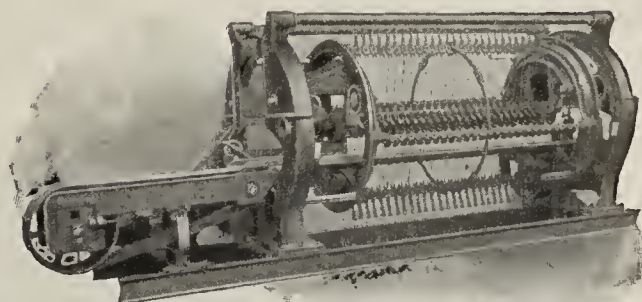


NO. 8 AUGER MACHINE
25,000 to 40,000 Daily Capacity

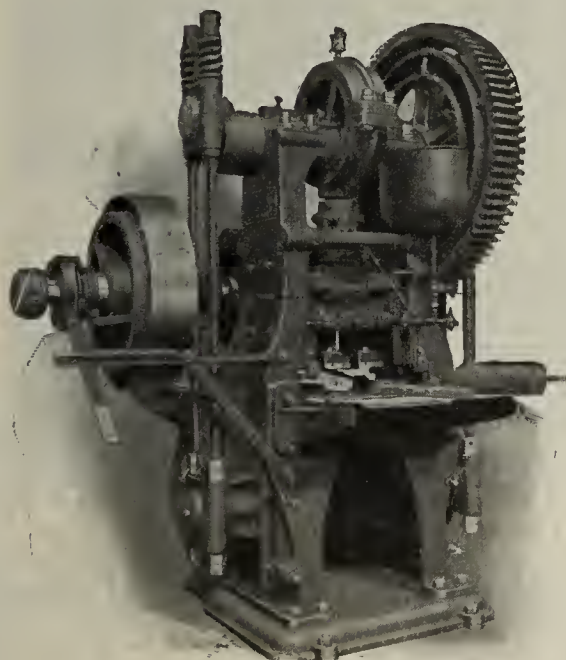
Rotary and
Side Cut
Tables
for Hand
or Power



12 FT. "C" PUG MILL

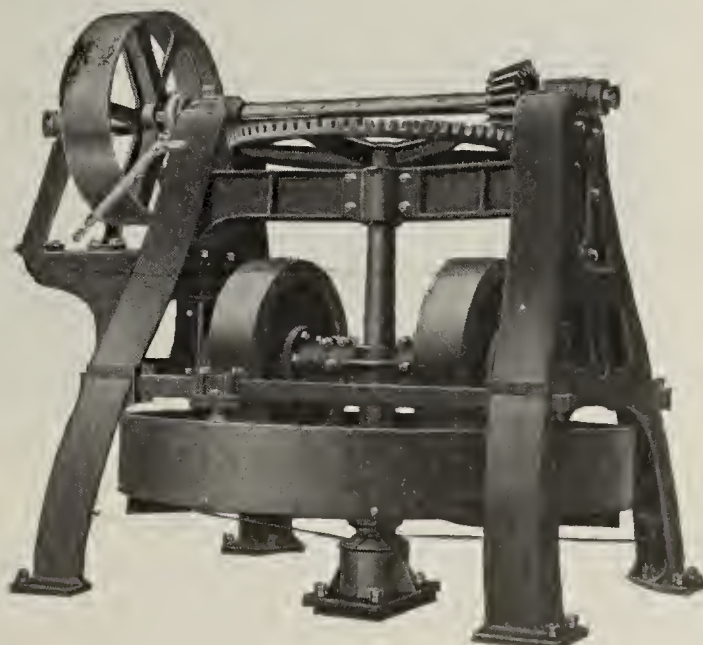


ROTARY AUTOMATIC TABLE
Daily Capacity up to 125,000



CANTON REPRESS

Pug Mills
Screens
Dry Pans
Elevators, etc.
and the
Canton Repress



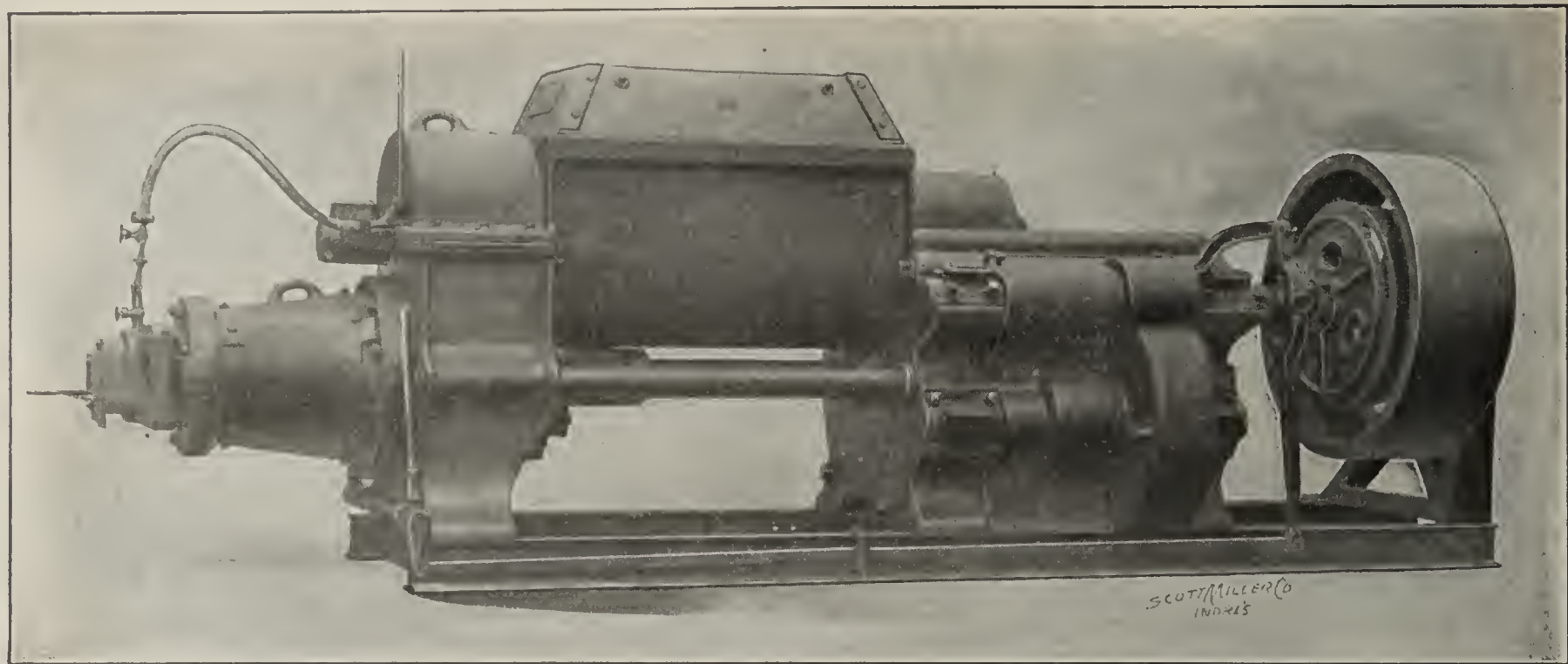
9 FT. DRY PAN

THE BONNOT COMPANY

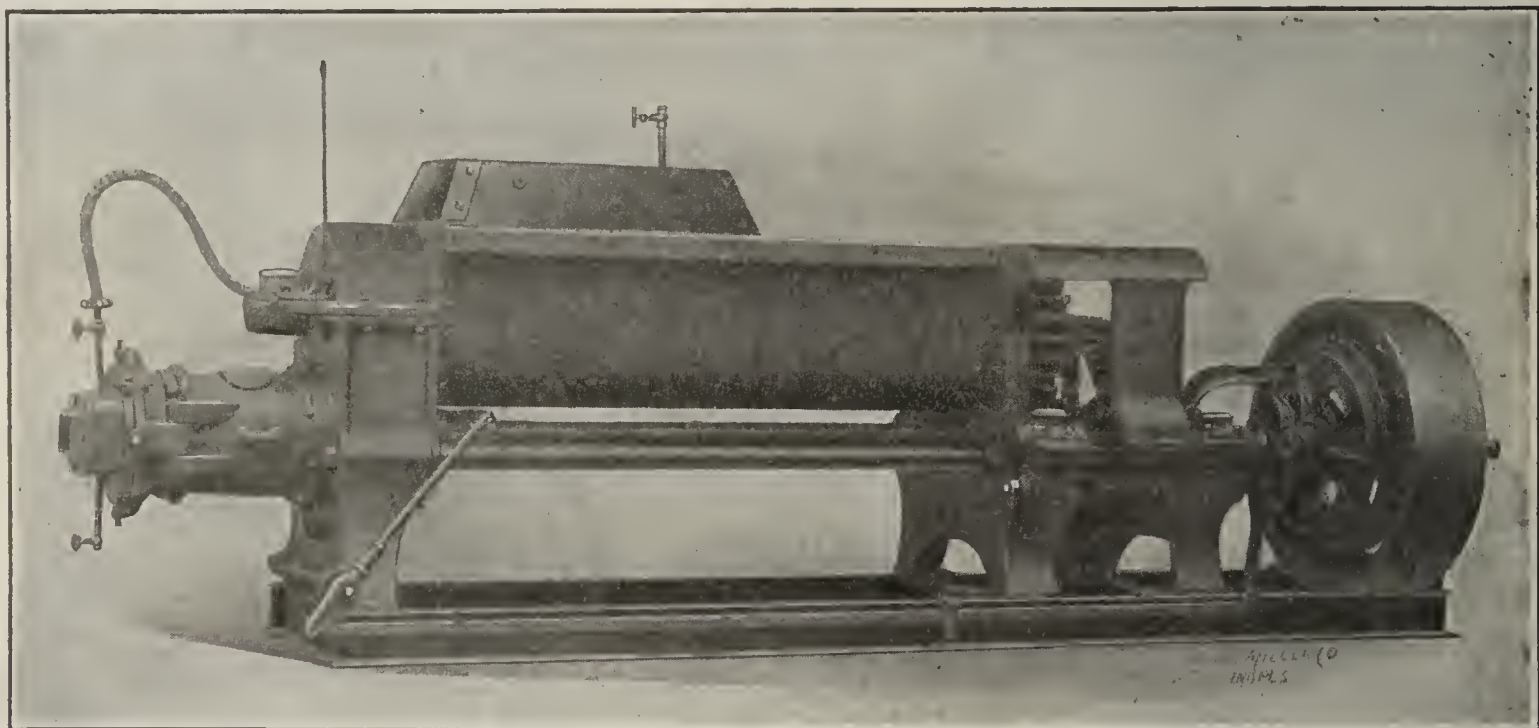
305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.
Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

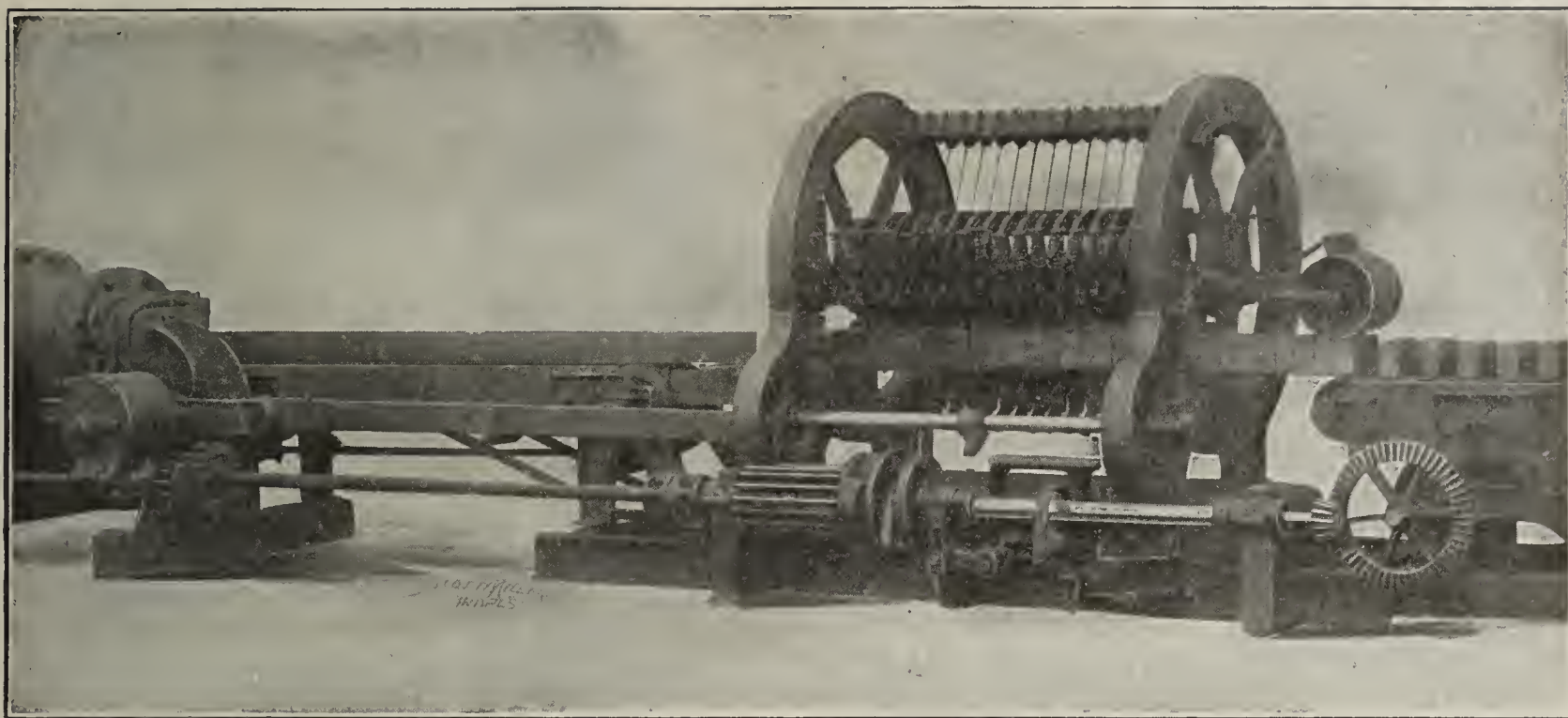
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

Write for Catalog.

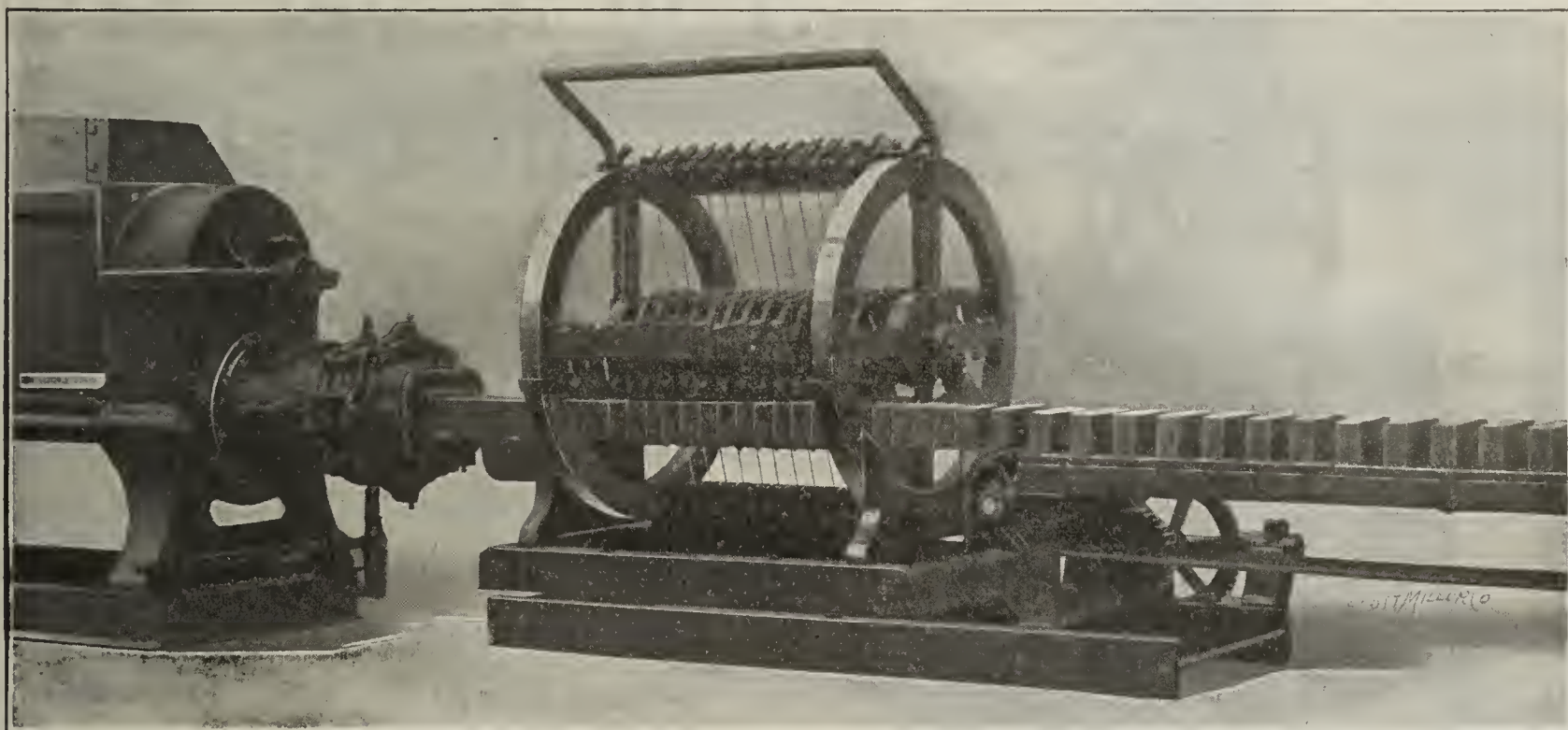
Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing.

Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

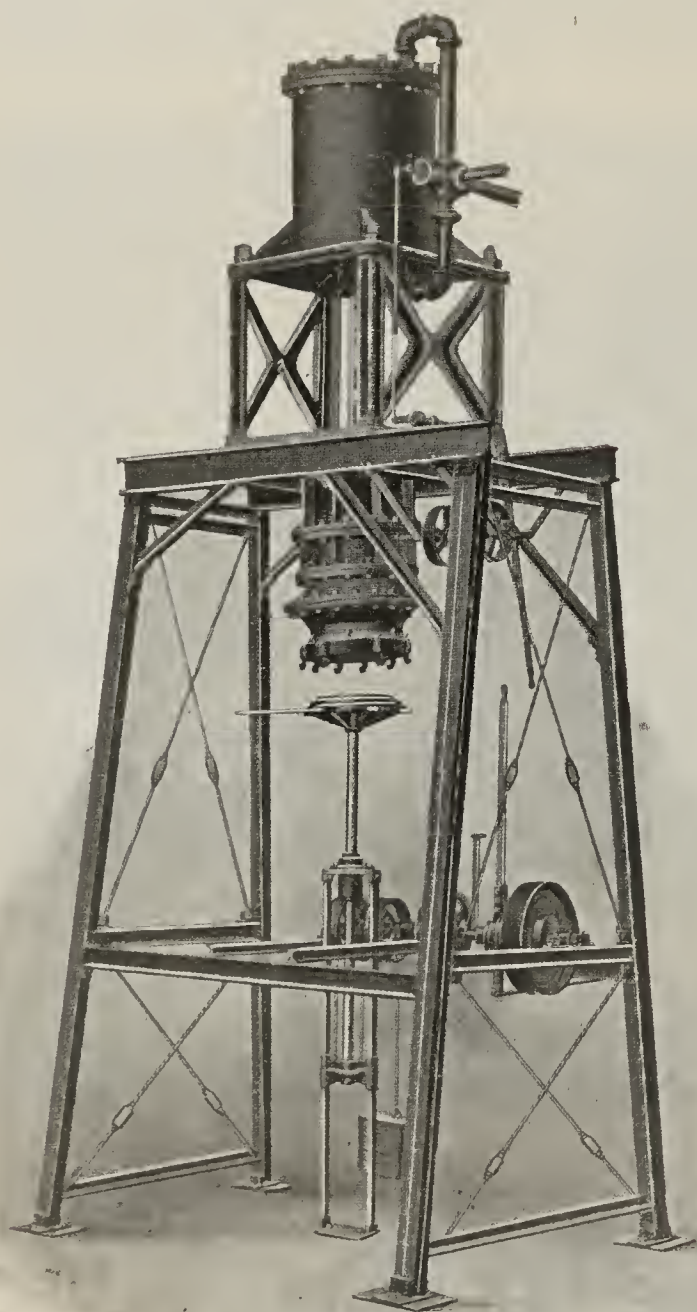
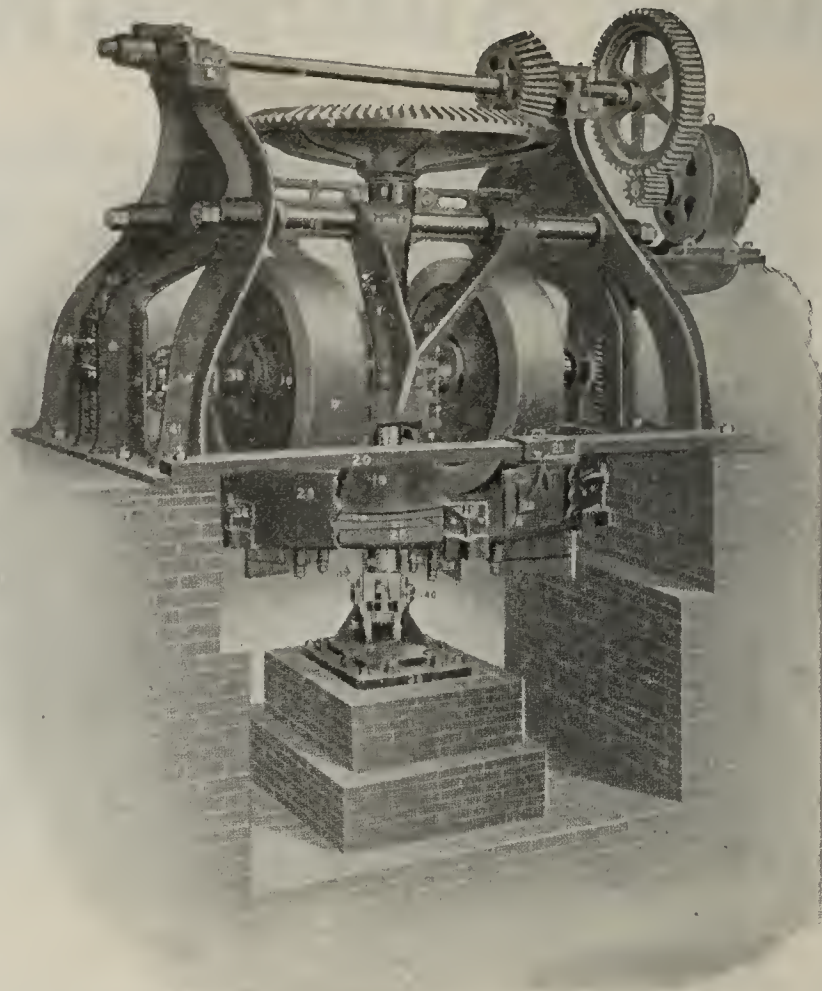
(Mention The Clay-Worker.)

Galion, Ohio.

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

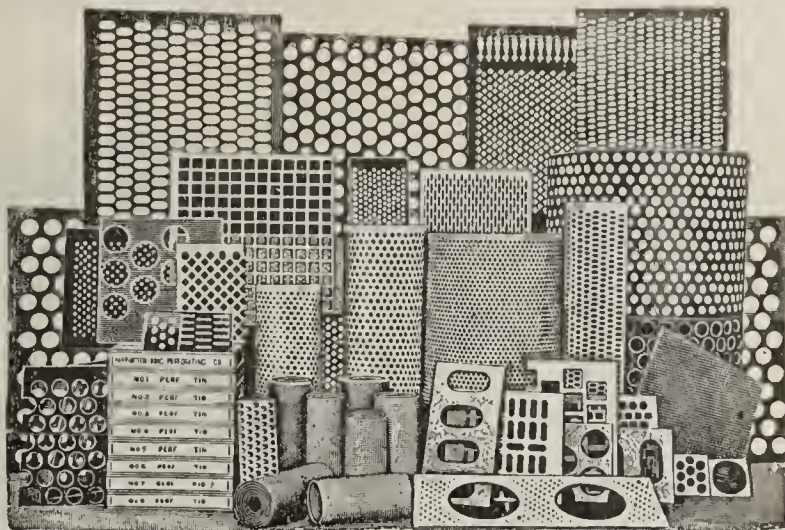
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



IF YOU ARE TROUBLED,

As everybody is troubled when trying to straighten out something that wont straighten,
and

If the "something" that wont "straighten out" for you
is a **Dryer** trouble,

just turn it over to us—we'll straighten it out for you.

We're looking for Dryer troubles.

If you've any to dispose of

Write the

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

108 LA SALLE ST.

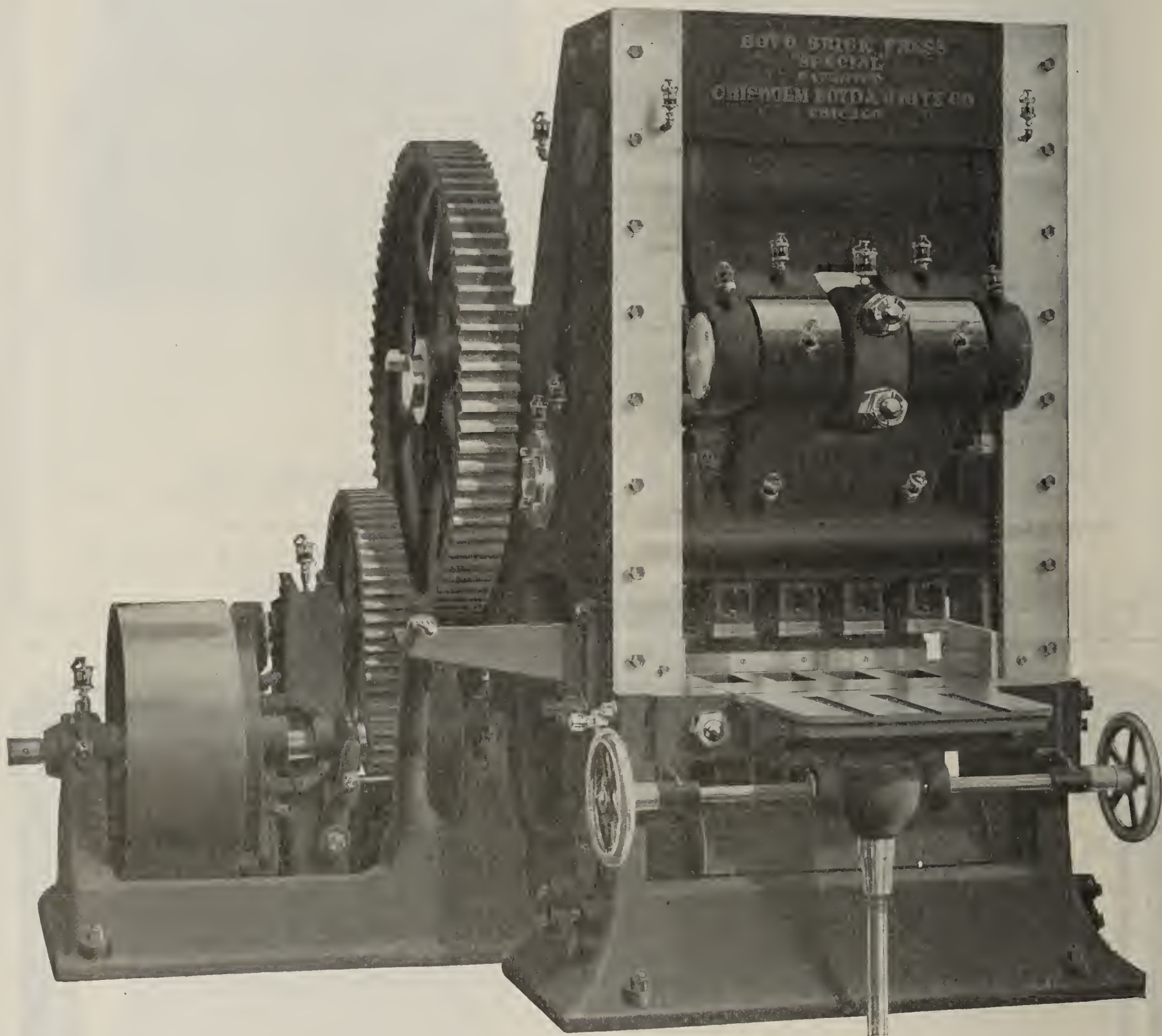
CHICAGO.



Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.

BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

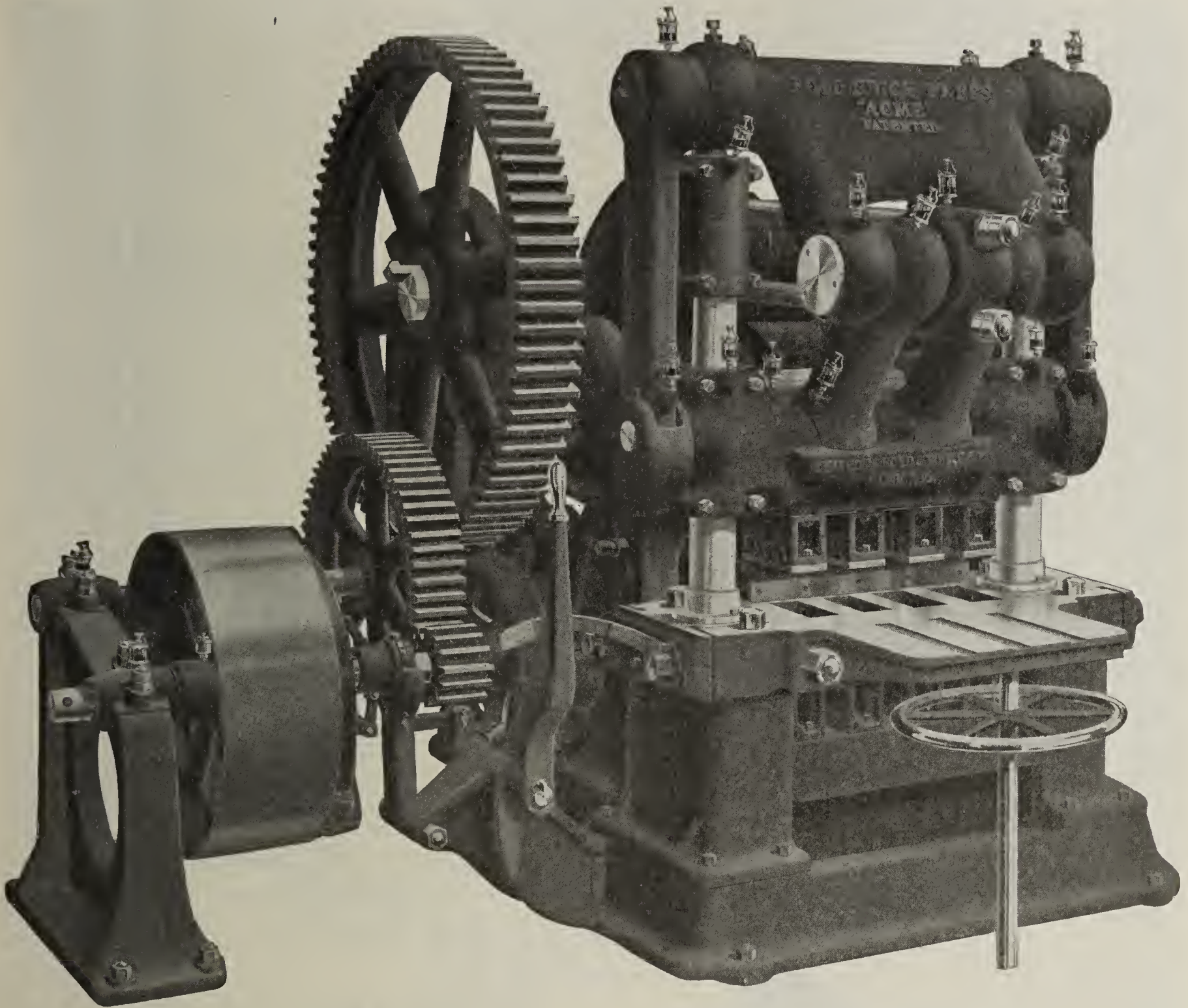
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

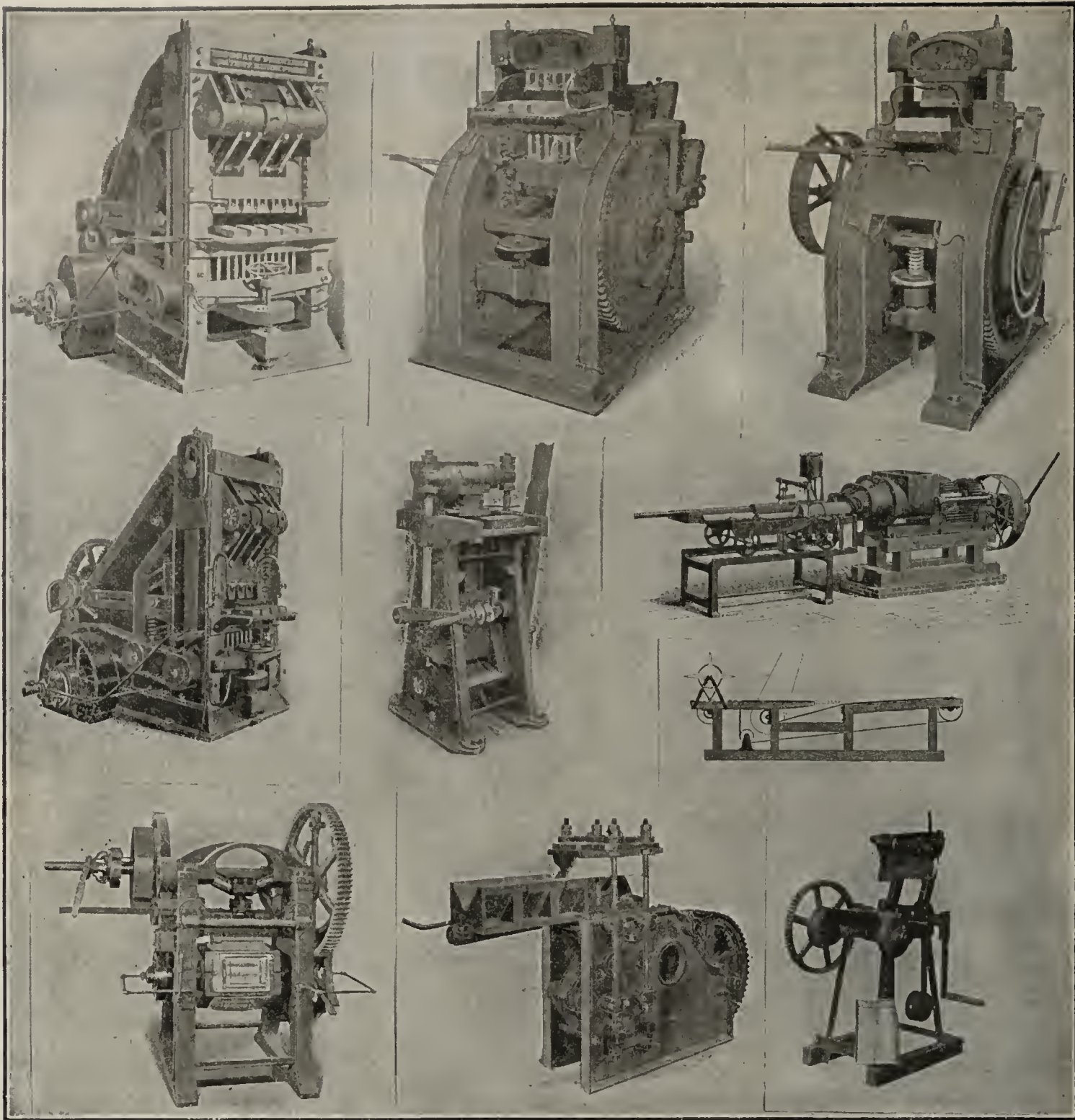
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

We Have the Best and Most Practical Brick
Presses and Roofing Tile Machinery.



OUR PRICES WILL SUIT YOU.

Press Brick and Roofing Tile Machinery. All Guaranteed
Against Breakage and to Give Satisfaction.

Get Our Prices Before You Buy.



Selling Agents for The

SCHURS PATENT PERFECT OIL BURNERS

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.
Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most Economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

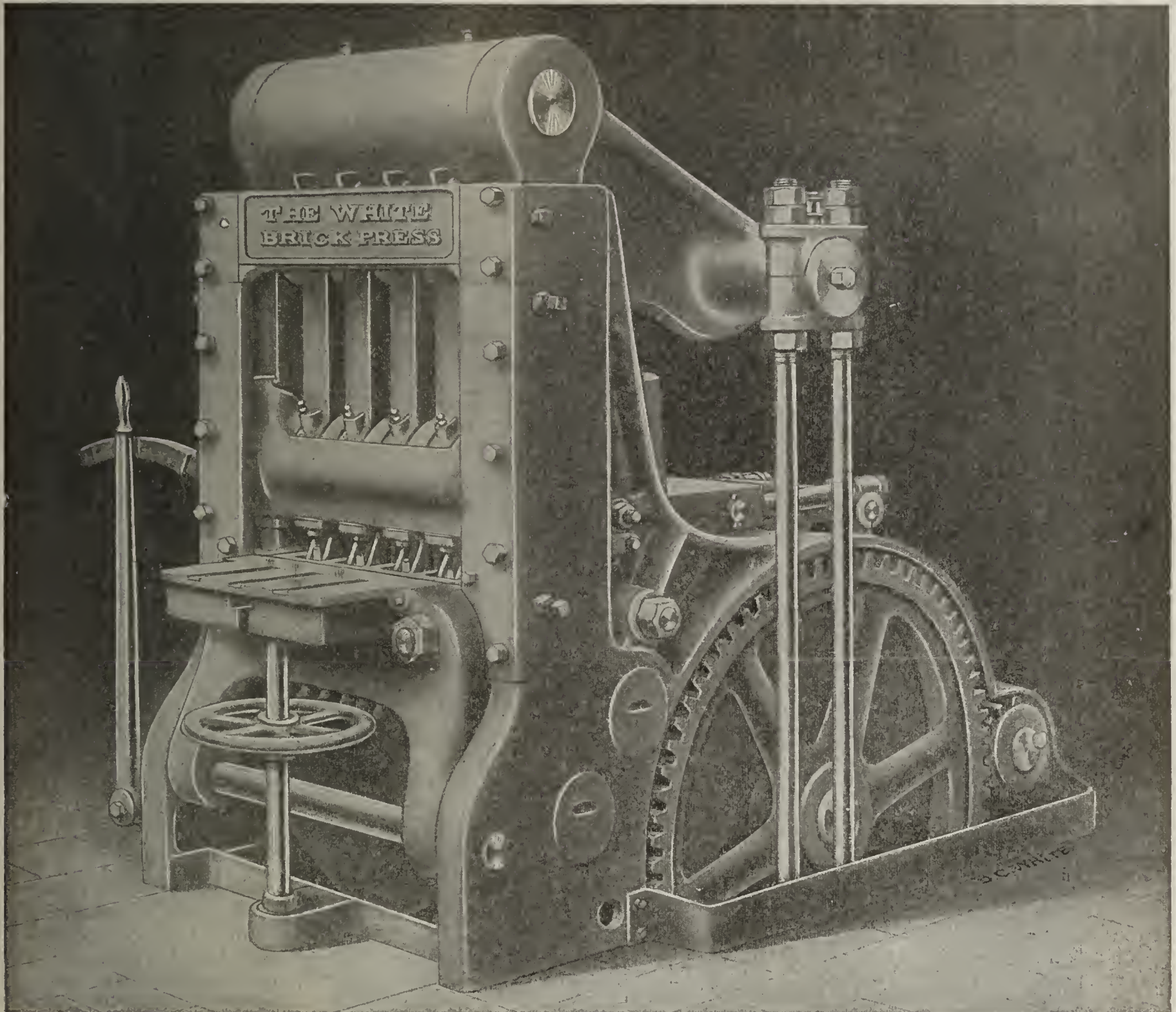
Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Mention The Clay-Worker.

Long Distance
Phone
Bell, Main 235.

**Always Worth More Than
You Pay For It**



THE WHITE BRICK PRESS.

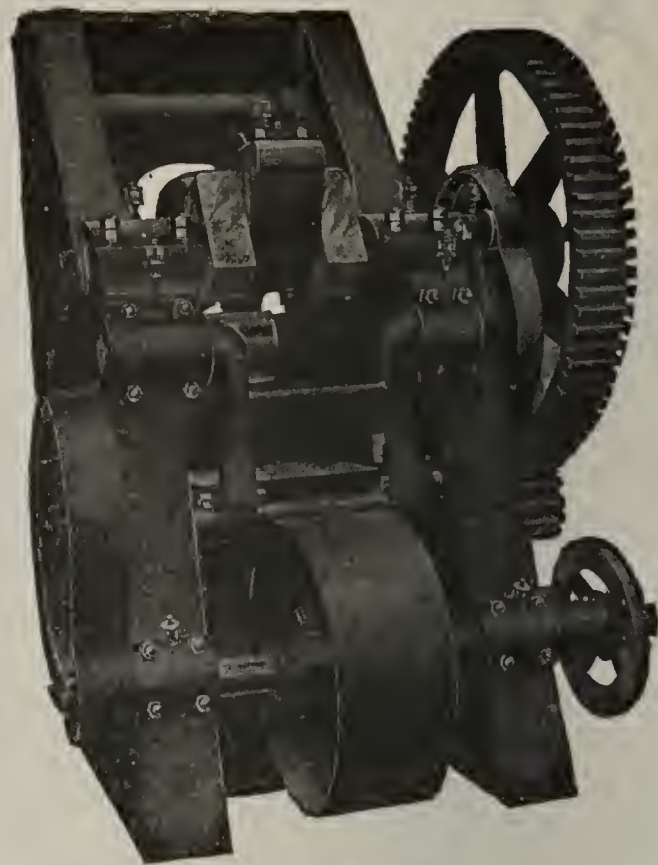
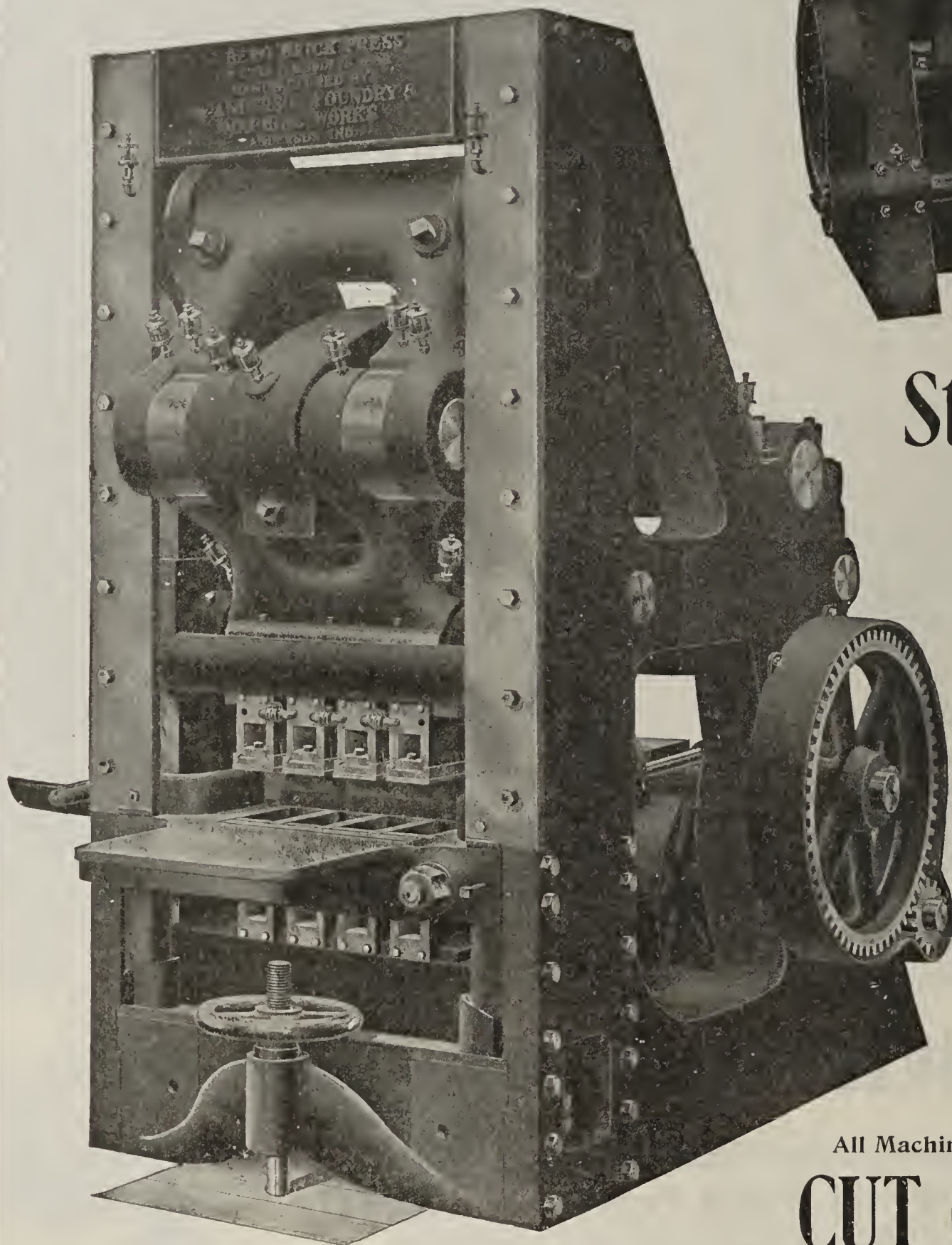
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

All Machines Are Equipped With

CUT GEARING

Manufactured and Sold by

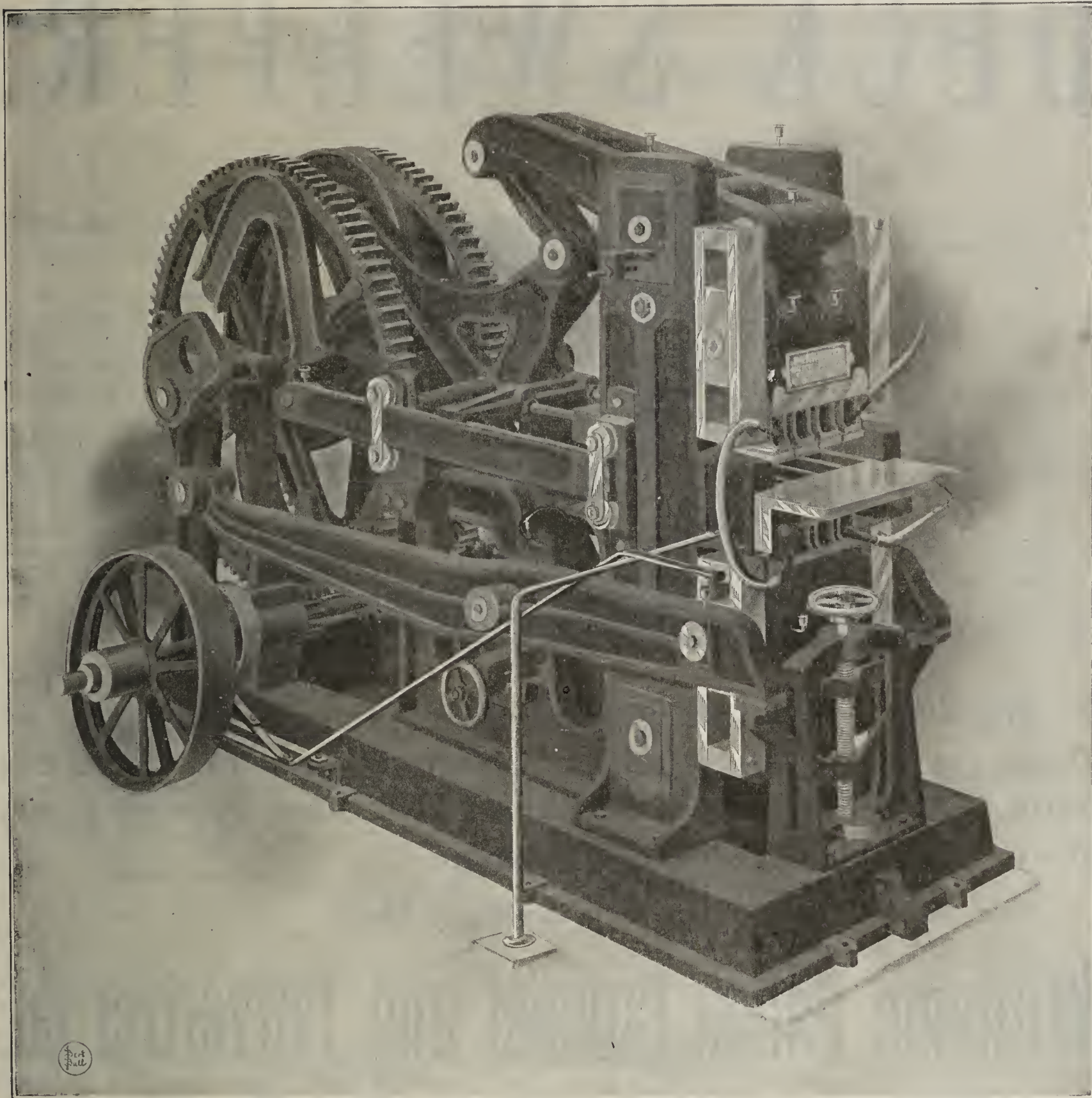
THE ANDERSON FOUNDRY & MACHINE WORKS,

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

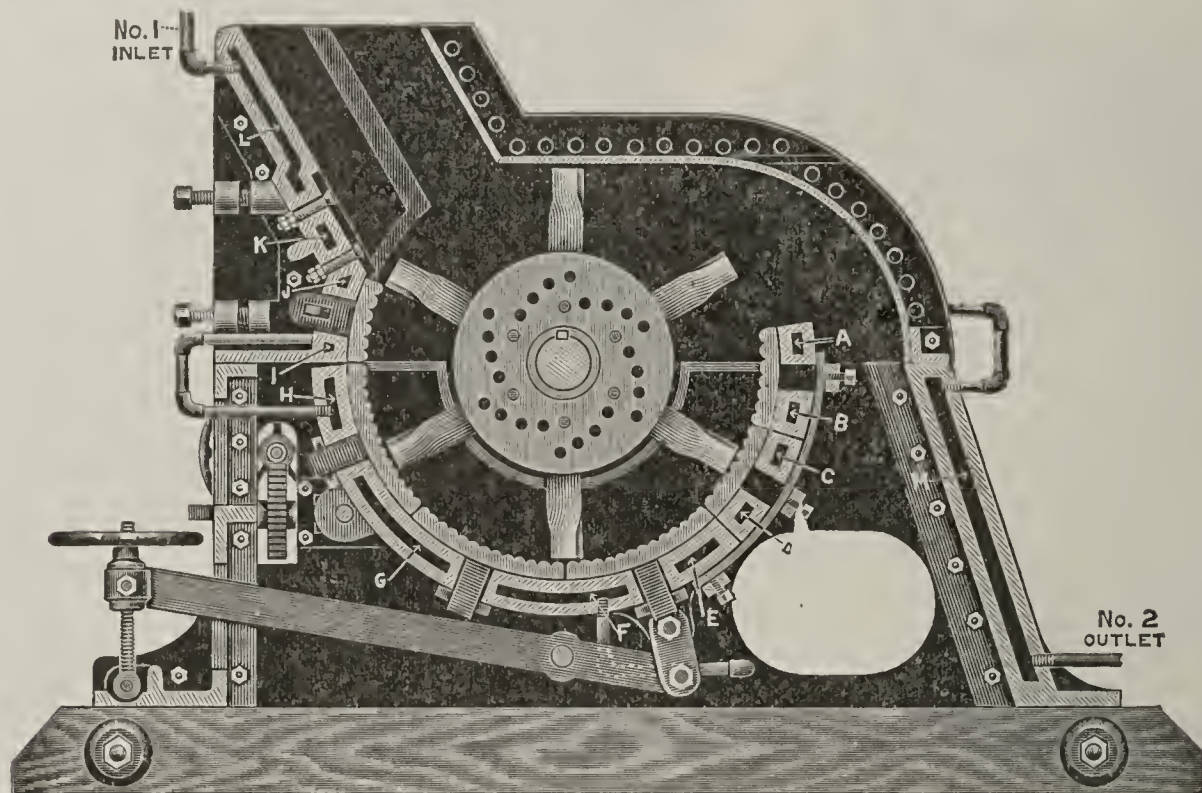


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

JUST OUT! DECK SWEEPER.



We will guarantee this machine to reduce any clay or shale from the dry shed, from the shale bed or from the bank, in a satisfactory condition for making burned goods of any description at one operation.

For further information write to the

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Building, Chicago.

San Francisco Office, 428 Monadnock Bldg.

Write for Bulletin 21.

Over 1300 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Tile Underdrainage. By J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

The Andrus Brick Press

Makes Brick Every Day.

Been doing it **20** years.
Strong, Simple and Capable.
24 in operation in St. Louis District

INVESTIGATE.

Scott Manufacturing Co.

1812 Third National Bank Bldg., St. Louis, Mo.

REMARKABLE OFFER

We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

GEN. LEW. WALLACE: The author of "Ben Hur" wrote, "I have tried every kind in the market and unhesitatingly give the preference to the 'Post.'"

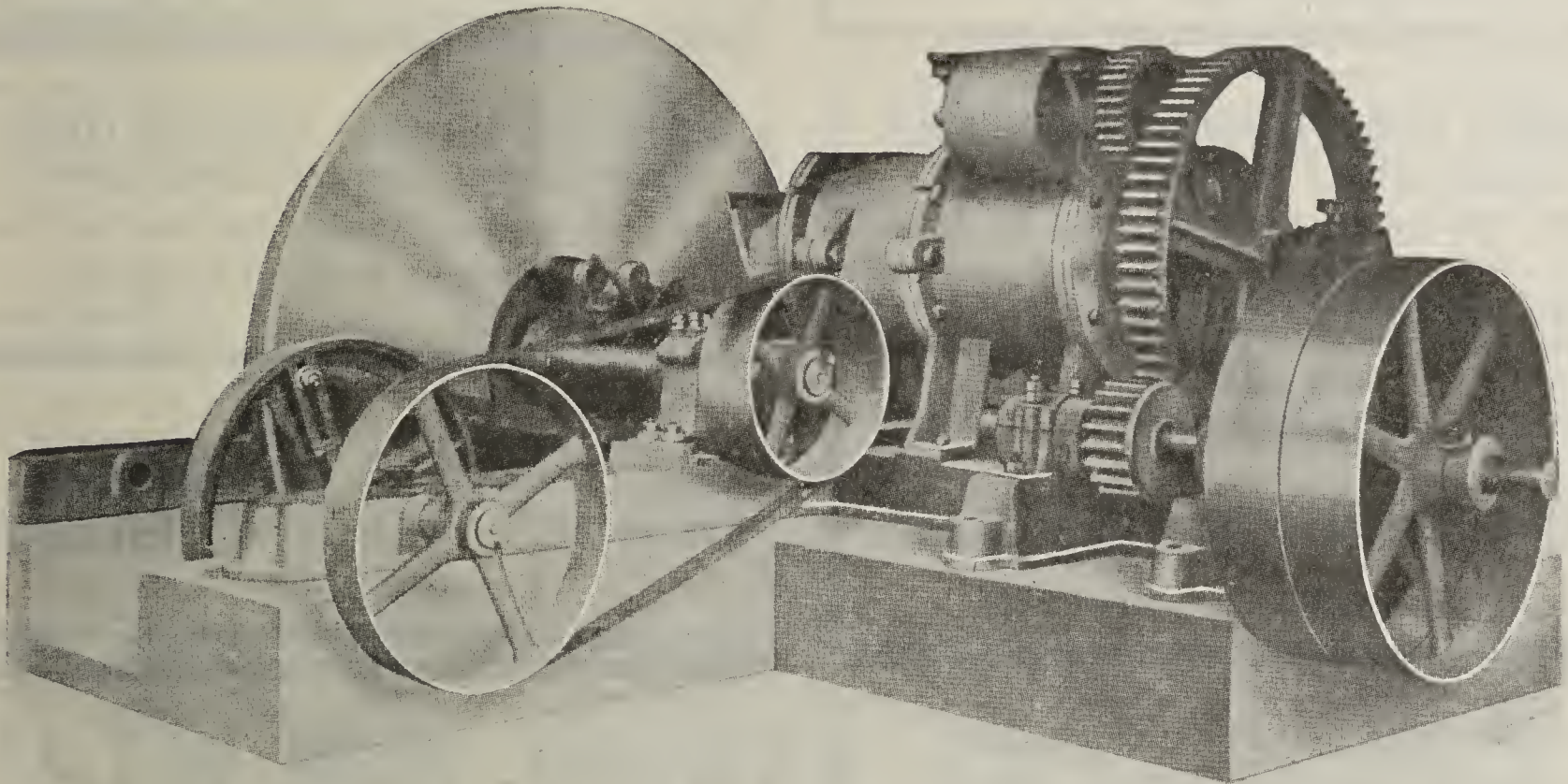
JUDGE LUTHER L. MILLS, CHICAGO: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

DR. JOSIAH STRONG: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the 'Post' leaves nothing to be desired."

THE CLAY-WORKER, INDIANAPOLIS, INDIANA.

Are you troubled with
LIMESTONES OR PYRITES?

Here's a machine that
 takes them out
WITHOUT CRUSHING.



THE DIESENER CLAY CLEANSER

(U. S. and Foreign Patents.)

Takes the Dirt Out of the Clay.

The Diesener Clay Cleanser works upon plastic surface clay AS IT COMES FROM THE BANK, after this clay has been well tempered and pugged in a suitable pug mill. The process of cleaning is as follows:

An auger machine (as shown in the above halftone) pushes forth a solid bar of well pugged and watered clay in stiff mud condition. This bar slides down an inclined plane and is pushed against a rotary disc. The material of this disc is a special iron alloy, discovered after many costly experiments.

The disc by friction "sucks" the clay into and through a slot, and the foreign matter like PYRITES, LIMESTONE, PEBBLES, SCREW-NUTS, WEED-ROOTS, and so on, if they are too big to pass through the slot, are caught in it and REMOVED from it CONTINUOUSLY and AUTOMATICALLY.

We wish to emphasize this particular feature of the Diesener Clay Cleanser—that it does not crush or pulverize the pyrites or limestones and then mix the same into the clay. It takes them out without crushing or even without breaking.

Richard G. Hoffmann,

Sole Representative in the U. S. for Mr. H. Diesener,
 Charlottenburg, Germany.

La Grange, Ill.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements."
 "Proper Construction of Brick Street Pavements."
 "Why Vitriified Brick Street Pavements Are the Best."
 "Why Should You Pave at All?"

Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

PRESTON BRICK COMPANY,
 Manufacturer of

Vitriified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
Hornellsville, N. Y.

OXBLOOD RED FRONT BRICKS

DEVONSHIRES and REPRESSED

KUSHEQUA

Highly Vitriified by Natural Gas.
 Made from same shale as our well-known Kushequa Paving Blocks.
KUSHEQUA BRICK CO., Kushequa, Pa.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa. Alfred Yates, Gen. Mgr.

Vitriified Shale and Fire Clay Paving Bricks and Blocks.
 Burned in Yates' Patent Kiln.
 Samples and Prices on Application.

Thurber Vitriified Paving Brick
 and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.
Arthur S. Goetz, Agent,
 Factory at Thurber, Texas. Ft. Worth, Texas.

PAVING BUILDING • **BRICK AND BLOCK** • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

The Danville Brick Company,
 Manufacturers of the Unsurpassed

Danville Paving Block.
 Danville, Ill.
 LET US QUOTE YOU PRICES.

THE DECKMAN-DUTY BRICK CO.

Paving Brick and Block.

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647 South Pennsylvania St., Indianapolis, Ind.

THE CLAY-WORKER

THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

Vol. LII.

INDIANAPOLIS, IND., SEPTEMBER, 1909.

No. 3.

Written for THE CLAY-WORKER.

ART IN ARCHITECTURE.

SOME FINE EXAMPLES OF BRICK AND TERRA COTTA BUILDINGS IN CLEVELAND, OHIO.

TERRA COTTA has come into its own. During the past two or three years this more or less plastic building material has come into great favor, especially in the large cities, where artistic effects are sought, combined with durability, but where the price of carved stone is often prohibitive. Terra cotta seems particularly adapted for mercantile structures, giving a grade of color and design which no other material of a similar price could ever hope to do.

From the plainest imitations of stone to the most elaborate carved and molded effects, terra cotta has been tested these many years, and has not been found wanting. In many of the large cities it is being used extensively for large structures, entire fronts being constructed of it. Terra cotta is also being used extensively in the place of stone for trimming large buildings.

In the city of Cleveland, O., which stands in the lead when it comes to the use of clay products, some magnificent structures of terra cotta have been erected. Some are several years old, while others are now nearing completion and are not as yet occupied. Large office buildings, stores, newspaper offices and banks are included in

the list of notable structures in Cleveland which have been built of terra cotta.

Probably one of the most interesting is the new Pope building, a ten-story structure with two street facades, which is costing \$1,000,000. This is absolutely the finest mercantile structure between New York and Chicago. The street sides are elaborately designed, and can be washed down when they become dirty, being white glaze with an ironspot mark to heighten the effect.

Another tall building which is remarkable is that of the Guardian Trust building, on Euclid avenue. Although this bank is twelve stories high, it is only 30 feet wide, towering

up like a great pillar from the street. Granite was used for the first story, and terra cotta so closely resembling granite was used for the upper portion that it can not be distinguished from the stone itself. The building is very graceful and attractive, and creates much comment.

The same idea was used in the construction of the Plain Dealer's new six-story building. The old one was burned a year ago and it became necessary to rebuild. The site is within the limits of the group plan, and it was necessary to build of granite. To keep down the cost, terra cotta was used for the upper five stories, and can not be distinguished from the granite used for the first floor. Architects say that the terra cotta will wear just as long as the granite will, without showing any signs of deterioration.

The new home of the Sterling & Welch



Chamber of Commerce Building, Cleveland, Ohio, the Ornamental Details of Which Were Executed in Terra Cotta.

Co., on Euclid avenue, east of East Ninth street, also has a terra cotta front in imitation of granite, which was used for the pillars of the first story. The most critical persons would fail to find a flaw in the match of the stone and the terra cotta.

One of the most ornamental structures in the city of Cleveland is the Chamber of Commerce building on the Public Square. This is six full stories in height. The third floor front rests on eight gracefully draped female figures, while the arched effect of the top story is decidedly attractive. There is a large auditorium in the rear of the front office building.

The Rose building, at Huron road and East Ninth street, is another handsome piece of architecture which illustrates American tendencies. Mr. Rose, a millionaire, recently deceased, was one of the first to use terra cotta on a large scale. He was particularly partial to it after he found what fine effects he secured in some of his structures. He had planned another eighteen-story building on East Ninth street which was to have a terra cotta front, when death overtook him. It is understood that the Albert building, which name it



Handsome Home of the Sterling & Welch Co.

is to be known by, will be proceeded with shortly by administrators of his estate, he having left a large sum for its construction.

Another attractive store front is that of the May Company, which faces the Public Square. Simpler effects have been sought and obtained. The Taylor Arcade, which is just west of the new Hippodrome, on which, by the way, many thousands of dollars' worth of terra cotta was used, is also built of granite for the first floor and terra cotta for the four floors above. The match is perfect. Many Clevelanders, indeed, labor under the impression that most of the buildings mentioned in this article are really of stone, their knowledge of the uses and value of terra cotta being very limited.

Some of the most attractive pieces of terra cotta in Cleveland are to be seen in St. Luke's hospital, where a large balcony and other ornaments are constructed of this material. The roof is of red tile, while the interior walls are covered with glazed tile in many sections. More terra cotta has been used in this building, proportionately, than any other structure in Cleveland. The bulk of the hospital is of clay

products, the only wood being in the doors and furniture. Most of the latter, too, is of metal.

As a fireproofing material, terra cotta has been found of excellent value, and is now being used largely on this account. The two big companies, the Atlantic Terra Cotta Company and the Northwestern Terra Cotta Company, both have large agencies in Cleveland, and find this a fertile field for the sale of their products.

BUSY DAYS IN VERMONT.

In Vermont the manufacture of brick has taken on a fresh lease of activity, partly because lumber, as a building material, is becoming scarce and expensive, and partly because brick is a protection against fire which is recognized as more



Guardian Trust Building, Cleveland.

effective than fire apparatus, which may or may not be on the spot when wanted. The yards are said to be fairly busy all over the state, with many doing more business than ever before. The product is used largely at home, though some are shipped elsewhere. The brick of the Champlain Valley is consumed in the chain of cities in upper New York, along the Hudson and further down. Last year some of it came to New York, but the manufacturers around New York discovered that it was becoming a dangerous competitor. They reduced their prices to a point below which the Vermont maker could afford to sell, and the result was the shipment ceased. There was no complaint against the quality. It was merely a question of money, and the cheaper brick won.

THE PREPARATION OF SURFACE CLAYS.*

BY A. V. BLEININGER, PITTSBURG, PA.

[Part II.]

LET US NOW examine into the materials which have passed the 200-mesh sieve. The first thing we observe is the fact that it is much more plastic and sticky than the sediments retained on the sieves. At the same time we notice that it is of a more uniform red color, showing that the iron oxide, which is the cause of the red-burning clay, is distributed throughout the mass, and appears to be present in a finely divided state. Closer examination still reveals also the



Pope Building, an Attractive Ten-Story Structure.

presence of a considerable amount of fine sand and perhaps also of some of the minerals already discussed. We could bring about a still further classification or sizing by carrying out the so-called "mechanical" analysis, and in this way we would finally obtain a sediment which would be composed of the real plastic constituent of clay in as undiluted a state as it is possible to obtain it. These very fine sediments, therefore, constitute the plastic base of clay. But let us not assume that we are here dealing with a definite material. No matter how completely we carry out the separation of these very

*Read before the Wisconsin Clay Manufacturers' Association, Milwaukee, February 11, 1909.

finest grains, we shall still observe that they are made up of an aggregate of plastic, jelly-like particles admixed with microscopic grains of sand and minerals. Of course, this fine sediment will show far greater plasticity and shrinkage than the clay as a whole. What then constitutes the character of this plastic base? Evidently the peculiar fact of plasticity is inherent in the physical constitution of this aggregate. It is jelly-like and has been called "colloidal," since it is very similar to many jelly-like substances found in nature or artificial compound to which the term "colloid" is applied. We are here dealing with a cellular structure resembling very much the structure of a sponge, and which, similar to the latter, absorbs water and holds it between the particles with great tenacity. The more of this colloidal material a clay contains, the more plastic it is said to be. This is indicated also by the greater amount of water required to pug a plastic clay. We know from experience that the more plastic a clay is the more water will be required to make it workable, and this may serve as a rough guide in estimating the amount of the colloidal clay substance. Likewise, this clay base holds onto its water very vigorously, even after being heated, to



Rose Building, a Handsome Piece of Architecture.

the boiling point of water. Thus we may determine approximately the amount of this plastic substance by finding the weight of water which is retained at temperatures above 212 degrees, Fahrenheit.

Since we are here dealing with a cellular structure in which the capillaries are extremely fine, it is reasonable to suppose that the drying is bound to be rendered more difficult, the more of this clay base is present in the clay and the more plastic the latter is. This may be carried to such a degree that it may be almost impossible to dry a clay without checking or cracking, since the strain produced by forcing the water through the extremely fine capillaries is so great that the material does not possess sufficient strength to withstand it. Hence, the difficulty of drying exceedingly fine-grained plastic clays, which is known to every clay-worker. Speaking from the practical standpoint, a well-working clay ought to contain only so much of this plastic and colloidal constituent as to cement the grains of sand and other minerals together and to sustain the load placed upon the ware in the kiln. When this is the case, little trouble is experienced in the drying and in the water-smoking. Very

plastic clays give considerable trouble during the water-smoking, and we are often only too prone to neglect this important point. We are very apt to hasten the water-smoking, during which process the hygroscopic water, that is, the water which is driven off at a temperature above the boiling point, is expelled. Failure to water-smoke exceedingly plastic clays carefully will cause great strain in the body of the ware, owing to the violent expulsion of the water inclosed in the cells of the colloidal substance. The result then is a weakened or rotten structure, which is indicated by the absence of ring.

As to the effect of this plastic clay base in burning, we must realize that it is the true hardening and cementing mixture. It is the one which gives us the desired strength and which furnishes the principal part of the clay, bringing about vitrification. At the same time it also gives the clay its red color unless it is masked by the presence of an excessive amount of fine lime.

In regard to determining without actual trial whether or not a clay is sufficiently plastic to flow through dies properly, or whether it possesses this property in a sufficient degree for other forms of molding, we have as yet no fixed test. Of course, some idea of the plasticity of clay may be obtained by the feel of it, its drying shrinkage, the amount of water taken and held in a plastic state, but we have no means of determining the degree of plasticity accurately and expressing it by means of a numerical value. Several methods have been suggested, such as the absorption of coloring agents by clays, the determination of the viscosity of clay slips, the tensile strength of plastic and a dry clay, etc., but the subject has not as yet been covered thoroughly.

The clay substance may also assume a variety of modifications by virtue of the geological changes to which it has been subjected. Thus we have clays of the type of the joint clay, common in Illinois, Wisconsin, Minnesota and other states in which glacial action has produced a structure which is excessively colloidal, and at the same time appears to have certain lines of cleavage which are almost cubical in their arrangement. Clays of this type cause a great deal of trouble to many manufacturers.

In the preparation of clay for the manufacture of clay wares, it is the purpose to reduce the clay to a condition in which it may be worked easily in a machine, dried safely and burned to a hard product. While with normal clays this is not a difficult task, trouble is experienced with many of the materials in which one or the other of the mineral constituents of clay is in excess, throwing the character of the clay out of balance. In this connection we might consider this subject under the following heads: First, clays with an excess of coarse sand and other mineral debris; second, clays with an excess of fine sand; third, clays with an excess of lime, either coarse or fine; fourth, clays with an excess of plastic base or with inherent excessive plasticity; fifth, clays containing too much gypsum.

1. The glacial clays of Wisconsin only too often contain coarse rock of all sorts from granite boulders to pebbles of limestone or sandstone. It is not difficult to remove the larger material by hand picking, but the difficulty is met with in dealing with irregular pieces from the size of the fist down to pebbles of walnut size coated over by moist clay. The question is what kind of mechanical treatment should be adopted in such cases. As a rule the clay as it comes from the bank is too wet to be worked economically by the dry pan, or the hammer disintegrator, and the larger pieces of hard rock would make the use of the latter machine too risky. The roll crusher would be the most available machine for this purpose, but it also is not a satisfactory apparatus for many clays, since the ordinary stone separator used in connection with it is very unsatisfactory. The difficulty might be met by the use of very powerful rolls which are not

yet employed in the clay industry. In Europe an attempt is made to meet these difficulties by using a machine which forces the clay through gratings which retain the coarse material, allowing the clay and finer sand to pass through it. The coarse material collected is discharged at intervals by opening a door on the side of the machine. Another way of preparing these materials employed in Germany and France consists in the use of a heavy wet pan provided with large slits through which the clay is forced, while the coarse material is retained in the pan and must be discharged when the bulk becomes too great for operating the machine.

Right here is the place where new devices and machines might be adopted. A promising apparatus used extensively in the cement industry and only to a limited extent in the clay industry, is the rotary dryer. It is simply a rotating iron tube about 40 feet long and slightly inclined, the clay being fed in at the upper and a furnace being located at the lower end. The clay is dried by the heat of the gases of the furnace. The dryer of this type will have a capacity of about fifteen tons of clay per hour, and would require about 5,000 pounds of coal per day of ten hours. The power consumption would be from 8 to 12 h. p., and the cost of the apparatus, including installation, would probably be somewhat above \$4,000. The treatment of the dried clay would be a far simpler proposition than the preparation of the moist material. This dryer might be followed by a modified disintegrator with hinge bars revolving within a shell composed of coarse screen plates. The action of this machine would be to whip the dry clay off the stone and pebbles and at the same time to allow of the ready removal of the coarse material. It could be operated either periodically, the pebbles being removed by tilting the cylinder and opening the hinge door, or continuously making the cylinder longer and feeding and discharging the clay and pebbles uninterruptedly. In some cases the gravel removed in this way might be made a source of revenue by selling it as gravel for concrete work. After leaving this machine the clay would then be conveyed to a regular disintegrator, thence to a screen, and finally to the pug mill. It might be said that such a plant would cost much more money than the usual equipment for a soft or stiff mud plant. This is undoubtedly true, but the advantages gained would be:

1. Production of a better quality of ware.
2. Independence of weather conditions.
3. More uniform conditions of manufacture.

Such a procedure is about the only way of utilizing certain clays which otherwise would be out of the question.

Where a clay contains an excessive amount of sand which appears in various sizes of grain, it is frequently possible to improve the clay by drying, disintegrating and screening it in such of the machines as are on the market today, thus removing a certain amount of coarser sand.

2. If the sand is fine enough to pass the smallest permissible size of screen and the amount of it so large that it seriously impairs the working quality of the clay, making it too lean, we are confronted with a more difficult proposition, as, in this case, there is no practical way of removing the sand, since the slumming process is out of the question in a climate such as we have in the State of Wisconsin.

This fine sand will give trouble in making stiff mud brick and in drying. If the difficulty occurs in molding the brick, the stiff mud process may have to be abandoned, and either the soft mud or the dry press process adopted. If the drying results in loss, we shall have to carry on the drying with the greatest care by keeping our hacks or sheds well protected from the wind or the sun and thus drying more slowly, or by using a long tunnel dryer in which the steaming zone is extended considerably over the usual length. In very troublesome cases the periodic or chamber dryer, such as the old Bucyrus and other dryers, must be employed, in which

the drying process is under absolute control. Again, the adoption of the dry press process might in some cases solve the problem most satisfactorily.

3. As we have seen above, the carbonate of lime may be present in clay either in the form of pebbles or as an exceedingly fine material, or in both conditions.

We must either remove the pebbles or we must eliminate them by fine grinding. The pebbles may be removed, as has been suggested, from the rock debris, or they may be crushed so fine that at least the trouble caused by the bursting and spalling of the brick is done away with. Wherever possible, a combination of the two should be adopted, removing as many of the coarser pebbles as possible and grinding the remaining ones, so that they will give no difficulty. In this case no compromise should be made. If grinding is done, it should be done thoroughly. Probably the simplest procedure in this case would be to dry the clay and then crush it in the dry pan, followed by screening. By the use of such a thorough method of separation, the problem of handling calcareous clays would be solved in such a way that a high-class product could be produced, and at the same time the troubles of the manufacturer practically eliminated. The fact should be emphasized also that a shed for storing clay is of the greatest possible value to every brick plant, as far as quality and uniformity of the products are concerned, to say nothing of the benefit derived from having clay stored ahead in larger quantities. Every brickmaker realizes how surface clays differ in composition and physical properties even for short distances. For instance, if we have a 6-foot deposit of clay low in lime and say 3 feet of a more calcareous clay and it is not possible to separate them, it is exceedingly important that the two clays be thoroughly mixed, so that the more limey clay really does not represent more than one-third of the entire clay. On working directly from the bank it happens only too often that the limey portion at some time or another makes up a far larger proportion of the brick than it really represents in the bank. All the properties of the brick in manufacture would vary accordingly. If we keep as large a stock pile of clay in the shed as possible, spreading the clay brought in from the bank in layers and working straight down through the pile, we could be reasonably sure of working with an average clay mixture, and hence no abnormal variations in results need be feared.

4. Sometimes the brick manufacturer is obliged to use a surface clay which is so exceedingly plastic that it gives trouble in drying. An example of this we observe in the so-called "joint-like" structure, thus bringing about great loss. Many factories have been compelled to abandon these clays. In some cases this state of affairs may be remedied by mixing sand with these clays, although this is not always possible, owing to the great distance to the nearest bank. In some cases even sand additions do not help, owing to the fact that the joint structure of the clay itself is not destroyed and the clay is simply diluted. Usually these clays may be made workable by weathering or drying. If these clays are dug in the fall and are exposed to the frost of one winter they frequently become quite workable in the spring. Again, by ditching into this clay so that without digging the bulk of it the frost will be caused to penetrate sufficiently deep, so as to improve its character. Drying the clay in the air either outdoors or in sheds improves the behavior of the clay considerably, though not always sufficiently, but drying at higher temperatures, for instance, at 400 degrees F. has been found to bring about a radical change in the nature of the clay, so as to make it workable. In one case the drying loss was reduced from about 30 per cent. to less than 1/2 per cent. The rotary dryer might also be made useful in this respect, and it may offer a solution to the problem of working so-called "joint" and similar clays successfully.

5. Clays which show the troublesome and annoying whitewashing might be helped in this respect by the addition of

clean sand to the clay, by rapid drying, by coating the face of the brick with an impervious combustible mixture or burning it to a semi or completely vitrified body. In the case of the high-grade bricks, such as face brick, barium carbonate or chloride may be added to the clay.

Sand assists in reducing whitewash by making the clay more porous, thus accelerating the evaporation of the water, which means, of course, that not so much of the salt will be carried to the surface in the shorter time. The same principle is involved in drying rapidly. In some European plants the face of the column of clay as it issues from the auger machine is coated with an impervious coating like tar, carbolated flour paste, etc., which is applied automatically and prevents any evaporation of water on that side, and hence also the appearance of whitewash. This coating burns off in the kiln and leaves a clean-colored face. Hard burning naturally breaks up the salts and causes them to be absorbed in the clay by chemical union, and we need fear no whitewash from vitrified bricks. The use of coal lower in sulphur will generally contribute towards the elimination of whitewash arising during burning, as well as the practice of setting the bricks in the kiln perfectly dry. The use of barium compound in this connection in the mixture of the better grade products is too well known to need further description.

It might be well in conclusion to discuss the question of preparing clays from the ideal standpoint. On comparing the chemical composition of our clays with the composition of granites, we find that they are strikingly alike, and it is an actual fact that we can convert our clays into igneous rocks by sufficient heat treatment. But we can do better than this. We know that granites possess a crystalline structure which does not give them their greatest possible strength. Hence, in producing a new, almost indestructible material in the shape of our bricks, it is important to make the clays as homogeneous as possible. We must destroy the original clay structure and create a more uniform one in its place. Therefore, our material should be disintegrated and pugged thoroughly. Especially the latter process should be watched closely, as there is yet a great deal of room for improvement. If we observe the pugging as carried on in many yards we are not surprised to see the product succumb to frost. The clay is forced through the machine so rapidly that only part of it is really softened, while a portion remains hard until it goes into the dryer. Again, so little attention is paid to the adjustment and proper repair of augers and molds that lamination and other defects occur with great frequency. It is hence not surprising that lamination and other structural defects occur which tend to weaken the product.

The most durable building material known is burnt clay, but in order to bring out its best qualities and in order to assert its superiority over concrete, our clay products must be made as well as it is possible for us to make them. If this is done we need not fear competition with other structural materials.

**DO NOT USE MACHINERY OR MERCHANDISE AFTER
NOTIFYING SELLER THAT SAME WAS
NOT ACCEPTABLE.**

The Court of Civil Appeals of Texas has just handed down a decision in the case of Edwards vs. Woolridge which should act as a warning to those who are inclined to make use of machinery purchased, and found unsatisfactory on arrival, pending the settlement of the matter with seller. Some sellers are glad to have the buyer go ahead and will remedy any faults, even after notified that the machine or material is held subject to their order, but others will take advantage of the fact that the buyer has made use of it, as was the case in the instance under consideration by this court. The sale was of three safes, and in spite of the fact that their defects were apparent the buyer continued to use them pending settlement, after notifying the seller that they were not acceptable. The judge said: "A seller is entitled to recover for the goods sold, though the buyer notified him that he would not accept the goods on account of defects therein, if he nevertheless accepted them and used them in his business."

A RENAISSANCE IN BRICKWORK.

How the Modern Product of the Kiln Is Recovering from the Blight of Perfection—Lessons to be Learned from the Ancient Brickworkers.

[Reproduced from THE CRAFTSMAN of August, 1909]

JUST NOW in America we are at the beginning of a period not only of extraordinary activity in all the creative arts, but also of a renaissance in industrial art conditions. In common with other nations, but to a greater degree, this country has been suffering from that "blight of perfection" which had birth in the Victorian era and which spread for over a generation through all phases of existence, not only in England but in America. This blight was particularly serious throughout the artistic world, preventing individual expression of beauty all along the lines of the fine and industrial arts. And, because of our progress in science in America, and hence greater productivity of machinery, the blight increased until art achievement in every direction was positively paralyzed. Our pictures and our sculpture became the slickest (to use a good old Yankee word), most highly polished exhibition of trivial imitation: our houses inside and out were over-finished and overfurnished, and without personal interest; our clothes were all an overfine imitation of something which we thought better; our woods were varnished and veneered out of all beauty and naturalness: our brick were painted or hidden under smooth cement, and so on through every last ramification of our artificial, highly polished, disingenuous civilization.

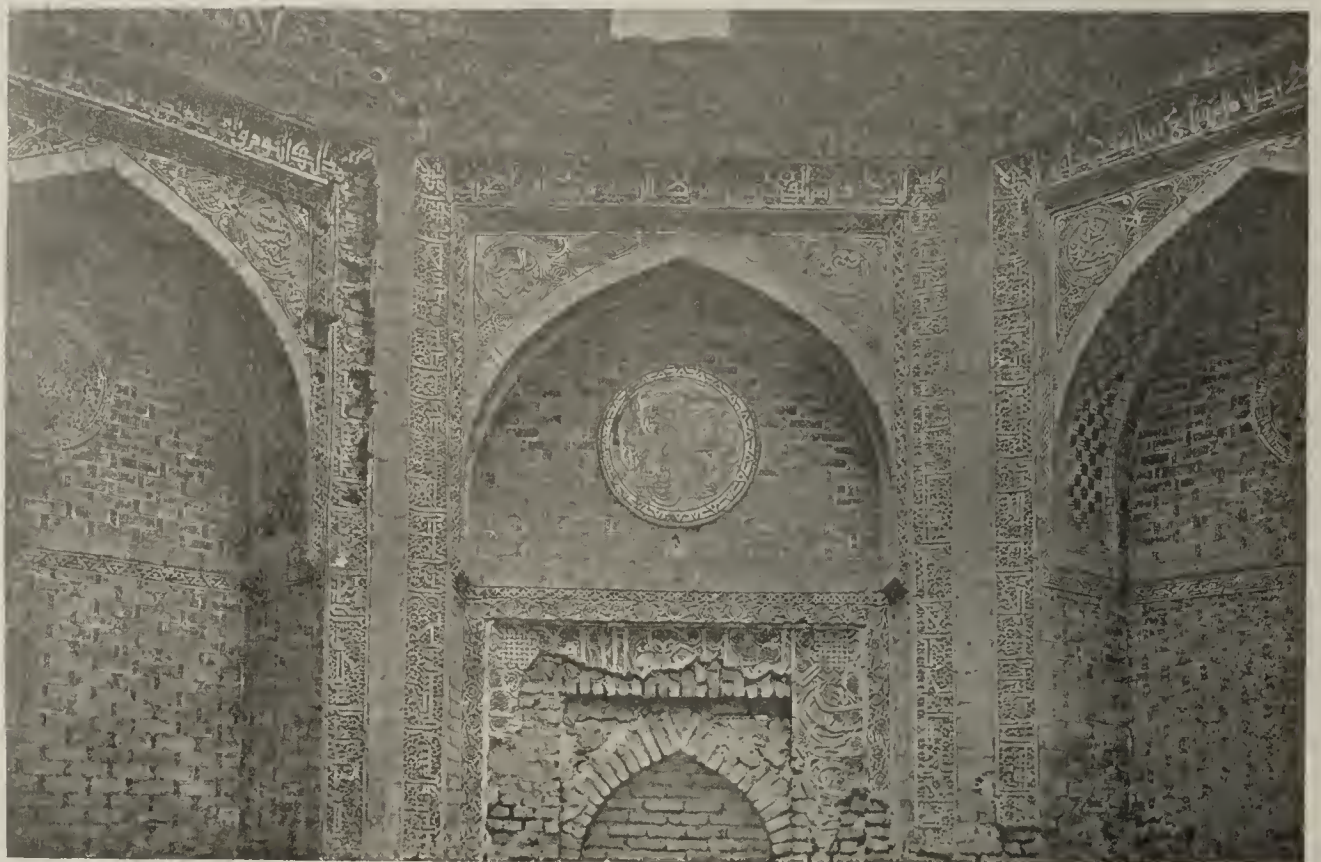
Now, at last, we are reacting from this. In common with other nations, we are discovering that we have been in the grip of a strange aberration, worshipping false and foolish gods; that there is no such thing as a perfection of beauty; that in truth there is only ever-increasing beauty, as there is an ever-fresh, varying expression of individual understanding of art.

Who of us shall dare to say that the Greek temple was the perfection of architectural art, when it was followed by such achievement as the Gothic cathedral and the Norman castle; or that there could be no new age in sculpture after Phidias, with Meunier and Rodin and Sinding to follow? And in painting should we refuse Twachtman a hearing because of Constable and Corot? In truth, the life of art and its varying expressions depend only upon the extent to which the people of a nation have opened their minds to the inevitable inspiration of their surroundings, and have added to understanding the trained eye and the technical hand.

What we have been calling perfection, then, through these last few decades, was merely a degradation of the imagination, a blindness of the eyes, and a forgetting that individuality was the very cornerstone of art achievement. But today again that quality known as texture, which expresses the varying individuality and interest of the creator, which has

been always in the past vital to beauty, is becoming a final standard in industrial achievement. And so when we speak of the renaissance in brickwork, we mean that here in America, at least, we are again considering brickwork as an art, and brick as a material with which to emphasize those pleasant sensations of color, line and proportion known as artistic effects; and we are ceasing to think of it as an uninteresting product of clay, a sort of artificial stone, to be used where the builder could not afford granite or marble or some other real material, a dull, commonplace, poor relation, to be thought of only as a substitute, not in itself desirable where impressiveness and beauty were being sought.

Now, back in the Victorian period some such careless definition of brick and its uses might have been accepted without comment, and yet even then had any of us stopped to review the actual history of it as it can be read in museums, in ruins and in Oriental and continental architecture, we would have realized the possibilities of brick, for in those early days builders knew its value, and used it nobly and lastingly. Possibly it has been a study of those conditions which has brought about this renaissance of brickwork, and which has inspired our manufacturers to create a new enterprise and to develop a modern brick which should rank as a culmination of the his-



Oriental Method of Inserting Glazed Tiles Into Brickwork as Shown in the Interior Kaschaner Gate, Kum, Persia.—Courtesy of The Craftsman.

tory which begins back in some of the most noble architecture of Egypt.

It is impossible to say when the making of clay into bricks was first practiced, but that it is a most ancient industry is established by a sun-baked brick in the British Museum bearing the stamp of Rameses II of Egypt, which carries it back to 1330, B. C. All through the Orient, as also in Rome, it was the custom to stamp the bricks with the name of the emperor in whose reign they were made, and this has been an invaluable aid in tracing the dates of buildings and of foreign occupations in various parts of the old world. This particular brick is built of Nile mud, which is of clay-like consistency, but has so little tenacity that it has to be mixed with chopped straw to hold it together. It is this sort of brick that the Children of Israel were engaged in making during captivity. In Exodus we read that Pharaoh, angry that the Israelites still continued to meet together for the purpose of worshipping their God, gave them no straw with which to mix the clay. The necessity of this ingredient has made classic the wail of the Children of Israel: "We can not make bricks without straw." Today, outside of Cairo, they still make them in the same old way, pressing the mud and

straw, spaded together, into wooden molds and turning them out, like mud pies, to bake in the sun.

When this so-called baking was left to the sun's heat, it was a slow process, even in the hottest countries; and in some parts of Greece, where the climate, although of an even and warm temperature, was not tropical, the bricks were exposed five years before using. It was really only a matter of drying, for the low and varying temperature wrought no chemical change in the material of the brick; of great resistance, they were not impervious to water, and in color they remained the dull gray of the natural mud.

Traces of ancient civilizations everywhere show us that this type of brick was the material of most general utility, to be found in every variety of construction. Yet, as with everything so essential to life that it must lend itself to simple and common uses, as well as to loftier purposes, there was a tendency to speak heedlessly of brick. In Genesis, for example, it is ironically written concerning the building of the Tower of Babel: "They had brick for stone, and slime for mortar." Perhaps this scornful attitude was partly due to the fact that the bricks were dull and drab and uninteresting, for when the custom of burning them by fire, to accelerate the drying, was introduced and the clay took on definite colors because of the chemical action of the intense

brick had received too much handling, which rubbed the edges and dulled the corners; if bricks were supposed to be rectangular, why was not a machine invented that would make them so, and it was, and did, turning them out uniform in size and shape, edges sharp, and the corners square. Then came the matter of color. This, too, must be as unvarying as possible.

Our aim in a brick wall at that time was something that should be as smooth as marble. To get this the bricklayer, after he had placed eight or ten rows with narrow joints of fine mortar, took a softer piece of brick and scoured them over. All the little irregularities in the surface of the wall were filled with the soft red clay from the scouring brick, and a smooth face, uniformly red, was given to the wall. Then if joints were to be indicated, they were drawn on in black or white paint with mathematical accuracy, as one would mark off squares on a blackboard. Later, when the process of making the brick by machinery was further "perfected," a hydraulically dry-pressed product was put on the market that was so fine and regular that the scouring treatment was not necessary. These bricks were laid close together and joined with mortar colored to match. The result resembled nothing so much as a sheet of tin painted red; every inch was exactly like every other inch. In looking at

it the eyesight went sprawling over the surface like a dog on slippery ice.

Of course, this demand for uniformity in brick necessitated a nicety of discrimination in sorting them after they were burned. For bricks do not come out of a kiln all of the same color, because they are not all subjected to the same degree of heat, nor can anyone be sure that the material from which they are made maintains in all parts the same proportion between its different ingredients. Kilns of that day were generally built in arches, under which the fuel, wood or peat, was placed. Naturally, the bricks nearest the fire received the most heat, and some of them in the top of the arch came out nearly black. In the process of sorting, all those of unblemished surface and uniform size, shape and color were placed together for face brick, that is, to be used on the outside of walls. The inferior kinds were also graded into separate piles, and even the broken and blemished bricks were saved as the filling for the walls. But those which had burned to strange rich violets and blues, and dull, deep purples, were

thrown into the dump and used to fill up discarded clay pits in the brickyard.

From this ignominy the late Stanford White rescued them, and with material that cost him little or nothing he began to do wonderfully artistic chimneypieces and decorative exterior brickwork. After he had been rifling brickyard dumps for some time, manufacturers began to save these outcasts of the kiln, and the interest of the effects which they saw produced, led them to experiment and to study the brickwork of the ancients, the beauty of which had been attributed to remote and lost processes.

To anyone studying brick architecture, it will be no small interest to follow something of the history of brickmaking as shown in our illustrations. One of the most picturesque of the pictures reproduced is from a specimen of the peculiarly brilliant brick architecture that sprang up in Persia shortly after the time of Christ; the Kaschaner Gate at Kum. Here the bricks are used as a matrix in which to set highly glazed tiles. These frame the arches, run in a frieze around the top, and are set in large medallions at the back of each arch, while the bricks in the field of the wall are alternated at the heads with



An Example of Modern Tapestry Brick, Showing Interesting Texture and Use of Wide Joint—Courtesy of The Craftsman.

heat to which it was subjected, a new architecture sprang up adapted to the use of this brick. It is not strange that the old Romans, who were such indefatigable builders, should have been the nation to bring the making of brick to that degree of excellence which was maintained through the renaissance and until the Victorian era. Up to the Victorian period the bricks were all hand-made, and brickwork all over the world showed certain characteristics in common. The surfaces of the bricks were porous, there was no attempt at uniformity in size, shape or color, and they were bonded together with coarse mortar and wide joints.

As already said, with the Victorian era came the mastery of machines, and with it vanished all the artistic beauty that the inconstant, uncalculating inspiration of the human mind gives to the products of the hands. Civilization became ridden by a passion for mechanical accuracy. It was during this period that the second-hand stores were flooded with soft-finished, substantial old mahogany, and parlors were furnished with parlor sets whose surfaces would have made excellent substitutes for mirrors.

Nothing could escape infection from this mania for accuracy, nor did brick. We came to feel that the old, molded

small hour-glass shaped tiles. The result is a marvelous play of color which, with the contrast of contours in arch and rectangle, and the circular tile that furnishes the center of interest, give to the whole the artistic relation and composition of a picture. The walls suggest wonderful pieces of tapestry. Even the small tiles between the bricks have their surfaces varied with a disc of another color; the surface of the brick is just porous enough to give a sensation of depth to the eye, and the contrast with the smoother surfaces of the tile makes an effect as soft and interesting as a weave.

Of a later date is an example showing the brickwork that was done in northern Italy; the doorway of the Church of St. Peter and St. Paul, one of the seven churches that make up St. Stephano in Bologna. Here we have an exhibition of pattern work; the bricks are set in every conceivable fashion, even with the angle of the head turned out—which makes them resemble a beading. The tiles inlaid are smooth and unglazed, in white or dull colors that blend with the red-brown bricks in the field of the wall, and again, we notice the beautiful effect made by the contrasting textures of the brick and tile. Below the border, the bricks are placed far apart and are of decidedly coarse grain—a quality which, a few years ago, we should have considered made a rough and common type of work. But turning to the detail from the old house at Nunupton, Shropshire, mentally rebuild it with smooth-faced bricks. What would have become of the interest in that strong, kindly old face, seamy and weatherbeaten as a sailor's, that looks out from between the vines? What changes would occur in the uneven, staunch old chimneys, with the little dormer, like a dove-cote, nestling under their warm protection? Neither red-tiled roof nor the gables nor dormers could save it, nor the vines, nor the old gate.

And so artistic brickmakers of today, looking back across the field of time, are asking why these old walls are so full of beauty, and what principles underlie the beautiful brick architecture of bygone periods. The answer in reply to these questions is given in the small era of modern brickwork, shown under the example of the Persian, that indicates what, so far, is the high-water mark in brickmaking. The material of this brick is shale, a rock comprised of clay and sand, capable of being burned to a higher degree of hardness than any material known, thus more durable than a clay brick. This shale is ground and moistened and fed into the pugmill, where, between revolving rollers, it is thoroughly cleared of lumps. It is then formed through a wire screen down an ever-narrowing passage, and finally comes out from one side of the mill a continuous bulk upon an endless platform. At the entrance to

this platform are four wires which trim the mass into a rectangular shape as it emerges, and as it is borne along, another wire attached to a revolving wheel cuts it into bricks. By this process of cutting, the irregular grains of shale that are removed by the wire leave the surface slightly porous. The bricks are then dried, and when placed in the kiln are of a dull, uninteresting gray; they come out from the burning in the wonderful soft colors of Oriental rugs and tapestries, showing every gradation possible in the spectrum. The colors are dependent chiefly upon the position of the kiln, that is, the degree and direction of the heat reaching them, and the consequent chemical changes in the material of the brick. For



Example of Mediæval Brickwork, Showing Decorative Possibilities, in the Doorway of the Church of St. Peter and St. Paul, Bologna, Italy.—Courtesy of The Craftsman.

example, the presence of iron gives red, which deepens with the degree of burning, while if there is a quantity of lime in the shale, the red is lightened, sometimes to a deep cream; bricks made of identical material placed at the bottom of the kiln will come forth a soft, ox-blood, and from the top, when they are said to be "broiled," a rich purple, shading through red violet to ox-blood at the center. Each brick is beautiful as a piece of color, but not until they are blended in a wall or a dwelling are the possibilities for artistic effects fully realized.

The makers of these bricks have wisely argued that when a

second substance as valuable as mortar is in the construction of a brick wall, it should be given a correspondingly prominent part in the visible result. Thus the width of the mortar joint is calculated in proportion to the size of the brick used, and is also of a rough and porous surface. The two substances are used like the threads of a fabric, and are interwoven with reference to a general color scheme. When the process is completed we have the soft-toned textural effects, varied and yet restful to the eye, which we find in the ancient brickwork of the old world. These colors grow more beautiful with age, as the bricks take on what is technically known as "bloom"—a

bonded with wide joints; the cornice, quoins and belt course are of mottled blue, with here and there a touch of dull orange at the angles of the bays. One looks into the walls, not at them, and, seen from any angle, their surfaces, because of the interest in them, make a unified whole. Standing in front of the house and looking up, the eye travels slowly and regularly over the shadowy field of the wall; this gives a consciousness of the height, and time to notice the color and the artistic variations. There is no possibility of a quick sweep of the eye that, gliding and sliding over a slippery surface, stops at nothing but the blemishes of loose mortar and cracked brick, which show up unmercifully on the painted-tin type of brickwork. The proportions of the bays, the attractive chimneys, the placing of the windows are of great beauty, architecturally; but the texture of the walls adds the final luxury of interest, and raises the building from an attractive piece of design into a unified work of art.

More and more, people are coming to believe that the beauty of a house should lie in the structural features and the material from which it is made. Some of the most beautiful brick buildings owe their decorative interest solely to the varying arrangement of the bricks; the proportion of headers, that is, bricks laid with the narrow end out, to the stretchers, those laid lengthwise. A well-known Washington architect, by so adjusting the bricks that the joints came directly above one another, introduced into a design some decorative line work in mortar about the doors and windows. And now that such wonderful colors have been got from skillful burning, a new possibility in beauty has been added. One very interesting wall has been made with headers of soft, deep brown, alternating with stretchers of a lighter and variegated yellow-brown. In this case the bricks were of the type most used by the old Romans—about 18 inches long by 2½ wide. Courses of pattern work and inserts of tiles are consistent additions to the beauty of the walls. The Lotos Club building, on West Fifty-seventh street, and Dr. Parkhurst's Church, on Madison avenue, in New York City, are excellent examples of this latter type of brickwork. In the former the yellow bricks are alternated with those bearing a lotos bud in white. Although ancient brickmakers frequently chiseled patterns upon the brick, no attempt was made to bake a colored design upon the clay, and another point in which we have surpassed the old craftsmen is the method in which we are handling our tiles. It will be noticed in the illustration of the Persian Gate that some of the tiles are peeling from the wall. This is because they are set in stucco, and not, as is now done, bonded into the walls with mortar, like the bricks themselves.

One of the most historically interesting examples of structural decoration is found in modern Greek brickwork, where laths are often sunk into the walls. This custom comes down through generations from the primitive people who, before bricks came into being, built palisades from logs laid cross-



Interesting Use of Brick Shown in the Detail of an Old House at Nonington, Shropshire, England.—Courtesy of The Craftsman.

light fungus growth that adheres to rough surfaces—a beauty that the smooth-faced, pressed brick never attains to any degree. Frequently the bricks are set forward from out the joints, and often deep indentations are made in the mortar, while it is soft, with a blunt tool; all these added shadows aid in giving perspective to the wall, so that it preserves the effect of softness and depth, even from a distance.

A house in Kenilworth, England, shown in one of the illustrations, is a good example of this modern brickwork in varying colors. The field of the walls is of soft red and old blue

wise, the spaces between being filled with sand or clay. When sun-dried bricks came into use, the walls built were modified forms of this old construction, and the ruined walls of Athens show that they were bonded together by logs of olive laid longitudinally and transversely through the core. There are increasingly frequent calls for bricks that may be used as are the exposed rafters and purlins of a wooden building; much as the old Greeks in their stone temples still kept the structural effects of the earlier wooden places of worship.

This growing interest in the use of brick has led artistic manufacturers into elaborate experimentation. There is, apparently, little in architecture and architectural ornament that can not be built from brick, and with success. Indeed, anything that has been chiseled out of stone, carved out of wood, molded out of clay, or even woven out of threads, seems at this moment to lie within the field of brickwork.

A utensil or a material is always beautiful, if it is fitted for the purpose that it serves. A material in which was latent

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND THE NORTH-WEST.



BUILDING SEASON of 1909 has been an exceptionally good one to date, and the prospects now are for a still better one, relatively, for fall. The crop has been harvested and it seems to be without question one of the best harvested in recent years, both in point of volume and of grade. Owing to the general exhaustion of stocks throughout the world, the price ruling is well above the average price, in spite of the heavier yield. The result of this will be a better volume of business for all concerned, since the producer of grain makes or mars the general business in the northwest. All classes of business prosper in turn, as the season is good or poor with

business for all concerned, since the producer of grain makes or mars the general business in the northwest. All classes of business prosper in turn, as the season is good or poor with



A Modern Brick House at Kenilworth, England. H. M. Fletcher, Architect.—Courtesy of The Craftsman.

the fitness for serving so many purposes had also latent in it beauty of many varieties, which only service could unfold. Stunted into a substitute for stone, brick was a flat failure; brick exploited for itself is a growing organism of service and beauty, for progress in every field lies in developing the highest utility in the thing at hand as much as in new discovery.

AN IMPORTANT STEP FOR PREVENTION OF FLOODS.

Even the forestry experts are now taking cognizance of the fact that the future prevention of floods and of waste of soil through erosion depends partly on controlling the head waters of streams with reservoirs. To which we might add that quite a large part of the control depends on this, and the sooner all recognize it and take steps toward carrying out the work embracing this idea, the sooner we will get in some sort of hand these floods and erosions incident to cleared ground and heavy rainfall.

the farmers. That the farmers will have an exceptional quantity of grain and at good prices is assured, and this will mean a greater amount of money in the northwest than ever. The country banks are better supplied with money now than they have ever been at this date—so well supplied that they have not had to draw upon the city banks for currency to move the crop up to the first of September, but have been able to meet the demands for funds from their own deposits. The deposits for fall will probably be the heaviest ever made. And the prospects for an unusually good volume of business in building lines this fall, winter and the succeeding spring were never better. Brick manufacturers and brick dealers have the opportunity of years to push the good points of their goods during the fall and winter. A campaign of judicious advertising, pointing out the enduring and substantial qualities of brick construction, and indicating ways of avoiding some of the complaints made against brick construction, will doubtless result in a great deal of extra business.

The Twin Cities are enjoying an extra rush of building.

There are more large buildings under way and approaching completion than for several years. And there are also a great many new buildings which may be taken up this fall, but which are projected and may fairly be counted upon by another season. What is especially encouraging to the brick and clayworking trade is the fact that many of the structures are taking up more pressed and ornamental brick and terra cotta, as well as enameled brick for the facing walls, even though the craze for concrete interior work is followed. There is a better demand for tiling for fireproof work, and it could be made still better by consistent pushing.

It is somewhat unfortunate for the demand for white enameled brick work that it has been taken to so freely by the saloon element for fronts. There are so many white enameled brick saloon fronts in the Twin Cities that many would hesitate to put up such a front for a single store, because it would resemble a saloon. Except for a few good-sized office buildings, nearly all the white enameled brick fronts are saloons in the downtown district.

St. Paul building permits for August showed a handsome gain over August of 1908—over 100 per cent.—the figures being \$1,222,056 for this August, against \$596,214 for August of 1908.

George Pass, a well-known architect at Mankato, Minn., who has done considerable work through the northwest, has admitted his son, George Pass, Jr., to partnership, the new style being George Pass & Son.

Minneapolis parties have recently secured control of the brick plant at Morton, Minn., of the Morton Brick and Tile Company, and propose to make extensive improvements to the plant. There will be three new down-draft kilns constructed and a steam dryer installed. Joseph Wild is in charge of the plant.

The Zumbrota Clay Manufacturing Company, at Zumbrota, Minn., in Goodhue county, has recently made some extensive improvements to their plant for making drain tile, hollow tile, fireproof work, etc. The Northern Brick and Tile Company, of St. Paul, has been named as selling agent.

An indication of the feeling with reference to concrete work is to be seen in the care which is being given to the subject in the preparation of the new building code which is being formulated for Minneapolis. The Building Inspector of Minneapolis has been studying the subject for a long time, and while the new code as proposed does not involve as much as clayworkers feel assured the untried position of reinforced concrete deserves, there is no doubt that the requirements will be considerably stronger than would have been the case a year or so ago, before the numerous failures in that form of construction.

Where Bricks are Flying.

The city of Minneapolis has recently awarded the contract for the erection of a brick and cut stone veterinary hospital building, to be erected at Twenty-first avenue, South, and Franklin avenue.

The H. N. Leighton Company, of Minneapolis, has been awarded the general contract for the erection of a fraternity building in the State University district of Minneapolis, for the Alpha Sig fraternity. The building will be two and one-half stories and 46x53 feet in size, costing \$12,000. A. L. Garlough, of St. Paul, is the architect.

J. L. Robinson, of Minneapolis, received the general contract for a five-story brick addition to the wholesale implement warehouse of the Minnesota Moline Plow Company, in Minneapolis. It will be 80x100 feet in size, brick construction, and mill construction interior work. Cost, \$70,000. Long, Lamoreaux & Long are the architects for the work.

J. L. Woods, of Seattle, has arranged with Charles Strauss, of St. Paul, for the erection of a brick dance hall building in Minneapolis, at Fourth avenue, South, and Fifth street. The building will be but one story, costing \$30,000.

Evenson & Madsen received the general contract for the

erection of the new brick church for the Bloomington Avenue M. E. congregation, of Minneapolis, at Sixteenth avenue, South, and Thirty-first street. Cost, \$17,000.

S. E. Hays, of Minneapolis, is about to erect a row of brick stores at 1018-1020 Nicollet avenue, 45x90, pressed brick with terra cotta construction. Cost, \$35,000. Bertrand & Chamberlain are the architects.

C. F. Haglin, of Minneapolis, received the general contract for a four-story addition to the Security Bank building, in Minneapolis, to be 27x140 feet in size, of white enameled brick exterior walls. Cost, \$40,000.

Wyman, Partridge & Co., wholesale dry goods, Minneapolis, are having plans prepared by Kees & Colburn, Minneapolis architects, for an extensive addition to their main building. It will be 66x165 feet in size, seven stories, pressed brick and terra cotta walls, and fireproof construction throughout. Cost, \$150,000.

The Lowry Apartment Company, of Minneapolis, has had plans prepared for a handsome family hotel and apartment building to be erected at Twenty-fifth street and Hennepin avenue. It is to be eight stories and basement, 90x176 feet in size, glazed brick and terra cotta walls, porous tile partitions, and elaborate interior equipments throughout. Cost, \$500,000.

H. E. Earle will erect a two-story and basement glazed brick building in Minneapolis at Second avenue, South, near Fifth street. Cost, \$25,000.

McDonald Bros. Co., wholesale crockery, Minneapolis, are having plans prepared for a handsome addition to their warehouse. It is to be eight stories and basement, 66x165 feet in size, and red brick walls with brownstone trimmings. Cost, \$60,000.

V. E. Segerstrom has awarded the contract for a handsome residence, to be of brick and tile construction, to A. J. Benson. It will be located at 2101 Kenwood boulevard, Minneapolis. Cost, \$10,000. Lindstrom & Almars, architects.

Alban & Fisher, architects, of St. Paul, have prepared plans for a handsome church for the Catholic congregation of Cloquet, Minn. It will be of brick and cut stone construction, 66x157 feet in size, costing \$35,000.

Kinney & Halden, architects, of Minneapolis, have prepared plans for a Carnegie library building to be erected at the iron mining town of Coleraine, Minn. It will be one story, pressed brick construction, cut stone trimmings, and 56x50 feet in size.

F. E. Ferris, of St. Paul, will erect a bachelors' apartment house on Wabasha street, near Summit avenue, St. Paul. It is to be 35x110 feet in size, three stories and basement, pressed brick construction, with cut stone for trimmings. Cost, \$25,000.

Ingemann Bros., of St. Paul, were awarded the general contract for the erection of the new Cleveland school building in St. Paul, at their bid of \$111,480.

The P. M. Hennessy Construction Company, of St. Paul, was awarded the general contract for erecting the exterior walls of the superstructure of the handsome new Roman Catholic cathedral building in St. Paul. The exterior walls will be of stone, but a great deal of brick work is included in the structure. Their bid for the work, the diocese furnishing the stone, was \$177,000.

T. WIN.

NEW YORK'S TENEMENTS.

The tenement house inspectors of New York report 102,897 tenements in the greater city, of which 69,958 are subject to structural instruction under the law. The enforcement of the law shows that only 101,117 dark rooms are left in New York, as compared with 350,000 when the law went into effect. Orders have been issued against 22,892 dark rooms, and 421 have been removed by the demolition of the buildings. This leaves only 77,604 to be removed.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



BUILDING operations in Kansas City for the past month have been greater than a year ago, but still it is said by material men that they have been greatly hampered, both by the lack of skilled workmen and by the lack of teams with which to haul the material. Teams have been at a premium all the time this summer, and it seems impossible to find enough teams here to do the work. It would seem to be a particularly good time for people to come in from the surrounding country who have good teams, and it is said that no skilled mechanic can come to Kansas City at the present time and be out of work, if he wants to work, as there are positions open all the time.

The corn crop has been hurt badly in this territory by the continued drought, but still there is going to be a better crop than last year. The prospect up to the first of August was for a record-breaking crop, but now there will be no records broken. This will probably cut down building operations a little in the surrounding cities, but still mechanics in the building lines are reported to be busy all the time. Here in Kansas City there is plenty of work already mapped out, and most of it is now under contract, to keep the building trades busy not only for the rest of this year, but throughout the entire winter.

According to the building permits, the buildings begun in the month of August had a value of \$1,136,000, or \$182,605 more than for the same month of last year.

Receipts of brick continue to hold up well, and there is no prospect of any higher prices unless there is a shortage of gas in the Kansas gas fields this winter, which will cause the companies to cut off the supply from the brick plants. In that case it is likely that brick will be some higher, but that is not likely to happen until well along in the winter. Just at this time the brick are arriving as fast as they can possibly be handled by the receiving companies, owing to the fact that teams are so scarce.

Word comes to this city that the Yoke Vitrified Brick Company, of Coffeyville, Kans., has filed a petition in bankruptcy and asked for the appointment of a receiver. The company has been operating there for several years, and is backed largely by eastern capital. The liabilities are estimated at \$150,000 and the assets are fixed at \$95,000, consisting of the plant and oil leases.

The North Mound Valley Brick Company has begun operations in Mound Valley, Kans., having succeeded to the plant which was already established there. The officers of the new company are: George B. Dickinson, superintendent; George Stidman, treasurer, and L. Wade, secretary.

The Eadie Building Supply Company reports that it is crowded with orders all the time, and has been compelled to turn down business offered from contractors in the city on account of the scarcity of teams for making delivery. They are hiring every available team, and deliveries are large, but more business could be done every day if teams were at command.

The various sand companies in the city are making the same complaint. They are using the railroads to get the sand to closest possible points, but are still compelled to depend upon teams to do a great deal of the hauling.

Some have bought teams of their own and put them on the job to help in making delivery, but buying teams at this time means a big investment, as horses, mules, wagons, harness and feed are all higher than they have been in years, and it looks like an expensive thing to companies engaged in other lines of business, who have been accustomed to hiring their hauling done.

Cement is still selling here at 80 cents per barrel, and some of the cement companies who are not able to produce

at a minimum of cost, are beginning to feel the effect of the war. There seems to be little in the way of stimulation of business on account of the low price of cement, and contractors are of the opinion that when the war is over the regular established price of cement will not be more than about a dollar, as it is believed that the cement companies already established will prefer to make a reasonable profit to an exceptionally fine one, which will encourage so many new companies being established.

One cement man recently remarked that some of the promoters of cement plants ought to be shut out of the mails, under a fraud order, for the reason that they are taking money from people under false pretenses, still holding out to the public that cement is worth \$1.50 per barrel, when it is only worth about 45 to 50 cents at the plant, according to location of the plant, and there is no prospect of its ever being worth \$1.50 again.

The Lytle Brick Company fears that it will be forced to shut down, owing to the fact that it can not get teams to haul the brick away fast enough to empty the kilns.

The Pittsburg Brick Company is reporting the new hollow brick machine now in operation in its plant in Pittsburg, Kans. This company has just received an order from the Metropolitan Construction Company for 300,000 paving blocks for use in the streets of Memphis, Tenn., and they are, at the present time, filling an order for the same company which is being used in the streets of Wichita, Kans.

The Hydraulic Pressed Brick Company has added some thirty teams to its force, and is doing its own delivering, thus keeping delivery right up with the production. Some of the outside contracts recently booked by this company are 50,000 face brick for a school in Breckenridge, Mo., and a similar order for a school in Higginsville, Mo., and in each instance the order will be filled with their Diamond Continental pavers; 40,000 gray brick for a church in Independence, Kans.; 60,000 gray brick for the First Christian Church in Springfield, Mo.; the gray and red granite brick for the ten-story Lee hotel in Oklahoma City, Okla., and 30,000 face brick to be used in constructing the court house in Emporia, Kans. K. A. W.

POOR UNDERDRAINS.

If there is anything that has a tendency to start my profanity spontaneously, it is to have to lay a lot of poor tile in a deep and important ditch.

After a man does his level best to do a good job of hard work, it is aggravating to have to run a chance of getting it all spoiled by laying a lot of miserable, mean tile. The farmer will say: "Now if any of these tile are not good, don't lay them," while the fact about the matter is that there are few good tile among them. It is as reasonable to demand that the ditcher should sort the tile as to furnish a carpenter a lot of second-class fence boards to lay a floor in a house and tell him to throw out all the poor boards. I have often wondered why it was that people get so very saving in this one matter of tiling. When a man builds a new house or barn, there is no such narrow limit to everything; good lumber and good material of all kinds are used, a good workman is hired, and after all the necessary things are done, there are a lot of extras put on.

But when it comes to ditching the thing is quite different with many. First, the country is scoured to see what factory will sell the cheapest. If there is only a half a dollar's difference in the price on the thousand between reasonably good and poor tile, the cheapest are preferred and bought. Then he will try to persuade himself and others that the cheapest are really the best. If they are soft, he will say that they will get harder in the ground. If they are cracked or warped, he will say that he prefers them for the reason that the cracks and open joints will let the water in better. Then a great many try to make themselves believe that a shallow-laid tile is better than a deep one. Ditching is the one thing that will help to get the money to build fine houses and barns, while the fine houses and barns will not make the money to do the ditching. Now, why not use the best of the best drain tile, and do the work well in laying drains? The crops will depend upon the efficiency of the drains every year.

F. L. D.



EFFECTS OF DRAINAGE.

To illustrate the effect of drainage on our very wet lands in dry seasons like the past, a correspondent writes: "I have a field of about twenty acres on my farm that has about three-fourths as many tile as I calculated would drain my neighbor's thirty-acre field. I plowed and planted it to corn last spring without interruption from wet weather. Another neighbor has a field that corners with this, about the same size, that has no drainage. I commenced plowing my field about one week in advance of my neighbor. But there came a rain which stopped him when he was about half done breaking his; he had to wait about a week before he could plow again. When he finished planting and replanting, I was cultivating my corn the second time. He had much trouble in the cultivation of his corn; the weeds had got a good start during his periods of rest. When it did quit raining, it seemingly quit for good. His land dried out so quickly and became hard and cracked open and remained so for the remainder of the season of cultivation. When gathering time came he had about twenty bushels of poor corn per acre; my field yielded about forty-five bushels per acre of good corn. These fields are naturally the same, and other conditions are much the same except the tile draining."

Here is a loss of twenty-five bushels per acre of corn in quantity and almost as much in quality, aggregating a loss of fully \$15.00 per acre in one season, or loss sufficient to tile-drain his field thoroughly. Verily, verily tile-drainage does pay its cost in one or two seasons and proves very satisfactory, in that it is a wealth producer in the years to follow.

DRAINAGE WARMS THE SOIL.

In a late number of the Rural New Yorker, Mr. F. L. Allen writes as follows: "All the phenomena of plant growth are dependent upon certain degrees of heat. Seeds do not germinate readily in a cold soil and the growth of the plant is retarded. The seed germinate quickly and the growth is nearly always more rapid and vigorous in a warm soil—up to 90 or 100 degrees."

All the forces that make plant food available are more active in a warm soil than in a cold one. It is said that the nitrification is ten times more rapid at 99 degrees than at 57 degrees. Chemical activities are much more intense at high temperatures than at low, and the solvent power of water is greater the higher the temperature. Gisborne says:

"The evaporation of one pound of water will lower the temperature of 100 pounds of soil 10 degrees. That is to say that if to 100 pounds of soil, holding only the water of attraction, capillary water, but containing no drainage water, be added one pound of water which has no means of discharging except by evaporation, it will, by the time it is so discharged, be 10 degrees colder than it would have been if it had had the power to discharge this one pound by filtration."

Our crops require much heat and energy; there is none to waste in the evaporation of surplus water. Everybody knows how a warm rain in the spring warms the soil. This is much more efficacious in a drained soil. I have frequently gone to the outlets of my tile drains with a thermometer

when it was raining and the drains flowing in the spring and found the water discharged from the drains from 20 to 26 degrees colder than that which fell upon the field. This shows to what extent the soil was absorbing the heat from the rainwater and cooling the drainage water. As a matter of fact, a well-drained soil has been found to be from 10 to 12 degrees warmer throughout the season than a similar soil not drained. This exerts a large influence on crop growth. We are apt to think of drainage as merely a means of getting rid of the surplus water. But the more we study the problem the more we are inclined to think the aeration of the soil which we secure of the greatest importance.

King says: "Air in the soil in which crops are to be grown is as essential to the life of the crop as air in the stable is to the life of our animals. Oxygen seems to be the vital principle in nearly all of those chemical changes in the soil by which plant food is made available."

Under or tile drainage aerates the soil in several ways. As the water percolates through a drained soil and lowers the water table, it does not create a vacuum. A volume of air equal to the water is drawn into the soil. Again, when another rain falls on the surface and a sheet of water is formed, the water presses down upon the soil air, with the tendency to force it out through the drains, and the water in passing down through the soil draws another volume of air into the soil, so that every shower helps to change the air in the soil.

The drains themselves serve as ventilating flues by means of which the air circulates through the soil more or less because of the changes of temperature and barometric pressure.

In a drained soil plant roots penetrate much deeper. Worms and other insects burrow much deeper. The worm holes and tiny root channels permit a more perfect aeration and oxidation of the soil. Down as deep as it has been drained it becomes a fit home and feeding ground for the roots of our growing crops.

EXPERIENCE IN LAND DRAINAGE.

Many years ago, when the writer was a boy, the early settlers of this state (Indiana) had the herculean task of opening their farms in heavy timber lands. Much of the land level, even swampy in some localities, and wet draws in almost every field after the timber was cut away, was a common condition that the pioneer farmer had to contend with in farming his land. The wet draws served for the surface drainage of the land, but a great hindrance in bringing the land into cultivation. They were too wet to plow when the higher land was in good condition. Besides, they were so wet that the corn after planting would be drowned out.

One of the first, if not the first remedy to be applied, was to cut open ditches along the draws; and it was a great help, the water would run off quickly through the ditches, but the open drains were in the way in plowing and cultivating the crops.

But later the most progressive farmers put these open ditches under ground by constructing timber drains and covering them with the earth taken from the digging of the drains. I remember quite well that farmers were overjoyed with the fact that they could then plow their fields without hindrance from open drains or wet places.

It soon followed that the work of drainage by the use of timber drains was the common practice. Timber was abundant and such a thing as drain tile was unheard of by the common pioneer farmer. But they were greatly pleased at the results in the use of timber ditches. They could plow their lands earlier in the season and were easily cultivated, barring the few roots that remained for two or three years; but the best of all was the fine growth of corn and other

crops on what had been their wet land. Few of the timber ditches were laid deeper than 18 to 24 inches.

Very few farmers thought of such a thing as extending the work of drainage beyond the draws or wet places. Where there was wide stretches of wet land, not too wet to cultivate when the season was favorable, it was the common practice to do the breaking in small lands and let the dead furrows carry the water away, or, in the breaking for wheat sowing, it was common to bed the surface with narrow lands and clean out the furrows to facilitate the surface drainage. In a few years the more intelligent husbandman learned that the open surface drainage drew heavily upon the soil fertility. The dark muddy water carried away not only the soil fertility brought to the surface by the capillary action of the soil and the applied fertility in the way of manures and the decaying vegetation, but also the humus in

ers and other land owners think that the investment of \$15 or \$20 per acre will pay a satisfactory return in tile-draining land that needs this important improvement of soil conditions, though the land may have a selling value of from \$60 to \$100 per acre, and may be fitted by thorough underdrainage to quite double its present crop production. As to cheap land, it is the common verdict that it will not pay to expend so much money in trying to improve the soil conditions by thorough underdrainage. It is true, however, that the history of land drainage attests the fact that cheap lands, \$5 and \$10 lands, have been reclaimed by underdrainage that now have a selling value of \$100 or more per acre, and, further, it is true that there are thousands of acres that are at present practically worthless for agricultural uses that may be reclaimed by drainage with a like result as to the increase of values.

But what we would impress upon the minds of those who



Brick Exhibit of the Cleveland Builders' Supply Company, Cleveland, Ohio.

the soil, the latter so important in the future cultivation of the land. Coming face to face with the fact that the waste of fertility from surface washing of the land was so considerable that it was needful to guard against it, there followed the use of drain tile and a general widening of the work of underdrainage. While it is true that much has been done in advancing the interest and practice of underdrainage, and a steady growth of interest in "what tile drainage does for the soil," and bettering both the quality and quantity of crop productions, it is also true that much needs to be done in broadening the interest and practical work. In the wide extent of territory where tile drainage has been practical and where its benefits are apparent to the owners of land, as well as the public, there is much, very much, to do in the way of extending the work. There is a want of definite information as to the amount, kinds and conditions of soil that ought to be thoroughly tile-drained. Only a few farm-

are disposed to study this subject is, that it will pay to underdrain good, high-priced land that needs underdrainage in order to get the best crop production. Figure an increase of only ten bushels of corn per acre on account of the thorough drainage of the land at a cost of \$20 per acre and we have a big interest, and twenty bushels doubles it, and that, too, with less labor to cultivate and a guarantee of crop production. All in all, the benefits of the underdrainage of good farm lands, followed by good cultivation and good mother's wit management, reasonably assures us a safe return of fully 20 per cent. interest annually on the money invested in tile drainage. The fact remains that many have, and are now realizing, a much larger per cent. annually from work well done, and some from work not so well done as it ought to have been. If our reasoning is well founded, is it not clear that there should be a general widening of drainage practice?

HOW ABOUT THAT BRICK EXHIBIT?

SEVERAL MONTHS AGO THE CLAY-WORKER published some interesting pictures of some displays of pressed brick makers in the offices of a couple of the big Cleveland brick concerns. This month there are presented two more.

With the expenditure of a little time, thought and money a very attractive display can be made in any ordinary office. Any blank wall space can be utilized, taking up very little room. The display need not be more than a foot or even 9 inches out from the wall, and built up to fit any space. Instead of using mortar use strips of wood stained or painted to imitate the real thing.

Customers who drift into the office with some kind of a vague idea as to what they want in the way of brick for

get out of it quick. If you aren't, put your brick up where they can be seen.

The day when brick are kept in satchels or boxes or under the desks or in closets, or in a shed out in the yard, or down cellar or somewhere else, is gone.

Build a brick display. Make one that will speak for itself when you look at it. Make one that will sell brick for you. A brick display is about the finest thing in the way of a salesman that a dealer can have.

Let's have a lot more brick displays in offices.

Get busy.

ENCAUSTIC TILE MANUFACTURING.

In a very interesting article, Mr. H. Eismann describes the newest methods employed for the manufacturing of encaustic tiles. The burning takes place at a temperature of Seger Cone



Exhibit in Office of Edward F. Lantz, Garfield Building, Cleveland, Ohio.

their houses will be able to make up their mind in about one quarter the time when their eyes can rest upon a section of the brick laid up as it would be in the wall.

Mr. Brickmaker, it will save you time.

You can sell brick right in the office, instead of hiring automobiles and taking people out to see houses set up with it.

It will cause the customer to make up his mind in less time and enable you to take the order.

It will brighten up your office and show that you are not ashamed of your goods.

It will be more sanitary and help the char woman who has to maul your bricks around on a table or in the corner when cleaning up.

Don't stuff your brick in a barrel or under a bushel basket, but stock 'em up where everybody can see them.

If you are ashamed of them, get out of the business and

7 to 10. Every kiln is burnt with the assistance of about fifty cones. The duration of the burning is ninety hours, and the cost of the labor is 44 marks (\$11). The kiln uses 34,300 pounds of coal, which cost 220 marks (\$55). The setting of the kiln cost for man labor 133 marks (\$33), and for woman labor 60 marks (\$15), while the total cost of drawing the kiln amounts to 70 marks (\$17.50). The amount of tiles burnt in such a kiln amounts to 110,000 pieces, or five carloads of 20,000 pounds each. The kiln has a diameter of about 18 feet, and is about 16 feet high. It has twelve fireholes, which measure 32x20 inches. For the glazing of such a large amount of tile, an ingenious machine has been constructed which sprays the tiles automatically with a spray nozzle adjusted with compressed air. The tiles move on an endless chain, and are sprayed with the glaze when they move under the nozzle. This machine handles 25,000 tiles per day, and

is operated by one man and three girls. The article further describes the method of decorating the tiles and the burning of these decorations.—Keramische Rundschau, No. 23, 1909.

Written for THE CLAY-WORKER
PACIFIC COAST NEWS.



BUILDING RECORD in San Francisco for August shows a very slight improvement over the previous month, the valuation of building permits being \$2,186,064, compared with \$2,154,999 for July. Conditions throughout the state seem to show some improvement, and money is reported easier, but building operations are still greatly hampered by

lack of money. The greatest activity at present is in the line of residence and apartment buildings, and one of the most favorable features is the increased demand for buildings of all kinds. The valuation of brick structures is still a little ahead of that for frame houses.

The brick market is in a less satisfactory condition than at any time since the first of the year. The summer's requirements for all varieties have been considerably less than the estimates made before hand, and common brick, which is usually the first to feel the effect of changed conditions in the market, is in a very weak position. Conditions have been rather unsteady since the failure to agree on a uniform size, and with a heavy surplus in the hands of many manufacturers, the pressure to sell has become more than the market would bear. The price, which was nominally quoted at \$9 per thousand a month ago, has declined to \$7 per thousand, f. o. b. San Francisco, on all large-sized brick. The smaller sizes are offered freely at even lower figures, and it is impossible at the moment to name the bottom price. From all reports the present conditions are likely to prevail for some time, as it seems impossible to effect any agreement among the competing producers, each of whom is keeping up the output and getting as much of the business as possible.

Values are still considerably better than the low figures which prevailed for a time last year, and it is possible for plants favorably situated for delivery to the larger markets to conduct business at a modest profit. It will be difficult, however, if not impossible, for many of the smaller concerns to keep in the game very long, and a good many changes in the way of reorganization and consolidation may be looked for in the near future.

Manufacturers of pressed brick, face brick and other descriptions also report a rather quiet business. While some good-sized contracts for these materials have been let in the last few months, and the demand on the whole has improved to some extent, requirements have fallen far below the normal output, and the business is by no means satisfactory. While prices on these descriptions are held more steadily than on common brick, there is more weakness than for many months. Quotations generally remain about as before, but some good-sized surplus lots of fire brick, and probably of other varieties, have recently been moved at liberal concessions.

One feature which tends to increase the depression is the fact that one of the large southern manufacturers, the Los Angeles Pressed Brick Company, is preparing to invade this market on a larger scale than before. The company is now installing a plant at Richmond, near San Francisco, and has already put in a large down-draft kiln for the manufacture of its red pressed brick. This material is already appearing on the market, and preparations are being made to increase the selling facilities in San Francisco.

Sewer work continues fairly active. Deliveries are still being made on some large contracts, and new jobs are coming out in good shape. Arrangements have been made for the new sewer at Elmhurst, Cal., the Piedmont Paving Company getting the contract for \$72,000. The city of Los Angeles is preparing to install sewers amounting to \$91,000, and storm drains amounting to \$30,000. The contract for

Section A of the Division street sewer in San Francisco was awarded to the Contra Costa Construction Company for \$165,140. One of the bidders for this work was A. L. Patterson & Co., of New Orleans. This sewer is one of the largest in the city, the old one being about 10 feet inside diameter. Additional local contracts are pending which amount to about \$100,000.

The fire brick business, which was expected to show a material expansion this year, has been most disappointing. The demand for several months has been rather light, and a surplus has been gradually accumulating in the hands of various manufacturers. It is now announced that the Ione Fire Brick Company, one of the newer concerns, has closed down its plant at Ione, Cal., indefinitely.

The Golden Gate Brick Company, one of the leading sand-lime brick interests, has been consolidated with the Stockton Fire and Enamel Brick Company, of Stockton, Cal., which has been operating since the fire on all kinds of pressed brick and fire brick. The selling end, which was formerly in charge of the United Materials Company, will be managed in San Francisco by C. F. Pratt, manager of the Golden Gate Company. It is understood that the United Materials Company, with offices in the Balboa building, will shortly take up the sale agency for one of the largest manufacturers in the state.

The Carquinez Brick Company reports no difficulty in keeping its output of common and face brick closely sold up, notwithstanding the general dullness of the market. This company has its new continuous kiln almost complete, and as soon as it is finished will begin work on another.

P. Eagle, of Jacksonville, Ore., has started a factory for drain tile, which is in considerable demand in that locality. He expects later on to put in a sewer pipe plant.

The annual statistics of the mineral production of California for 1908 show a heavy falling off in the manufacture of brick, the valuation for the year being \$2,506,495. The value of pottery, sewer pipe, etc., produced was \$325,147. It is believed that both items will show considerable increase this year, though the output will be far below what was expected at the first of the year.

T. L. Childers is preparing to develop a large clay bed near Moscow, Idaho.

The report of W. C. Howe, Superintendent of Streets of Oakland, Cal., on the use of paving brick in various cities of the coast, was received with great interest. Mr. Howe has come to consider brick as the best and most economical paving material to be had, and has expressed himself strongly regarding the backwardness of Oakland in street improvements. An extensive paving project is being planned in that city, but so far none of the work in prospect has been given out. Several concerns in other parts of the coast are making a first-class paving brick which can be delivered in this market. Nothing has been heard from the new project at Vallejo, Cal., for some time, but if its capacity can be increased according to plans, it would doubtless have a good opportunity to furnish material for the Oakland work. The Los Angeles Pressed Brick Company is now shipping pavers here on a few orders of more or less importance.

The front of a new San Francisco building, faced with glazed brick, will have to be torn down on account of its overlapping 8 inches on the street.

A large school building, faced with cream-colored pressed brick, is shortly to be erected at San Leandro, Cal.

Contracts are about to be let for a six-story brick building, faced on two sides with cream-colored pressed brick, covering a lot 103x139 feet, for the St. Francis hospital.

G. W. Stever, a manufacturer of cement brick at Buckley, Wash., is putting in a new brick machine with a capacity of 5,000 brick a day.

A new market building is about to be erected in San Francisco, in which the entire floor will be set in tile, and the walls will be tiled to a height of about 7 feet.

A. J. Frank, of the Tonqua Pressed Brick Company, of Albuquerque, N. Mex., has purchased a lot of new brick machinery at Chicago, and a number of improvements are to be made in the plant.

An assessment has recently been levied on the stock of the California Pressed Brick Company, which began the construction of a large plant at Niles, Cal., about a year ago.

San Francisco, Sept. 4.

SUNSET.



Loss of a Sweden Fire Brick Company.—The Ifo Kaolin- och Chamottefabricks Aktiebolag, in Bromolla, has been declared bankrupt on their own application. The actual loss of operating this fire brick plant in 1908 was 1,100,000 kronen (krone, 27 cents). The obligations amount to 4,500,000 kronen, and the assets will be about 400,000 kronen.—Tonind. Z., No. 62, 1909.

Blue Slate-Colored Glaze for Roofing Tiles.—One of the first requirements in order to produce a blue slate-colored glaze is a body which will stand without danger a temperature of Cone 3 or higher. For lower temperatures a blue slate glaze is not advisable, and hard to produce. A good matt blue slate glaze is made of two parts of an easy fusible slip clay and one part of red iron manganese ore. The glaze should be burnt at about 1,200 degrees Centigrade heat (Cones 3-4). The glaze should be burnt in reducing fire in order to get a nice blue slate color.—Deut. Topf & Z. Z., No. 36, 1909.

Opaque Glaze for Tiles.—After long experimenting it has been found that good opaque glazes can be made at a temperature of Cone 01, with the use of oxide of zinc. The following recipe has been giving good results:

White lead	130 parts
Marble dust	25 parts
Feldspar	83 parts
Oxide of zinc.....	8 parts
Kaolin	13 parts
Flint	36 parts

In case the glaze does not cover the surface good, and crawls, the defect can be overcome by substituting part of the flint for calcined kaolin, and by the use of thirty-three parts of calcined kaolin and eighteen parts of flint.—Il Cemento, No. 13, 1909.

German View of Common Brick.—The Building Department of the County of Alzenau has decided that all buildings built with common brick should be plastered, and that all ornamentation with colored brick and terra cotta panels should be stopped. The German Association of Face Brick and Terra Cotta Manufacturers has taken this matter up at once with this local building department, in order to ascertain if face brick and terra cotta fronts are barred also by this decision. In a reply, the Building Department states that this ruling will not be directed against buildings faced with face brick, but only against the more and more common practice to build whole buildings of ordinary common brick, without being plastered, or even without pointing the joints. Evidently the County Building Department is anxious to produce better looking buildings in the town of Alzenau.—Deut. Topf. & Z. Z., No. 38, 1909.

The Clay Industry in Upper Egypt.—A recent inquiry regarding the clay industry in the Soudan, has brought out the fact that the cities in that region are rapidly developing, and that construction is carried on along most advanced lines. At Chartoum, the capital of Soudan, and one of the important markets, buildings are being erected very fast, and the city will, in a few years, be a real capital. English and German capital is being invested in numerous enterprises, and brick,

tiles, sewer pipe and other pottery products will shortly be manufactured. The matter has recently been settled and a large establishment will manufacture all these products, so that they need not be imported any more. While there exist on the Nile numerous potteries, they are not large enough to supply the whole country, and the new factory will be able to take care of requirements.—Moniteur de la Ceramique, No. 14, 1909.

Experiments of the Clayworking School at Bunzlau.—Dr. H. Bollenbach published the results of experiments conducted at the clayworking school at Bunzlau, under the direction of its director, Dr. Pukall. The manufacturing of porcelain from elementary ingredients was the subject of experiments. Dr. Bollenbach changed first, in a mixture of porcelain body, the kaolin for aluminum oxide, and studied the results obtained. The changes were not very different from the samples obtained with kaolin. He next substituted the ingredients in the feldspar in the body. He made a frit of the different ingredients in order to obtain artificial feldspar, and with this frit the body mixture was made. The results were also not very different with the natural feldspar, and point to the fact that the true definition of porcelain as being an aluminum-sodium-potash-silicate is correct.—Sprechsaal, No. 22, 1909.

Stoneware Body and Glaze.—A stoneware body which will give better results than just the natural stoneware clay is composed of eighty-six parts of stoneware clay, one part of whiting, one part of feldspar, and thirty parts of flint. This body is biscuited by Cone 4-5. A good glaze for this body matures at Cone 05, and is composed as follows:

Frit.

Flint	33 parts
Kaolin	24 parts
Whiting	9 parts
Red lead	23 parts
Borax	35 parts
Cobalt	0.02 parts

Glaze Mixture.

Ground frit	90 parts
Kaolin	10 parts

—Keramische Rundschau, No. 28, 1909.

Black Stoneware and Roofing Tile Glaze.—To make a good black glaze for stoneware it is necessary to use black stain in the white glaze. These black stains are compounded as follows:

—1.—

Oxide of iron	40 parts
Oxide of chrome	76 parts

—2.—

Oxide of iron	80 parts
Oxide of chrome	76 parts

—3.—

Oxide of iron	80 parts
Oxide of chrome	76 parts
Oxide of cobalt	20 parts

—4.—

Oxide of iron	43 parts
Oxide of chrome	43 parts
Oxide of cobalt	4 parts
Oxide of manganese	10 parts

—Keramische Rundschau, No. 17, 1909.

TESTING KENTUCKY CLAY.

To determine their commercial value, tests of clays from several sections of Kentucky are being conducted at State University, Lexington, Ky., under the direction of Prof. H. D. Eastin, of the College of Mining Engineering. All kinds of clays, from the common building brick clay to the very precious kaolin, are included in the tests.

Written for THE CLAYWORKER.

THE COLONEL POINTS ALLEYWARD.

THE COLONEL was looking out the window at an asphalt patching crew, which was producing lots of noise and bad smell and trying vainly to patch up what had looked like a beautiful street a couple of years ago, but had now degenerated into a lot of lumps and holes. Then he grew amused—first he smiled a little and gradually the smile developed into a chuckle.

Looking out the window to find what had caused his amusement I could not see anything unusual about the doings on the street—they were typical of what might be seen going on in any street that has been paved with asphalt for a few years and has been in steady use.

"What is it, Colonel," I asked, "that you see so much fun in—is it that they are worrying and patching that asphalt out there when they might have a good brick street that don't need patching?"

"No, suh," he replied, "there was nothing amusing down in the street. Some kinds of tomfoolery is amusing but that kind is not. What I was cogitating about that produced the amused feeling was a combination of everything and a memory of Abe Daniel's patent hog fattener."

"What," I inquired, "has a hog fattener got to do with an asphalt street patching crew?"

"Nothing, suh, nothing," he replied, "but I was just thinking. You didn't know old Abe or you would be amused about it yourself. Abe was a great fellow to scheme and always wanted to get up a patent. Also incidentally he had a world of trouble every year to get his hogs good and fat. His hogs would get just about so fat, and then they would get finicky about their eating and it looked like the more stuff Abe put in the trough for them to eat the less they wanted to eat.

"One day in watching the antics of two brood sows on the outside which he was trying to feed in separate troughs Abe discovered the fact that there is nothing will make one hog want to eat more than to see another one eat and that no matter how good stuff you feed one hog when another gets to eating with good will what he has in his trough, the other one will quit eating what he has got and pitch in with him.

"Now Abe took this thought and pondered over it seriously for a whole day before he saw light. Then he slapped his leg, got a hustle on himself and built an addition to one end of his pen, and rigged up a gate between the two that he could raise and lower handily. In this addition he would put the leanest and hungriest old hazel splitter he could find about the place, and if he couldn't find one that was lean and hungry enough he would go out and buy one. Then he would put a lot of slop into its trough. When it got all four of its feet into the trough and its paws working overtime the sleek hogs in the pen would begin to look hungrily over that way, and then he would raise the gate and let one or two of them in and shut the others out. These would pitch in and eat twice as much as they could have been persuaded to eat in their own pen in the regular way. He kept working on this way until that pen of hogs eat more and got fatter than any he had had before and then he went off and tried to get a patent on the device."

At this point the Colonel paused in his talk and there came that same smile and chuckle of amusement that I had discovered in possession of his features previously. I waited patiently for a little while for explanation, and as it was not forthcoming I asked him where the joke was—was Abe able to get the patent or where did the fun come in?

"Well, suh," he replied, "where the fun comes in or whether or not it comes in at all or not depends on whether you can see it. Now it happens that in the process of evolution in humanity in which we have reached a pinnacle so far above the lower animals that there is no comparison, we have each and all of us retained in certain degrees certain elements or traits found in the lower animals. For example there is a lot of the element of hog in humanity. Of course there is hog and hog, and the hog has several different kinds of traits, but this peculiar trait I have been trying to call your

attention to now is to want most for the time being that which is most anxiously sought after or being gobbled up by somebody else."

"I see what you mean," I replied, "but I don't see the connection between that and this asphalt paving crew out in the street."

"Well, suh," he said, getting serious and talking earnestly, "you see that street and you see that asphalt pavement. You know that asphalt people are always hungry for paving contracts—that is to do street paving; and that makes you brick men so blamed hungry for the same thing that at times you neglect other things which are better."

"How's that," I replied, "What is it that is neglected because we want to scramble with the others for street paving contracts?"

For answer the Colonel pointed alleyward. "Over there is an alley being laid with brick" (something I hadn't taken notice of before), "and farther on is another one that has been laid a long time."

"Now, suh," he continued, "there is a place you brick men have practically no opposition. It is not as big a thing as street paving, but if you go pave all the alleys in all the cities it wouldn't make a darn bit of difference whether you paved any streets or not; you would have the biggest end of the job. It is taken as a matter of course that if an alley is to be paved at all it will be brick and you will spend all your wind and energy fighting for contracts to pave streets, just because the asphalt people are gobbling up hungrily the same thing."

"You don't mean to say, Colonel," I replied, "that the brick people are neglecting the matter of furnishing stuff for alley paving?"

"No," he replied, "you are not neglecting it, but you are not pushing it enough. You are concentrating your fight on the street paving while you might be using up some of your energy to stimulate more alley paving and have but little opposition when it came to furnishing the material. There is not a subject in the world that offers more room for good educational work and all around stirring up than that of alleys. There is no movement in cities to improve sanitary conditions but what should include the paving of alleys. Why don't you go into the game and get lined up with the germ experts and all the others who are stirring things up for better sanitary conditions. Get the cities warmed up to the matter of paving all their alleys and if you once get it going right you will have enough to do that you won't be worried half so much about streets."

"Yes," I replied, "I see the point now, fun, hog and all, and I want to thank you for it and also I will tell the boys about it."

"Yes, suh; yes, suh, that's right—tell them about it," he replied. "Also you might remind them, while you are about it, not to neglect to remember the fact that when you come to an all around good paving material for streets there is nothing beats brick."

BIG PIECES OF POTTERY.

Abraham L. Eardly has just finished, at the plant of Thomas Murdock & Sons, Trenton, N. J., the two largest pieces of sanitary pottery ever produced in this country. One is a shower bath base, intended for President Taft, 38 inches in diameter and 12 inches high, weighing 260 pounds. The raw clay weighed 400 pounds, and it required four assistants to help in handling it. It took Mr. Eardly four days to mold it into the shape required, took three days to burn it, and eight weeks were consumed in drying out.

The other monster piece was a chemical sink made for the government. It is 38x25 inches. When one was finished fourteen duplicates were made, all of which will be used in the government laboratories at Washington.

Mr. Eardly has been a potter for thirty years, learning his trade from his father, and his sons have learned it of him. So well is he known and so great is his skill that all unusual orders are referred to him before they are accepted. He is employed almost exclusively on special work, and notwithstanding the difficulty of some of it, he almost invariably succeeds. His failures are too few to mention.

Greatest Speedway in the World Being Paved With Brick.

Vitrified Block Again Proven Best of All Paving Materials.

THE ENTIRE surface of the two-mile and a half race track at the Indianapolis Motor Speedway is being paved with vitrified paving block. Over 3,500,000 blocks are being used and a force of men numbering close to 200 are busily engaged in the construction work. A special train is hauling 100,000 blocks daily from the Wabash Clay Company's plant at Veedersburg, Ind., to the speedway in Indianapolis, and the work is being advanced as rapidly as careful construction will allow.

The determination of the owners of this, the world's greatest racing course, to use brick was the result of careful tests and thorough examination of other paving materials as well

of September 19th, gives the following interesting account of the work being done at the speedway:

"Death will be disqualified as a competitor at the Indianapolis Motor Speedway if the present plans to pave the course succeed. Not only does this add interest to the track, because of increased safety and possibilities for more speed, but it will be the first race track in the world to be paved. This fact has caused representatives of the National Paving Brick Manufacturers' Association to take a keen interest in the test.

"Will P. Blair, a local representative of this association, said yesterday that every effort is being made to have this



Birdseye View of the Motor Speedway, Indianapolis, Ind.

as brick. Several weeks ago trial pavements were put down and tests made. The trial vitrified brick pavement was 100 feet in length, built of Culver block. The pavement had been laid only two days, the cement having little time to set properly, when the speedway officials ordered tests made. Heavy racing machines sped over the trial pavement, subjecting it to the severest tests. The smell of burning rubber as the wheels of the anchored machine spun around on the blocks showed the effect of the trial on the machine, but the pavement was not effected in the least.

The other tests, such a standing starts and sudden stops from full speed, made as little impression as the others; not a single effort to damage the track was successful. The same tests were made on other trial pavements. The Bitumass strip offered little resistance, deep holes being worn in its surface. Since the brick pavement, which was only two days old when it should have been laid at least ten days for perfect conditions, stood the test as it did, the track promoters were assured that nothing but brick would do.

An interesting article in the Indianapolis Morning Star

experiment prove a success, declaring that the entire world is interested because of the vital question of roadways. Municipal committees everywhere await the result of this work in order to have an ideal example of what such material will produce. The track is being laid with Culver block, from the Wabash Clay Company at Veedersburg. Twenty carloads of bricks are being delivered daily. The cost is estimated at \$180,000, including \$30,000 for thousands of barrels of cement for filler. It is calculated that it will require 3,500,000 bricks to cover the surface of this famous Hoosier two-mile-and-a-half track.

"The entire surface is being covered with a coating of crushed stone and then rolled by a large steam roller. On top of this is being placed a sand cushion, on which the brick will be laid. Along the edge of the track will be a cement curbing even with the top of the track when paved.

"The sand cushion is expected to give relief to the impact, thus assuring that the cement bond will not be injured. There is expected to be no difficulty from dust. There will

be no waves, either, which are a hindrance on cement tracks.

"The contract for half the distance has been let to Fred Meredith, of Terre Haute. Experts will be placed over the work of construction by the National Paving Brick Manufacturers' Association, in order to see that every inch of the track is laid in the best possible manner. It is considered by this organization as the best opportunity possible to prove what brick paving can be.

"The question of safety is a big item. The track will be as smooth as a billiard table and racing experts say that the recent fast time made on the old surface will hide for shame in the dust of the flying machines when they are turned loose on the improved course.

"It is the desire of Promoter E. A. Moross to hold a motor meet a few days prior to the opening of the Atlanta (Ga.) speedway and hang records so high that the contestants in that initial event can not reach them. This, he thinks, can be done with ease, because of the exhibitions of speed so easily obtained from the recent speedway contests, when the surface was not as smooth as it will be after being paved.

"The shape of the local track, with its high banks, is considered to be the ideal of race courses for the entire world. As soon as the paving is complete it will be used by manufacturers who are eager to have their race drivers practice. It will also be used by motor car builders to have test runs for their machines. The National Automobile Company, of this city, will likely hold a ten days' race meet for their own drivers, racing a thousand miles a day, not to make records, but to test their machines.

"W. T. Blackburn, of Paris, Ill., Major Middleton, of this city, and M. W. Blair, of St. Louis, are the experts who will watch the work of paving this week. It is estimated to take about three weeks to complete the course.

"Carl Fisher, president of the Speedway Company, decided to take this action after being urged by Will P. Blair, who declares that such a track will be without equal from every standpoint, and a great object lesson to the entire country.

"When completed, it is said that weather will be an ignored factor, because races can be run on the renewed track without regard for the attitude of the weather man. At times, when manufacturers are not using the course for test purposes, citizens holding permits will be allowed on the track to speed to their heart's content. This is considered a valuable means to give vent to the pent-up speed craze which is imbedded in so many automobile owners, and, at the same time, neither hinder traffic on the streets, break speed laws, nor endanger the lives of others."

BRICK FOR PUBLIC HIGHWAYS.

The freeholders of Bergen county, New Jersey, are in difficulty with a motor car concern which drives its heavily armored wheels over a piece of road just completed which cost \$10 per lineal foot. The cars are tearing this road all up before it has scarcely had time to afford transportation for even a small portion of those in the county which would ordinarily use it in the course of time. Perhaps such bodies, charged with looking after the construction of roads and other public works which consume large sums of the people's money, will see that macadam is unfit for the regular heavy traffic which follows the principal highways. Only one thing will do, and that is brick. It is a favorable time to bring to the attention of boards of freeholders all over New Jersey that macadam will not stand the present style of traffic, which includes more or less heavy motor cars, but something more substantial and more solid must be selected. When they become thoroughly convinced of that, then the question of what material should be definitely decided by convincing them that brick includes all the qualities and characteristics required in roadways built to carry heavy traffic, and while the initial cost is a small percentage more than macadam costs,

when the expense of repairs, extending over a long period of years, is added to the original construction cost, the macadam will not compare favorably with brick. All these features of the case are easily demonstrated, hence no brick man should fear to enter the controversy.

Written for THE CLAY-WORKER.

BRICK AND CLAY IN CONSTRUCTION.



IT IS APPARENT to those who follow the tendencies of building construction more or less closely, that the possibilities of brick and clay are scarcely comprehended by a majority of builders. During the past few years these possibilities have come to be understood more fully than before, and as the days pass and architects become more familiar with building problems, working them out to a better understanding and a more satisfactory result, brick is more often specified, and ornamentation and decoration made from clay are more freely used.

Without specifying particularly the different buildings, it will, perhaps, be sufficient to say that a majority of the buildings erected in New York during the past few years have included brick or some form of clay more than ever before. Fifty to seventy-five years ago, New York was a city of brick, but that period was followed by a rage for brownstone



Trial Brick Pavement, Indianapolis Motor Speedway.

fronts and granite construction, which, for a time, superseded clay. But these buildings were unsatisfactory, and when the larger development of New York began twenty-five or thirty years ago, clay came to be the most important building material used. And this use has increased steadily, until now more brick and clay are used in construction than ever before. Nor is there the slightest indication that this use will ever decline. On the contrary, it seems more than probable that more brick and clay will be used in New York construction than ever before, and that it will tend to influence the construction of all architects of the future.

Because of fire hazard, the era of wood construction has long since passed. Because of its unwieldiness and the difficulties attendant upon its use, stone has largely disappeared, excepting where used for pillars or columns, and sometimes for trim. The advent of the high steel frame and the absolute necessity for fireproof construction brick and clay became indispensable. Clay in fireproofing is used for the floors, and brick are used for filling the steel skeleton frame. The result is a solid clay building in many instances, aside from the steel frame which formed its skeleton, and around and upon which the various forms of clay were placed to make the building solid and substantial.

Practical use and the study of construction problems, with

special reference to the use of brick or some form of clay product, has demonstrated the utility and the unquestioned value of brick as a building material. And as manufacturers have developed their end of the business, originating and bringing out more and more modern forms and processes, their use has increased. It is needless to spend a large sum trimming a building with stone when ornamental work made of molded clay will do quite as well and cost much less. Builders are accepting the dictum of economical work more and more, and find it to their advantage to do so.

Merely a cursory examination of the buildings in New York, separated into periods, discloses how great has been



Machine Testing Pavement by Standing Start.

the development in the use of clay. Where formerly only plain, square fronts with light colored stone and window trim and cornices were erected, now construction is all of brick or some form of clay. And in a majority of instances the buildings look better than the old ones. There is a uniformity of appearance, a continuity of design, if one may use the term, which adds to the dignity of the buildings. Fur-



Experts Examining Trial Brick Pavement.

ther, the intricate decorative designs which are made important features of many buildings are more easily and more satisfactorily worked out in clay than in stone, and where the element of cost exerts any considerable influence, there is no doubt about which can be utilized to best advantage.

Even though the permanency of clay building has been demonstrated by the remains of important structures of antiquity which have come down to the modern world, architects have sometimes shown an unexplainable reluctance to specify brick or clay products in what they were pleased to designate as important structures. Fortunately, this hesitation to specify brick is passing away, and very rapidly in many instances, and architects are becoming convinced that

they have in brick and clay a most pliable and accommodating material which will conform easily to all their requirements at a minimum cost, and yield a building which, in dignity of appearance and adaptability to the purpose in hand, will be better than could be constructed from any other material. In this respect brick is coming into its own, and unquestionably its use will be more liberal as new methods of use and decoration are discovered and developed.

Along with the increased use of brick in the cities, of which New York is merely a type, has gone the steady increase in its use in suburban and country construction. Coincident with the development of the idea that stone was too expensive or otherwise unsatisfactory for building purposes, came the enormous increase in the cost of timber, and the question of a suitable building material was brought home to builders of suburban or country homes so forcibly that it almost created a revolution in building. Now, brick is recognized in some localities as the cheapest, and, at the same time, the most satisfactory material for building purposes, any many more suburban and country homes are being erected today than was the case a few years ago, and the complete success which has accompanied this use has demonstrated that there is a material constant in its supply and permanent in its character which can be had anywhere, and at any time at a relatively low cost. The emphasis which is placed upon this demonstration in many practical ways is increasing, and brick dwellings are no longer the rarity they once were.

It would appear from these demonstrations that brick has come to be the important construction material in all classes of building. Nor should this flexibility be overlooked in considering it as a possibility for any particular work. That it is flexible is an important factor in its increasing use and usefulness. Probably this flexibility will increase. No reason exists why it should not, and architects who appreciate the importance of its most salient qualities are disposed to regard it with increasing favor, and to use it wherever possible. Architects have had to be educated, but it is one of the encouraging signs of the times that their education has been effective and is, all things considered, bringing about not a revolution, but an evolution in building construction and decoration.

THE IOWA BRICK, TILE AND DRAINAGE ASSOCIATION —WHEN ORGANIZED.

Some inquiries have been made as to the date of organizing the Iowa Brick, Tile and Drainage Association. We have referred to the files of the Drainage Journal and obtained the following data:

The first notice proposing to organize was published in the Drainage Journal for September, 1883. The meeting at which the organization was effected was held at the Homestead office on the Iowa State Fair grounds, September 5, 1883. The officers elected were: President, C. J. Merrill, Des Moines; vice-president, Z. T. Baker; recording secretary, F. A. Wittenmore; corresponding secretary, B. F. Gue, Des Moines, and treasurer, Benjamin Ketcham.

The association adjourned to meet at Des Moines on the first Wednesday in February, 1884. The first regular meeting was held at Des Moines, Iowa, February 7 and 8, 1884. At this meeting the association elected the following officers:

President, J. S. McCaughn, Winterset, Iowa; vice-president, A. C. Bishop, Indianola; secretary, Hon. B. F. Gue, Des Moines; treasurer, Benj. Ketcham, Bonaparte. The foregoing is a brief history of the organization and the first regular annual meeting of the association. The list of names attending each meeting can be furnished if desired. The writer has it in mind to attend the next annual meeting if he can arrange to do so, and will be pleased to meet as many of the old members and others as may be present.

J. J. W. BILLINGSLEY.

Editor THE CLAY-WORKER:

THE MANUFACTURE OF CLAY CONDUITS.

The Clay Product Company, Brazil, Ind., Turning Out High-Grade Vitrified Ware.



IN THIS WONDERFUL age of electricity, in which thousands of miles of cables and wires are being laid underground, the vitrified clay conduit is of inestimable value. Like the vitrified clay products in other fields, it is considered the best material for its purpose in the electrical world. As important and absolutely essential as the excellent clay conduit is, however, in the housing of the electric cables for transmitting sound and power, little does the average man know of its manufacture. This might be attributed to the infancy of this branch of the clay industry. It is one of the most recent lines of ceramics built up in this country, yet it has reached such a point of perfection that the few vitrified clay conduit manu-

single ducts must have scarifications running the entire length of outside. The multiple ducts must have dowel pin holes for perfect alignment, the requirement being that the dowel pins which fit into the holes at the ends of each duct shall fit accurately, and shall be interchangeable in all parts.

With such exacting demands, the manufacture of vitrified clay conduits is successfully accomplished only with the greatest care and efficiency. One of the vitrified clay conduit manufactories that is reaping the rewards for excellent products is that of the Clay Product Company, of Brazil, Ind. The company was incorporated in September, 1906, the present owners at that time taking over the interests of the Continental Clay and Mining Company. The officers are: President, H. H. Titsworth; vice-president, F. W. Darling; treasurer, D. S. Adams, and secretary, C. F. Shannon. Mr. Titsworth is also the general manager, while Mr. Darling is sales manager.

The plant is located two and one-half miles southeast of Brazil, on a branch of the Vandalia railroad. The raw material, a No. 2 fire clay, grayish in color and burning buff, is shipped in from an eighty-acre strip bank three miles north of the plant proper. The clay there averages 6 feet in depth,



General View of the Clay Product Company's Plant, Brazil, Ind.

factories scattered throughout the states have little trouble marketing their ware. In fact, the majority of them can keep scarcely any stock at all on hand.

The manufacture of vitrified clay conduits is by no means a simple or easy one, for the purchasers must necessarily be most exacting in their demands, the specifications the manufacturer must live up to generally being very strict. The tile must be thoroughly vitrified, straight and well-glazed, but not burned hard enough to be fused or scoriated. Only one-half inch is allowed for warping. They must not show any blisters, nodules, projections or defects that will weaken the conduit or be detrimental in drawing the cables through the duct holes. All duct holes must be well centered and at least $3\frac{1}{4}$ inches in diameter. The walls of all single ducts must not be less than seven-sixteenths of an inch at thinnest part. The outer walls of all multiple ducts must be not less than $\frac{3}{4}$ -inch, and not more than $\frac{5}{8}$ -inch. The conduits must be symmetrical, both outside and inside, with ends of ducts perpendicular to sides. The duct holes must be beveled at ends smooth and free from projections. Cracks, if any, can not extend into the surface more than one-sixteenth of an inch. The multiple ducts must be scarified at each end, while the

with about 6 feet of stripping. The stripping is accomplished by means of scrapers. The clay is loaded into freight cars, about 150 tons being brought in daily over the Indiana Central railroad, which connects the strip bank with the plant. The cars of clay are emptied under a shed built for protection in bad weather. Four men are employed in emptying, while a fifth is engaged as a hauler. The clay is shoveled into small one and one-eighth yards wooden cars direct from the gondola cars, and hauled along a narrow gauge track by mule up an incline to a point near the dry pan, where the cars are dumped on a tipple. On the way from shed to pans the cars are run onto a scale, where the weight is taken, the clay being purchased by the ton.

Formerly, the company mined their clay on their own property. This proved too expensive, however, as they had to mine at a 60-foot level, the ground being so soft that every foot had to be timbered. Every carload of clay called for a carload of wood, hence making profit impossible with this method of getting out the clay. The raw material was a No. 2 fire clay of the same consistency as the clay they are now using. There is a 4-foot vein of coal overlying the clay on the company's property, but not of such quality as

to offset the cost of getting out the clay. Previously the clay was hoisted from the mine and taken to the plant over a high trestle, thus increasing the danger risk. This trestle was torn down and tracks placed on the ground level, with a short incline near the dry pans to facilitate the dumping.

There is a small storage shed at the plant 80x60 where the clay can be dumped and stored for use during bad weather. So great has been the demand for their product, however, that they have had little time during the past months for storing away any clay. At the present time the



Emptying Shed for Cars from Strip Bank.

clay is being used as fast as it is brought to the plant. The two 9-foot dry pans, which are the American Clay Machinery Company's make, are kept constantly in operation during the day. The ground clay is elevated to two screens, one Dunlap and one double stationary screen, and from thence drops



Clay Cars on Way to Storage Shed.

into large bins on the second floor. From the bins the screened clay goes into an American Clay Machinery Company pugmill, and passes through an American improved centennial machine. This machine makes 2,500 duct feet of tile daily, whether large or small, the daily run being of ten hours. A variety of sizes are made, only a few minutes being required for the change for runs on smaller to larger, and vice versa. Single and multiples are made in record time. The ordinary runs are on singles, twos, threes, fours

and sixes. The singles are 18 inches in length, the twos and threes 2 feet, and fours and sixes 3 feet.

It is interesting to see the men at work about the machine when the run is on the smaller sizes. Two men on either side of the hand-cutting table are kept busy taking off the conduits and placing them on end on small trucks. The conduits are cut 2 inches longer than the required length for the sufficient allowance for shrinkage. The clay is pushed from the machine in two tubes, which are carried forward on a belt conveyer and cut by hand, a man giving his entire attention to this work, swinging over the iron frame holding the wires at regular intervals, the work being performed with clock-like precision. Six conduits are cut at a time, small pieces being cut at the same time for caps to be used in the setting of the kilns.

Two men are employed on either side of the cutting table who round the inside of the ends of the conduits. Four men are employed in wheeling the loaded trucks to the drying rooms. An elevator takes the green ware to the upper floors.

In making the larger sizes, specially constructed tables are used for turning the large pieces over, in order that the workmen may bevel the inside edges and scarify the conduits as required.

In the drying room the conduits are set on end and allowed



Approach to Grinding Room.

to dry from two to five days, according to the size of the ware. In the drying waste heat is used from the cooling kilns, being drawn from the kilns by means of a large New York blower 12-foot fan. There are nine drying floors, each 60x60, and confined to a large three-story fireproof building built of hollow tile.

The drying of the ware is an important part in the manufacture, especially is this true of the larger conduits. Too rapid drying causes the ware to crack, thus making the conduit worthless. The smaller conduits can be dried more rapidly without as much danger of the ware warping or cracking, but the larger pieces must be dried exceedingly slow to equalize the drying. The superintendent of the drying, therefore, must be an experienced man. It is his duty to regulate the heat and bend the conduits slightly when being placed on the drying floor to make sufficient allowance in the drying of the different portions of the piece to overcome the natural tendency of the green ware to buckle. This buckling is due to the difference in the consistency between the upper and lower halves of the conduit, caused by die friction. The superintendent bends the conduit by tapping it gently with a paddle. A straight edge is a useful instrument in this department, it being applied to the conduits

while in their green condition, for the purpose of keeping the conduit in perfect condition.

The ware is burned in ten 32-foot down-draft kilns. Three large 60-foot stacks constructed exteriorly of conduits and lined with fire brick, furnish the necessary draft for the kilns. These stacks, as also the buildings, are well built and very attractive, the salt glazed blocks giving them a finished artistic appearance. The kilns are substantially built of the Iron Clad type, but of the company's own design. The first thing that attracts the visitor's attention is the large iron bands circling the tops of the kilns. There are four bands in all, one 28-inch band at the top, a 24-inch band below this, and two hub bands each 12 inches in width. There are eight furnaces to each kiln, equipped with slanting grades. The floors of the kilns are perforated, the fire clay material used in their construction being that of the Evens & Howard block.

The ware is set 6 feet high in the kilns, and burned with Brazil block coal. The ware is burned to Cone No. 6, being salt glazed several hours before the kiln is finished. Orton cones are used, proving very beneficial in the work, while the Frink pyrometers are used to equal advantage.

The power of the plant is furnished by a large 250 h. p. Atlas automatic slide valve engine, and two Brazil boilers of

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.

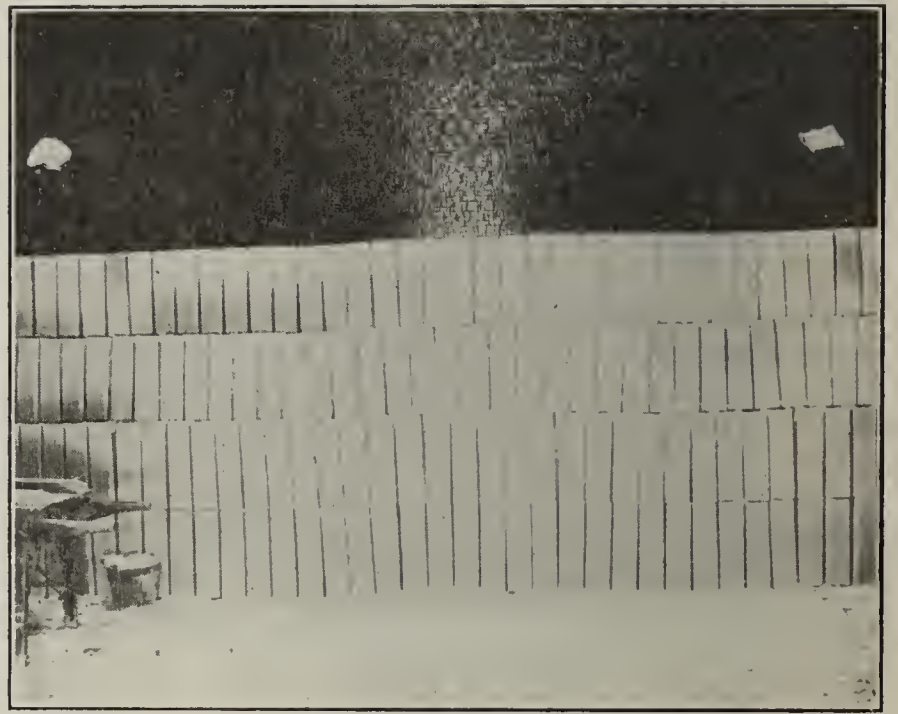


WITH A BRISKNESS that is truly inspiring, the autumn building season opened in earnest with the beginning of the third week of this month. As the year draws to a close, there is a speculation wherever a building material man has a moment to speculate as to what the final record for the year will be.

Should business during the next three or four months pick up and spurt at the rate it did from the close of August to the first of December, 1908, it is probably safe to assert that all building records of the city's history will be broken, for the activity of the first six months of the year was far beyond par, and there has been nothing moribund or unnatural about the customary period of midsummer dullness just ended. As a matter of direct comparison, building would not have to pick up much, if any at all, for the remainder of the year to have the total figures for 1909 pretty nearly equal those for 1908, for, as will be remembered, the city had not recovered entirely from the financial depression, and it was well into last summer before the era of apartment house building



Machinery Room, Running on Single Duct Conduits.



Kiln Being Set with "Singles."

150 h. p. each. The plant is well lighted with electricity furnished by an adequate electric power plant.

The water supply is obtained from a deep driven pump. Three storage tanks of 1,800-gallon capacity are kept filled.

All the buildings of the factory are constructed of hollow building block; the yard is kept in a clean, inviting condition, and everything points to order and fine management.

While the company has about twelve acres of yardage, little stock is seen on hand. Depressed tracks are used for loading, the embankments being made of conduit culls.

Close to the plant one can see an attractive six-room bungalow, in which the superintendent is to make his home. This is well built of conduit culls, which make a substantial and inviting home when used as artistically as the company has employed them in this instance. Other bungalows will be built for the help later on, when business will allow. The present status of this company's business, however, indicates that the home building will be in the very distant future.

One reason why it is a bad idea to buy business is that, once you start it, it is hard to quit, and you never know just what it is going to cost you next time. Another good reason is that it is both morally and legally wrong.

swept the city and brought the figures for the last six months higher than for any other six months since the Indians struck their tepees on the river bank and departed westward.

Many material firms report the best year by a wide margin that they have ever had, and all are well pleased with the volume of business, especially now that the current has begun to move on again at a merry ripple. While there have been a large number of big jobs in the downtown and outlying districts either started and contracts let or deliveries started, the bulk of the year's business thus far in 1909, as it was in 1908, has been in smaller orders. Times are undeniably good, and the thrifty individuals are putting up their own homes or investing in small two or three-story apartment buildings. While it would not seem at first sight that there is much profit in the smaller jobs, as a matter of fact, as between the downtown skyscraper and the apartment buildings, you can give your wise material dealer the apartment buildings every time. The big jobs are fine for advertising, but the competition is so keen over them that oftentimes there is little profit in them, comparatively speaking. The middling job of from 250,000 to 150,000 brick is the one the brick dealer wants every time.

Two of the hotels which will soon probably be the best

known in Chicago, and in the west, have just been completed, and one of them, the LaSalle, completed on the interior as well as exterior, has thrown its doors open to the public within the last few days. Both are magnificently tall structures, yet easily graceful with all their height, and carrying a striking note of architectural unity from sidewalk to cornice. The LaSalle hotel should have been completed months ago, but has been delayed through petty labor troubles.

The LaSalle hotel, standing at the northwest corner of Madison and LaSalle streets, has a height of 260 feet, twenty stories above the sidewalk and two below. The caissons were driven 110 feet down to bed-rock. The cost was approximately \$6,500,000. One of its most striking features is the utter absence of "sham" in the exterior finishing. The same front brick as are used on the Madison and LaSalle street sides, the Purington Continentals, also have been used on the alley side, where most structures are satisfied to use common builders and let it go at that. The additional cost of this amounted to something, but the improvement in the appearance of the building more than makes up for the additional cost, and it is estimated that the value of the property is enhanced in proportion.

Still more striking in its newness and brightness of color is the Blackstone hotel, at the northwest corner of Michigan avenue and Hubbard court. As tall as the LaSalle, it has even more originality of line to relieve it from the daily-bread monotony of the average sky-tickler. It, too, is in the



Depressed Tracks Showing Embankment of Conduits.

manner of the French renaissance in its architecture, but with the idea worked out somewhat more elaborately, or it may be that the color scheme serves to throw it into greater relief. Time and soot and smoke may prove a great leveler, but today, in point of good looks, the Blackstone seems to "have it on" the LaSalle to no small degree.

The pronounced red of the walls—laid in the Cleveland (Ohio) brick of the Hydraulic Pressed Brick Company—is broken by the startling white of the terra cotta trimmings for the windows on the south and west sides, and in addition on the north and east by broad, rectangular facades, including and rising above the street entrances. The green tile of the roof falls like a verdant thatch down over the two upper stories, broken and relieved by the white of the typically French windows of the period of the later Louis, in their white and red tapestried effects. The effect is excellent. It is that of a chateau, a stupendous chateau, it is true, but it is not an overgrown chateau, and there is absolutely nothing gawky about it.

The completion of the Blackstone hotel is to be followed shortly by the construction of a theater adjoining it on the west, for the Schuberts, at the corner of Wabash and Hubbard. Still another big downtown hotel to be erected will be the new Sherman House, which is to stand on the site of the old Sherman House. Work of destruction upon the old

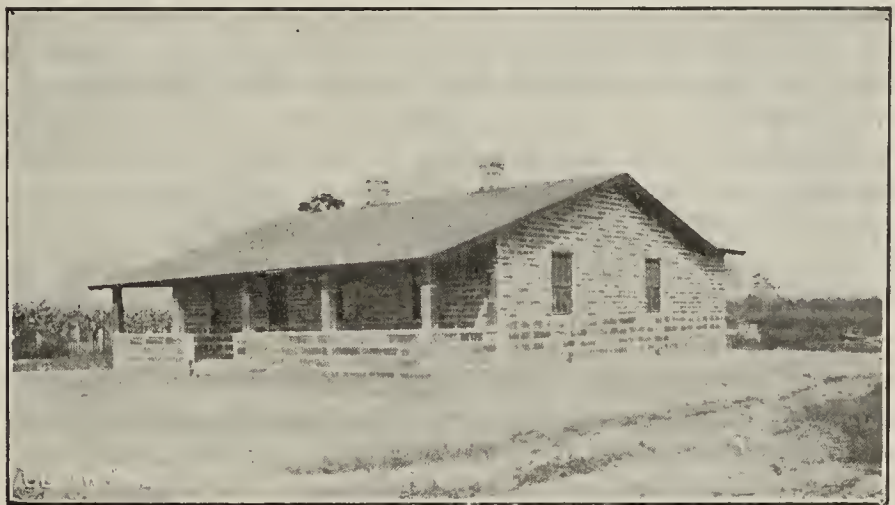
building has just been started, and contracts for the brick work will probably be announced before the end of the month. This hotel will vie with the other two.

One of the biggest contemplated enterprises in the outlying territory is that of the Cudahy Packing Company, for the erection of factory buildings upon thirty-three acres which they have acquired on the Calumet river, between South Chicago avenue and the tracks of the Chicago, Lake Shore & South Bend road. It will involve the expenditure of close to \$4,000,000 for a washing compound plant and a car repair shop. The construction of a glycerine plant is to follow. Farther towards town, the Lithuanian Sisters of St. Casimer are planning the building of a "mother house" at West Sixty-seventh and Rockwell streets, to cost about \$120,000. During the coming winter the Chicago Biscuit Company plans to put up a new brick structure, costing in the neighborhood of \$180,000, at 3649-59 South Ashland avenue.

Edward Morris, head of Morris & Co., at the Union Stock Yards, is getting ready to put up a handsome new home at Forty-eighth street and Drexel boulevard, which will be three stories high and cost \$250,000.

John F. Jehke, the butterine man, is planning to put up a four-story brick factory, costing about \$300,000, at the present site of the John F. Jehlke Company's plant, 2630 Polk street. It will have a brick exterior, and about 1,300 tons of steel will be used.

The number of small theaters projected is on the increase. Plans are on foot to put one in on Randolph street, between LaSalle street and the Powers theater, which will cost \$300,000. Still another is to be situated at Thirty-fifth street and



Attractive Bungalow Built of Conduit Culls.

Grand boulevard, and one which W. A. Wieboldt is having built for him at North Ashland avenue and West Division street, and which will cost about \$300,000, is all but finished.

One of the most striking, although one of the smaller of the buildings now under way, is the University School for Girls on the Lake Shore Drive. It is in pure Colonial style, and the brick used are the Mission brick furnished by the S. S. Kimbell Company, and laid in Flemish bond. The same company is furnishing grey speckled Normans for the McCormick building in Michigan avenue, another of the big downtown structures, while they are putting in 300,000 Cosh-octons into the Munn building, at Wabash avenue and Peck court.

Among the handsomest apartments in the city which have been constructed during the past few months are those being put up for the R. P. Smith estate, at Fifty-first street and East End avenue. The exterior is in the Purington Continentals, of which about 150,000 are being called for. The same brick are being used to the number of 250,000 in the St. Mary's addition, which is under construction at Feehan ville.

There is a growing demand for face-cut brick for exteriors, and the boosters of the Oriental brick, especially Sylvester Marshall, chief Oriental booster, insist that they started all the trouble.

There are rumblings and rumors of trouble in the labor world, but it is generally believed that this is a storm which will not gather head, nor make any more trouble than it has already this summer.

SCRIP.

CINDER CONCRETE VS. TERRA COTTA FLOORING.*

BY H. A. WHEELER, CONSULTING ENGINEER.

AS A CONSULTING engineer, with over twenty years' experience, I beg to call the esteemed attention of your honorable body to four grave dangers in the employment of cinder concrete for fireproof construction, to-wit:

First. Its utter lack of fireproof qualities.

Second. The great uncertainty in its strength as the result of imperfect mixing.

Third. The great difficulty, if not impossibility, of detecting imperfect work.

Fourth. The risk of corrosion of the steel beams and reinforcing material.

In the proportions required in your proposed code of one cement, two sand and five parts cinders, the concrete will consist of five-eighths, or 62.5 per cent. of cinders. As cinders with the ashes washed out, as prescribed in your ordinance, consists essentially of charred coal or coke, the greater part of the mass is, therefore, combustible material, and to call such a mixture fireproof is not only absurd, but criminally false. While the writer is not acquainted with the details of the tests made by Professor Woolson, from which the latter makes the misleading and dangerous statement that it is fireproof, I wish to call your attention to the cold, hard fact that millions and millions of brick are burned every year for the London market by adding about one-eighth part cinders to the clay. The addition of 12 to 14 per cent. of cinders is found to furnish sufficient fuel to burn the clay to a hard brick after the kiln has been warmed up by a light fire. The one-eighth part cinders is added to the clay before molding the brick, so that each piece of cinder is surrounded by about seven times as much clay, yet the burning of the cinder is found to give enough heat to make a hard-burned brick. As the cinder concrete prescribed in your ordinance consists of five-eighths parts fuel, or cinder, which is surrounded by only a minor portion of noncombustible cement and sand, the absurdity of calling such a concrete noncombustible is self-evident when seven-eighths parts clay surrounding one-eighth part of cinder does not prevent the latter from burning and giving a high degree of heat.

That a complex of cement, sand, cinders and water can be made under inspection into a uniform, reliable mixture seems simple theoretically, but practically it is difficult to secure, it is almost impossible to maintain, and when bad mixing, which means weak concrete, results from a slight lapse in the inspection, it is very difficult to detect. As the cement or strength giving part of the mixture makes up only one-eighth of the mass and seven-eighths is inert, or filling matter, the very great importance of the cement being thoroughly and uniformly intermixed through the mass is self-evident, if the concrete is to have strength and reliability.

The practical difficulties in obtaining a uniform mixture and the actual unattainable, incessant requirement for a thorough, reliable, continuous inspection of the work, renders all concrete work an uncertain quantity. Carefully drawn specifications and the best attainable inspection reduces the dangers of imperfect mixing, but never eliminates them, and it is very difficult to detect inferior work. To show the seriousness of practically being unable to produce reliable concrete, even when stone is employed, attention need only be directed to the very extensive use of concrete for sidewalks, which is one of the few uses that is always open to inspection. A careful examination of concrete walks throughout the country shows a very large percentage of failures, yet the conditions under which this class of work is done are unusually favorable. Even the Portland cement itself, which is a mixture of only two ingredients, will show a variation of 20 to 50 per cent. in strength in samples taken

from different barrels of presumably the same lot, yet the cement is made under far more favorable conditions than concrete.

The perils and uncertainties of stone concrete are greatly increased in cinder concrete, as the simple, uniform stone is replaced by cinders which are heterogeneous mixture that varies daily and hourly with the size and kind of coal employed, the conditions under which it is burned, the care with which it is screened or washed, and its freedom from foreign rubbish. Since all coals contain more or less pyrites, or the bisulphite of iron, and as it concentrates in the cinders, it will cause corrosion of the steel beams and reinforcing material, as it has the property of producing sulphuric acid by oxidation. This danger will be greater in the cinder form in some coals than others, but no coal is ever entirely free from this mischief-making material.

The ever-present uncertainty as to the strength, the practical impossibility of detecting imperfect workmanship, unless very flagrant, the utter lack of fireproof qualities, and the ugly risk of corrosion of the steel, should prohibit the use of cinder concrete for the flooring of all first-class, fireproof structures.

In terra cotta flooring, on the contrary, the strength of the material can be easily and promptly ensured by measuring the thickness of the walls of the pieces.

If any defects occur in its manufacture from a simple clay, they can be quickly seen as the material is drawn from the kiln, again as it is loaded on the car, again as it is unloaded from the car, again as it is piled up at the building, and finally as it lays on the floor before being laid in the arch.

The material is absolutely fireproof, as it is produced by prolonged burning in the fierce heat of a kiln.

There is no risk of corrosion.

Terra cotta is, therefore, pre-eminently adapted for first-class fireproof structures, and it is certainly greatly superior, much more reliable and far safer than cinder concrete for the flooring of fireproof buildings.

FIREPROOFING QUALITIES OF CINDER CONCRETE.*

BY C. A. BLOOMFIELD.

HAVING REACHED that time of life when it is said a vast majority of men dislike controversies of all kinds, I had determined to keep out of these discussions, but when I found that public opinion was trying to be formed by misstatements and a perversion of facts against that portion of the majority report, which excludes the use of cinder concrete for fireproofing, I felt it my duty to attend these meetings and take such action as might seem to me just, from what took place.

First, I wish to deny that there is any trust in the manufacture and sale of hollow tile for fireproofing purposes. While it is true that the National Fireproofing Company is a very large corporation, having four factories, which are used to compete for the business of Greater New York and its vicinity, it is also true that there are about fourteen other works competing for the same business, ten of which are within forty miles of New York City, and I also wish to state that there has not been, is not now, and can never be, from my knowledge of the clay deposits in New Jersey, any successful combination formed that will control prices to the disadvantage of the builder.

Now, as to the fireproofing qualities of cinder concrete, the very term cinder implies unburnt carbon, or, in other words, a substance which will ignite and produce combustion, and I have listened to the opinions of experts on several occasions here, and must confess that for two or three weeks have thought that the opinion that I had formed as to the worthlessness of concrete as a fireproofing material was wrong, but I have made certain tests, which I prepared to

*Addresses read before Building Code Revision Committee, New York City, June 26, 1909.

submit to you later, to show that the observation of years about kilns and fires had impressed upon me a belief which these tests have borne out. You have had before you men, learned professors, engineers, architects, so-called experts, representing the cement industry, who have stated to you that there was no fireproofing material like cinder concrete. If such is the case, why is it that these very manufacturers of cement buy the highest grade of firebrick, instead of using their own cement to bond said fire brick in the building of their kilns, are very careful to secure from us also fireproof mortar, made from the best grade of fire clay, to form a bond in building such kilns in which they burn their rock? How is it, if cinder concrete, or concrete of any kind, is such a fire-resisting material, that steel works use fire brick when concrete can be had so much cheaper?

While concrete may be good for some purposes, experience has shown me that wherever the heat strikes it, it goes to pieces and dust. And while there are cases where it can be used as a preventive, perhaps of fire, like, for instance, in an office building, where a man may carelessly throw a match into a waste paper basket, or a lighted cigar, thereby causing a slight conflagration, which can not go further by reason that the concrete will not burn under so slight provocation, you will find it true, however, that if you allow it to be put into buildings used for mercantile purposes, that wherever there is a quantity of inflammable material which takes fire, it will burn, fall to pieces, and if those who are in the building at the time escape uninjured, you are endangering the lives of the firemen by forcing them to go into buildings of that kind, where the floors are liable to tumble over them, or the floors crumble under them at a moment's notice.

In conclusion, let me say that it is more than sixty years ago since I was born in this city, and I have been a resident for more than fifty years of that time in your midst. I well remember as a boy, going to the scene of a fire in Elm street, and seeing the remains being carried out of those who the previous night had retired happy and well, burned beyond recognition by reason of poor construction. Again, in the 70's, my business having called me to Brooklyn, I stood and watched them carrying out the dead from that terrible fire of the Brooklyn City theater. While up to that time perhaps construction of fireproof buildings had not reached that point where that could be prevented, the time has come when, if you gentlemen do your duty and allow nothing but good fireproof buildings to be constructed (and they can only be constructed out of burned clay), such a thing can not happen again.

Gentlemen, I submit to you the tests I made of hollow tile and cinder concrete, burned side by side in the kiln under the same conditions. As you will notice, the hollow tile stood up, and is, as it always will be, a first-class fireproof material, while the cinder concrete went to dust and ashes. Will you endanger the lives of this city of 4,000,000, soon to be 8,000,000, as one of our adversaries stated, by installing such material as this into the buildings without its being fireproof? The responsibility rests with you, and it is a grave one; will you allow people congregated together to meet the fate that those poor people did at the Brooklyn Theater fire? Will you allow it to go into our hotels and apartment houses, so that those who retire happy and feel safe for the night will be carried out the next day, as in the case of those poor people in Elm street, when I was a boy? Again, gentlemen, I say the responsibility rests with you, and it is a grave one; you know your duty in this case, and I have no doubt but what you will do it.

If the financial advice being given the public in liberal doses through the medium of popular magazines, these days, is worth anything like what it purports to be, we wonder why those writers do not follow their own advice and soon become rich enough that they need not write for a living.

Written for THE CLAY-WORKER.

FIRE "LESSON" FOR NEW YORK.

In the Reconstruction of the Parker Building, Which Was Burned Last Year.

BEFORE THE twelve-story Parker building caught fire last year it had been called "fireproof." But the fire "gutted" it completely, killing three men and destroying hundreds of thousands of dollars' worth of property—principally because the open elevator shafts and stairways allowed the flames to spread from one floor to another—and because not enough fireproof material had been used to protect the columns.

Most of the metal frame was left in good condition, however, and now the reconstruction is begun. The architect and builder have set out to teach New York a lesson in fireproofing. With the experience of the fire behind them, they are going to show what a really fireproof building is.

For the floor arches the architect has specified 12-inch hollow terra cotta blocks, of the kind used in the city's most modern skyscrapers. In the process of manufacture these blocks have been subjected to a heat of 2,000 degrees, and are proof against the hottest fire. They are to be laid so that they will cover the bottom surfaces of beams and girders, protecting the metal members by 2 inches of fireproof material.

In place of insufficient column covering in the old Parker building, the columns in the new will have as protection a 3-inch thickness of hard-burned terra cotta, joined together by Portland cement mortar. This covering will insulate the metal from the fiercest heat capable of being generated in the building.

The elevator shafts and stairways are to be enclosed in such a manner that, if a fire starts, it will not be able to spread from one floor to another, but will be confined to the level of its origin. In every other detail the architect and builder have planned to make the new structure absolutely fireproof.

Written for THE CLAY-WORKER.

TILE VS. CONCRETE BUILDINGS IN NEW YORK.

The recent discussion of New York's proposed building code has brought to light some interesting facts. It was formally stated to the mayor, who presided at those meetings, by one of the leading concrete experts, that fully 60 per cent. of all the fireproofing work in New York was done by one of the several tile companies there, the National Fireproofing Company, while sixteen concrete companies had to scramble for that part of the remaining 40 per cent. that is done in concrete.

Cinder concrete is permitted in New York, the cheapest known concrete made, and our concrete contemporaries would have us believe that everything, or nearly everything, fireproof built there was concrete, and concrete advertisements attractively announce that any concrete is as good as tile, and cinder concrete is infinitely cheaper than the latter. Yet, on the stand, they have to admit that not all, but just one, of the tile companies does 60 per cent. of all the fireproofing in the city!

This certainly would indicate that the building public of New York is discriminating, wants only the best and safest material, and is willing, in at least 60 per cent. of its work, to pay a little more to secure the very best.

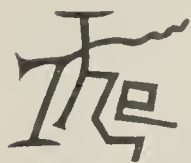
More than that, tile has been acknowledged standard fireproofing since 1874; concrete has not yet passed the experimental stage, and in spite of the millions spent in advertising and exploiting it, it can hardly be termed a dangerous competitor of tile fireproofing, for of the existing "fireproof" buildings the country over, fully 94 per cent. are tile.

It was further shown at these hearings that the National Fireproofing Company maintains a great testing laboratory in Chicago, where its work (as well as every system of con-

crete construction) is carefully and impartially tried by skilled engineers; its object is to constantly better its system, and make it less costly to the users.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



TRADE IN brick and other clay products has undergone a marked improvement during the past month, and Milwaukee dealers report that they are receiving more orders than at any time in the last few years. With the boom in all lines of construction that took place after the tariff was settled, and was caused by the general branching out of all manufacturing concerns, the brick trade began to improve. Since that time it has steadily increased until it is now in a most flourishing condition. Local dealers look forward to even busier times next spring, and are predicting that the fall trade will be perhaps the largest they have ever experienced.

In the paving line also there has been a marked increase. The paving contracts of Milwaukee were held up by a budget fight until a short time ago, but the demand for brick for such purposes since that time shows that it is as popular as ever for paving. It is also the material best adapted for a large proportion of Milwaukee's streets, as the grades in the cream city are considerable, and the amount of heavy teaming correspondingly large.

Speaking of the local brick trade, George J. Schwartz, of Riketon & Schwartz, the big Milwaukee supply company, said: "The brick trade here is stiffer than it has been for a long time, and much brisker than at any time this year. The demand for construction material is very heavy at the present time, and brick seems to be as much in demand as ever. We expect the fall trade to be better than it has been during the last month, and look forward to excellent business in the spring.

"In the paving line there is not as much demand for bricks as might be expected," continued Mr. Schwartz, "as many Wisconsin cities like Milwaukee were hindered by legislation from beginning their prospected paving until the present time, and now the work must be left over until spring.

"The terra cotta works are so busy that they will not take any more orders except for December and January deliveries. In all the clay products trade, conditions are very bright."

"The brick trade shows a considerable increase over last month," said Jesse B. Whitnall, president of the Pennsylvania Coal and Supply Company, "and from present indications will be better than it has been for years. The demand is constantly increasing, although Chicago brick have risen 50 cents in the last few days. The price of the local product has been raised \$1 a thousand."

The Allis Chalmers Company, of Milwaukee, Wis., will, in the future, manufacture machinery for making sand-lime brick, and has employed as engineer in charge of the new department, Franklin Henshaw, formerly with the International Sand-Lime Brick Company, of New York City.

Thomas E. Dockery, president of the McCugo Construction Company, and a prominent politician of Fond du Lac, Wis., has been arrested on the charge of bribing the Barber Asphalt Paving Company, which had charge of a large paving job in Fond du Lac in 1907, to give him a price on brick that was to his pecuniary advantage. Dockery, who is charged with having made \$500 on the deal, has plead not guilty.

Green Bay, Wis., has decided not to pave any additional streets this year, but has mapped out an extensive program for 1910. Brick may be used for paving, as Wisconsin towns have been given good object lessons as to the durability of asphalt and concrete, as well as the ever-present dust nuisance on macadam pavement.

An ordinance has been introduced in the common council of Milwaukee, Wis., to prohibit the use of asphalt pavement on streets occupied by street car tracks. It has become evi-

dent that the turning of vehicles in and out of the tracks destroys asphalt too rapidly to warrant its use.

The dust nuisance on the macadam pavements of Milwaukee has become so pronounced and objectionable that the city has had to treat several of these thoroughfares with a dust-laying combination called asphaltilene. The streets so coated are closed for several days after the application of the mixture, thus seriously impeding traffic. The dust layer, which is sold by the Standard Oil Company, will be used extensively next year because of the large amount of macadam pavement in Milwaukee. The dust nuisance on brick pavement is practically negligible, a fact that will probably incline the city to use that material more extensively in the future.

Fond du Lac, Wis., is experiencing trouble with the cement pavements which were laid there a short while ago. The cement is cracking in many places, although no apparent cause aside from the material itself is assigned. The experience of Fond du Lac is proving an object lesson to the Wisconsin towns that have considered the use of concrete for paving purposes because of its comparative cheapness. The Barber Asphalt Paving Company, which laid the pavements, has been asked and has agreed to repair the streets in question immediately.

Because of the dust nuisance on the macadamized streets of Two Rivers, Wis., the roads on which this kind of paving material is used have been coated with a layer of tar and granite screenings.

The plant of the Hydraulic Brick Company, of Menomonie, Wis., is now being operated by electricity. Steam power is retained only for the drying machine.

Bricklayers employed in the construction of the J. J. Laughlin building, of Antigo, Wis., struck for a nine-hour day and 45 cents per hour. Contractor C. F. Dallman agreed to the increase and the men returned to work. They had formerly been working ten hours a day.

Fire broke out in the kiln sheds of the Whittet brickyard at Edgerton, Wis., but was extinguished before any appreciable damage was done.

The union masons of Appleton, Wis., have given up their fight for shorter hours and higher wages, and have decided to submit to the old schedule of 50 cents an hour and a nine-hour day.

Brick was chosen the material of which to construct the new depot of the Chicago, Milwaukee & St. Paul Railway Company at Berlin, Wis.

A large brick factory will be built by the Paine Lumber Company, of Oshkosh, Wis., which will take advantage of rich clayworkings in the vicinity of the lumbering city, which have hitherto been overlooked because all available capital was interested in the lumber trade.

Edward Fricke, a well-known brickmaker of Manitowoc, Wis., and connected with the Manitowoc Clay Company, has resigned his position with the clay company and contemplates the establishment of a brick plant.

Brick panels will be built in the exterior walls of the new Vetter Manufacturing Company's factory at Stevens Point, Wis.

A. BADGER.

FIREPROOFING BUSINESS PROSPEROUS.

Officers of the National Fireproofing Company, who met in Pittsburg, August 27, to discuss the building outlook, report a marked improvement in all of the large cities. Among those at the meeting were Vice-Presidents E. V. Johnston, of Chicago, and H. M. Keasbey, of New York. They had a conference with President W. D. Henry and Vice-President R. W. Allison, and inspected the new Henry W. Oliver building.

The company has installed in this building a mortar carrier which lifts mortar from the mixing boxes in the basement to the top floors. The mortar is used to set the hollow tile. The new device, which has never before been tried, is the invention of Dudley Nee, one of the superintendents of the company, who is more than pleased with the operations of the carrier and rapid progress being made on the building.

Mr. Keasbey reported a wonderful improvement in the building situation in New York—better than it had been for several years—and Mr. Johnston said that Chicago was enjoying a splendid business, the building trade there being in better condition than for two years.

Written for THE CLAY-WORKER.

BUTTON-HOLE TALKS.

The First Product of the Kiln.

ADAM STRETCHED himself and awoke. As he had just been manufactured out of clay, he felt justified in feeling like a brick. However, as a few particles that had failed to combine were still sticking on his hands, he decided to betake himself to the brook in order to get clean. Now, Adam knew that he had been made out of dirt, but did not know to what an extent his body was permanent, so when he reached the water, knowing that it would dissolve mud, he merely thrust his foot in tentatively, and gave it one or two shakes in order to ascertain the effect. Finding that his foot was not dissolved, he stepped in and took a full bath, sporting among the deeps and shallows. This having a very fine effect, he made a mental resolution that he would acquire a habit of bathing. Feeling still better over having made a resolution thus early, he dried himself with prairie grass and decided to see how far his legs were able to take him. Never having used these members to any great extent, having in his whole life walked only the few steps from his birth-kiln to the brook, and then not having felt any fatigue, he was justified in assuming that the said members could never get tired. So out he started.

Now, the first thing that attracted his attention was when he had a sudden sensation, unpleasant withal, in the region immediately surrounding his great toe, he having stumped it against one of the hard scraps that had been left lying around his birth-kiln. As has been said, this made him sit up and take notice, as it were, and had the further effect of making him utter a loud expletive, which, it must be said in justice to Adam, surprised no one more than it did himself. Finding now that he had been probably sold a gold brick as regards his means of locomotion, but also finding, on the other hand, that he had means to amuse himself and bewail his fate in an audible manner, he decided that things could have been worse, and proceeded on his way, albeit somewhat more carefully. About this time he became cognizant also of the peculiar power of his eyes. He noticed that they could be rolled around in every direction, and that he could see everything that took place. Up to this time he had been afraid to look anywhere except directly in front, for his eyes feeling so loose in his head, he thought that if he tried any such stunts that they would probably fall out, and he had an instinctive feeling that such a proceeding would not be exactly proper. If it had not been for the fortuitous circumstances of his having stumped his toe and on this account having been involuntarily compelled to look down for the object of his discomfiture, it is probable that even now the human race would not be able to see anywhere but straight ahead. For so strong is heredity and parental discipline and precept that the very thought of looking anywhere but straight ahead would give one the cold shivers, and allowing for the natural growth of a fear and also for the love a human naturally has for exaggerating a statement, by this time the imagined penalty of looking down would probably have grown so great as to include, among other things, the total dissolution of the bodily structure something like the deacon's one-hoss shay of our own time.

As Adam proceeded he got tired. This, of course, came as a surprise to him. He also felt hungry. This was new, too. Feeling somewhat perplexed, he sat down on a smooth stone to cogitate, finding that he could cogitate very nicely. A short distance away was another bend of the brook, and as his first bath had given such a fine effect, he decided to repeat. But on looking over into the water, he drew back in amazement, for a strange looking creature gazed forlornly up at him. He peeped over again, tried to look around the creature, but every move he made the stranger duplicated it. Now it must be said that this disconcerted Adam. He decided on the whole that he would not take a bath at that particular time and place. Now he had seen all kinds of animals on his walk and had given each one a name, thus amusing himself with his newly-discovered power of speech. But a creature like that which appeared in the water he had

never seen before. He decided that when he took his summer vacation he would investigate this creature also and give it a name, for he rightly surmised that it would feel bad and unusual without a name. In the meantime his hunger had increased to enormous proportions, and he knew not how to alleviate it. How could he have known that one must pack foreign matter into one's face? Alas, he did not know it, and so did not know what to do. He stretched himself at full length under an apple tree and gave himself up to despair, not knowing how to weep, and not having accumulated a sufficient vocabulary to curse fluently. He was soon sleeping peacefully on his back. Now it must be known that our first ancestor snored and thus kept his mouth open during sleep. This proved another fortuitous circumstance not only for Adam, but for the whole human race. For when his snores attained great vibratory proportions, the force thereof shook down a small juicy apple from the tree directly into the upturned mouth of the sleeping man. This woke him up, and while he lost no time in extracting the apple, he could not help perceiving the satisfying flavor left in his mouth, nor the way his mouth watered. So, throwing discretion to the winds, he took a bite of the fruit, and thus started a habit in the race that bids fair to remain permanent.

After finding out how to subsist without labor, he had time to turn his mind to other things. He corralled a beautiful pedigreed bulldog for his pet and lavished caresses upon it, talking to it the while, and trying to get an intelligible answer from the canine. Failing in this, he busied himself in training the vines around a dead tree in the vicinity, chuckling gleefully meanwhile, for he knew that this would be sufficient for his fall supply of wine.

But even with all this beauty and plenty around him, it must be confessed that Adam did not feel exactly right. He would wander around muttering to himself and coining new words which were to become the fought-over roots of the etymologists, but he felt as if there were something lacking in the scheme of things. Although Adam did not know it, he was lonesome. His subconscious self longed for an intelligent, or semi-intelligent, being to share his surprises and admire his deductions. Feeling thus, he lay down to sleep it off, as that had worked in the former case, and he saw no reason to doubt the efficacy of it now.

Adam slept deeply all that night and far into the morning. When he awoke he had a slight headache, and his stomach felt as if he were just recovering from an operation for appendicitis. This he knew not how to account for, but he had an instinctive feeling that his longing of the previous day was about to be gratified. Feeling thusly, he decided to wash himself and started towards the brook, when he was astonished to see a new and different kind of animal there before him which his heart told him was the creature he had wished for. But what was this thing that she was doing? He saw her bend over the water and smile at something within, all the while manipulating her hair with her spread out fingers. All at once Adam thought of the strange creature he had seen in the water but yesterday, and his heart gave a great bound and he sprang towards the brook, his whole being aflame with the mad fire of jealousy. He stopped half way there, however, his discretion prevailing. Slinking back out of sight, he murmured, "Oh, what's the use?" or sounds to that effect. He decided that the better plan would be to assume an attitude of utter indifference, and to not even simulate surprise at the creature's appearance, but take it all as a matter of course.

In about two hours Eve, for it was indeed she, finished her toilet and looked around her, knowing from her woman's intuition that Adam was near somewhere. She saw him in the distance whittling a stick with his fingernails in a very nonchalant manner. Immediately she got her dander up and commenced to pout, and decided that she would have nothing to do with the vile creature. This did not last long, however, as she had considerable curiosity, and knew that Adam could inform her on many things she could not otherwise learn. So she decided on a plan of conquest of this male creature, knowing from her intuition that she could not fail.

She approached him gracefully and modestly, plucking a rose on the way, knowing that Adam was watching her out of the tail of his eye through his long hair. Now it must be

stated that a large tree intervened between the two and behind this Eve betook herself. Being a very athletic girl, she climbed into the branches and seemingly accidentally managed to catch her hair in a twig.

From right here, gentle reader, it pains me to proceed. As the circumstances are common property at this time, however, I do not think it even necessary to go into details. Suffice it to say that the age of chivalry started at this time, and that Adam's poor duplicates have been giving up their seats in the street cars ever since. We will pass over this stage rapidly, as nothing can be gained from brooding. In a few weeks the inevitable had happened, and the first stage of slavery had appeared on the beautiful earth, a thing to stay and grow until it was to become a very part of the fibre of society.

As was to have been expected, dissatisfaction entered into the midst of the little cabin that Adam had been forced to build. It went so far that Eve made the assertion that the whole earth was not large enough for Adam and herself. Adam countered by accusing Eve of making goo-goos at Selex, a fine specimen of the baboon family. Adam knew, however, that it was a poor attempt, and fled into the woods after allowing Eve to have several last words.

Things went along from bad to worse, until a wonderful thing happened—a thing that has calmed woman ever since, a thing that saved the state as far as Adam was concerned, and kept him from being snatched baldheaded. This thing got to be a habit with Eve for several successive years, until a goodly number of children crowded around at night to be put to bed. Adam thought that he would certainly have some leisure now, and used to go out every day into the shrubbery and smoke. But Eve brought him up sharply one day with a request that wellnigh shattered Adam's constitution and by-laws. She told him that he could have the job of naming the children, as he had named everything else. Now it must be confessed that this was a job, for Adam had used up all the names he could possibly think of in naming the animals. Here is where the expression, "Woe is me," was first used.

The succeeding years of this happy couple were spent in work. Adam procured food in some wonderful manner by the perspiration on his forehead, and Eve sewed the buttons on the children's fig leaves. The rest of the story is known to everyone, so it is needless to tell it here. AL.

PLASTICITY OF CLAYS.

An explanation of what appears to be a satisfactory method by which workers in clay can accurately ascertain the plasticity of any given clay has just been published by the Geological Survey in a bulletin (No. 388) prepared by H. E. Ashley.

Heretofore an accurate judgment as to the qualities of a particular clay could be formed only after long and costly experiments. Clays, apparently similar in nearly all respects, were found in actual manufacturing to give results very different from those expected; and of late years it has become increasingly important to devise some test by which their qualities could be quickly and easily determined in advance of expensive installations.

Mr. Ashley, acting for the Geological Survey, under an appropriation by congress for the investigation of the structural materials of the United States, has discovered that the degree to which certain dyes, of which malachite green seems to be the most satisfactory, are absorbed by a given clay furnishes a very satisfactory index of its plasticity, which, of course, is the most important of all its qualities.

Adsorption is the property by which dyes and other substances are extracted from solution and incorporated into the thing dyed. It differs from absorption, which is incorporation of a liquid as it stands, irrespective of what it holds in solution. Adsorption is especially characteristic of the peculiar substances known as colloids, which form the bulk of clays, and on which their plasticity is believed to depend. The amount of dye, therefore, which a given amount of clay will absorb from a standard dye solution indicates pretty accurately the proportion of colloids that the clay contains.

Tests by Mr. Ashley of most of the well-known commer-

cial clays with a standard malachite green solution have shown that their adsorption of the coloring of the dye corresponds very closely indeed with their actual known plasticities. As tests with malachite green give expected results where the plasticity is already known, it is inferred that they will prove equally accurate in determining the plasticity where this has not yet been ascertained.

Bulletin 388, which is entitled "The Colloid Matter of Clay and its Measurement," can be had free by applying to the director of the United States Geological Survey at Washington, D. C. Its nature is highly technical.

AN ARKANSAW PAVING PROPOSITION.

Through the efforts of the Marianna Commercial Club, the city of Marianna, Ark., has about completed all arrangements for the laying of about three-quarters of a mile of vitrified paving in the business section of the city, the estimated cost of which is \$34,000. The pavement will average about 40 feet in width. Vitrified brick will be used, and it is expected that work will be started within the next forty-five or sixty days. For the present, communications addressed to E. L. Cogbill, secretary commercial club, will receive the proper attention.

SPEED AND COST OF BRICKLAYING.

As a result of the very careful investigation of the Sewer Department of the city of Boston, Metcalf & Eddy, consulting civil engineers to the Boston Finance Commission, present in a recent report some facts regarding the cost of bricklaying by municipal employes. Comparing the smaller sewers built by the Massachusetts Metropolitan Commission with those built by the day labor force of the city of Boston, the engineers find the prices ranging from \$9.04 to \$18.34 per thousand on the day labor work by the city, whereas on the Metropolitan work done by contract the highest price was \$4.23, and the lowest \$2.77.

Based on the number of brick laid, the difference between the day labor work of the city and the contract work of the Metropolitan Board is as noticeable as is the difference in cost. These items are particularly interesting when it is noted that upon the city work, taking the average for a whole week, the number of brick laid per mason per hour was as low as 13, and the largest number was 242, as against 94 and 570, respectively, upon the Metropolitan work. The highest number per hour for the average of an entire job being done by the Sewer Division was 87, whereas the lowest average upon Metropolitan work was 165, and the highest 384.

HEARD IN NEW ENGLAND.

Building operations have been heavy in most localities in New England during the season now closing. In the northern sections it will not be possible to do much outside work after the opening of next month. Cold weather sets in early and menaces construction work here. A review that shall be comprehensive and exact is impossible now, but a general review points to greatly improved conditions as compared with last season. In nearly all localities the building operations have been of a very substantial character, taking the form of business buildings and permanent structures of that type. Practically all the larger towns have seen liberal improvements in the direction of new business blocks.

According to what appears to be reliable information, considerably the larger proportion of these buildings have been constructed of brick. In the larger towns steel frames have been utilized, in many places for the first time. But a majority of the new buildings have been built of brick in the old-fashioned way, which still prevails in New England outside the larger cities. Many brick dwellings have been built and other structures designed for particular purposes have been of brick, representing something of the change in senti-

ment among builders, even in New England, which has an abundance of timber suitable for building purposes.

So far as prices are concerned, they have held fairly good throughout.

HIRAM.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS OF THE KENTUCKY METROPOLIS.



HERE HAS been a satisfactory increase in the demand for brick and other clay lines in this section in the past month, and the indications are pleasing for a further increase later. There has been a decided revival in the building industry here, and every week sees increasing reports of large structures to be erected within a few months. This is not confined to any particular class of structures, and includes factories, stores, apartment buildings, residences and smaller houses. The general increase is such as to encourage the brick people, and they are satisfied that the outlook is becoming more favorable each month.

The demand for other clay commodities has been improving slowly, but the increase is giving encouragement to the manufacturers, and there is every hope for a better fall demand than was the case last year. The increase for sewer pipe has been very marked in the past month, and there are favorable indications for a continuation of this business. Fire brick are increasing, but not as rapidly as the manufacturers could wish. However, the resumption of the large plants in every section of the country makes the situation more pleasing. Vitrified brick are moving along in a moderate way, and there will likely be more activity in this respect soon.

There are several large plants to be erected here within the next few months, and a number of changes in real estate circles are being made that will help the building situation very materially. Labor is less plentiful than it was, and this is taken as a significant indication of real activity.

The annual outing of the Builders' Exchange was held on Labor Day at Hike's Point, several miles from the city. There were several hundred builders present, and the day was one filled with pleasure from every point of view. The feature of the outing was a baseball game, which was played in professional style, between the contractors and subcontractors. A spread was served to those present that filled the inner man with all that was to be desired, and the day was ideal in every way and fully enjoyed by all who participated.

The plant of the Owensboro Sand-Lime Brick Company, at Owensboro, Ky., was destroyed by fire several weeks ago entailing a loss of over \$35,000. The insurance on the plant did not amount to more than \$20,000. The blaze started in the oil room, presumably from an electric wire. The fire had made good headway when it was discovered by a passerby. As the fire started in the early morning hours, it gained considerable headway before it was discovered.

J. P. McCullum & Co., who have long been identified with the brick industry in this city, have leased the plant formerly operated by the Falls City Brick Manufacturing Company, and are operating the same. They say that there are very fair prospects for business, and that there has been a very nice demand in the past few weeks.

The Hydraulic Brick Company has been awarded the contract to supply the brick for the large plow plant of B. F. Avery & Sons. This calls for 5,500,000 brick, and will be delivered from this time forward. They say that there is a more pleasing outlook to the demand now, and that there is reason for a favorable aspect to the fall business.

The Louisville Fire Brick Works, at Highland Park, Ky., are pleased with the increase in the general demand for fire clay commodities. It has not yet attained the normal and this will not be realized as yet for at least several months,

but the increase is pleasing. Mr. K. B. Grahn, president of the company, who was in Europe for some time, has returned to his home, feeling much better in every way.

The Southern Brick and Tile Company are finding a more satisfactory demand for both building brick and drain tile, and say that they have recently received some nice contracts for brick. They have, in fact, had about as much as they can take care of for months, and are not at a loss for business at any time. They feel, however, that there will be a more active business during the months to come.

The P. Bannon Sewer Pipe Company are very busy at their large plant. In the past few weeks the orders have increased very perceptibly, and they are working with a full force of hands. In this respect they are much gratified at the outcome of business, and now believe that there will be no further causes for any slackness for this particular line.

C. O. Smith, the veteran brick man, has been making some trips in the country, and has been finding the orders very gratifying. He has lately received several that are of the kind that makes good business, and counts on a very nice increase in general brick lines this fall.

The Louisville Brick Company complain of a lack of teams to deliver their brick. They have an ample supply of orders for building brick, and say there is no cause for complaint on this score. They anticipate an increase this fall, and are now actively at work on a number of orders. On account of a suit by the city to restrain this company from digging clay at the foot of Missouri avenue, the company has been compelled to quit such operations in that district.

The West Point Brick and Lumber Company, West Point, Ky., find that they are seriously handicapped by a lack of help in their operations. They have a number of large orders on hand and are working full time, and are endeavoring to progress as rapidly as they can under the circumstances. Owing to the resumption of other plants in that locality and the building of roads, there has been a scarcity of help recently.

The Kentucky Vitrified Brick Company are doing a very fair business, though there is not as great a demand for street brick as there really should be. However, there is hope in the demand for more brick soon, and they are counting on a better business later in the year.

The Burrell & Walker Clay Manufacturing Co. say that while the situation has not materially increased with them, they are still of the opinion that there will be a more active demand soon. They are operating their Owensboro (Ky.) plant as they have been in the past.

The Louisville Pottery Company note a very much better demand for stoneware and kindred lines in the past month. In fact, the increase has been of such a nature as to make the outlook very gratifying to them. They feel now that there will be a much better business during the remainder of the year, and are counting on a big increase.

George Bauer, of the Paducah Pottery Company, Paducah, Ky., was in the city a short time ago. He reports the outlook for pottery in his section to be very much better than it was, and is sure that there will be a big demand this fall.

COLONEL.

NOW THE CLAY RAILROAD TIE.

John Murphy, of the Murphy Grout Company, Columbus, Ohio, has devised a patent tie made of clay for railroads. A sample carload of the ties was made at the plant of the Wassall Brick Company and shipped to Columbus. Within the next few weeks these ties will be given a thorough test by the Hocking Valley Railroad in Columbus.

The ties are made from the same quality of material as the Wassall paving brick, and are burned in the kilns. An iron rod passes through each tie from end to end. When the ties are laid in the roadbed they are placed on a patent cushion that takes up the jar caused by the trains passing over them. The first idea of the inventor was to use cement in the manufacture of the tie, but this was given up because of the cost.



BY THE LIGHT OF THE KILN FIRE.

"HAIN'T IT FUNNY how things change? Why, the old mud yard is going out of existence, so they say, spite of fate and they claim that it is all because the sand and lime brick is going to take the place of the old-timer, the red brick. Now that is what the newspapers say and what lots of fellers are talking about, and are trying to work in lots of things about politics and things that a feller that works hard for his money is better off if he don't know nothing about."

The after-tender leaned up against a split hemlock clift and took his pipe from his mouth, extending his left hand, his forefinger pointing towards the sky, remarked: "You can't change nature successfully, unless it consents. Now what is the use of arguing about cement and lime bricks to compete with the clay brick, when you know that your knowledge of mathematics would defeat you on the start. You see some folks think that the Pyramids of Egypt and Sphinx are made out of granite, others say they are made out of concrete, or sand and cement. Now, I don't know what you think about it, but I allow for the sake of arguing that they are made of cement. Then I am going to allow that they have been a success, in point of antiquity and for the purpose of preserving a record of the character of the building material used at the time of their construction. No, it ain't no use for you to talk to me about nothing else, that clay brick has been in the world thousands of years afore the Pyramids of Egypt were conceived in the colossal minds of those ancient kings. Why, you ought to read something, young feller, and you will find that they are digging out cities that must have been buried three thousand years before the Spnix was made, and the walls are all made of brick, common hand made clay, burned as hard as flint. Now, of course, if sand and cement, such as compose those Pyramids and Sphinx was and is the best building material, why is it then that for all these years people have been building houses and paving their streets with bricks, common clay bricks? Why! young feller tain't more than five or six years ago when you first saw cement, concrete sidewalk, was it? What do they amount to? They are slippery old things anyhow. They look good when it rains, but you can't fix one up so snug and so easy as you can a brick sidewalk. You can't build one, more than half so cheap, and, furthermore, all these concrete and cement experiments have been tried and found less than second best, thousands of years ago. Why, you can visit the Round Towers of Ireland, as well as the ruined castles of the Nile, and I'll venture to say, that after travelling the whole universe over, you cannot find one monument left standing, to the memories of the ancient advocate, of anything but a common hard burned clay brick.

Eh! What's the use of talking.

Why! In Chelsea when the buildings were being swept before the flames and everything seemed doomed, the cement block buildings dissolved before the heat and fell like ashes upon the brick pavements, which are today as good as they were before that fire. Brick buildings, some of course, in the highest intensity of the heat melted and fell, but in a majority of cases it was the red brick that stopped the flames from traveling even farther than they had.

I tell you boy, all these old experiments were tried centuries ago and the red brick made of clay is a good many years before the experimental age. You can get no machinery

to handle the clay that can give it the ring and sound equal to the tone produced by the touch of the hand-made, well burned clay brick. Yes, I know machinery is shortening the route and making bricks very much faster than they used to, but the question I raise is this: When the machine-made bricks of today are as old as the Spinx is now, will they still be preserved; if not, they have not proved the test, which is before them. Because, as I have said before, there are hand-made bricks in existence that were as old as the Pyramids are now before the Sphinx was ever thought of.

Why, most every paper I take up I see advertisements inviting people to go into the cement block business at home. They sell machinery most always to some feller who never knew what it was to shovel mud or sand, but always liked to look at pictures while he sat in the shade, but when fellers who buy these machines discover that it costs as much to get the gravel for the block as it would to get out clay enough to make two blocks of the same size, and then it costs as much to get cement enough to finish that block as it would to make two more blocks, and then he finds that it costs fully as much, if not more to handle the block, than it would cost brickmakers to handle bricks, he will lay his block machine one side, as the Egyptians did thousands of years ago, to go back again to the original rule of nature and make bricks out of clay and water and sand and muscle and burn them with fire.

I tell you, sonny, things do change, the world has always been changing from one thing to another, and after you get through with all kinds of fooling about your lime brick and your cement block and the whole line of 'em you are going to find future construction upon a clay brick basis.

At Baltimore when the great fire took place it was the red brick and not the sand brick that stood the test, and they say the same thing took place in San Francisco.

SHINDIG.

THE GERMAN CERAMIC INDUSTRY.

Consul-General Frank Dillingham, of Coburg, Germany, has furnished quite an extensive report through the daily consular trade reports of the ceramic industry of Germany in 1908, as compared with the two years previous. According to this report, which covers sixty-five factories reporting upon the condition of their trade for the years given, there has been quite a decline both in the home trade of Germany and in their export trade in the past three years, and the most conspicuous part of it being in 1908, when the decrease in the home trade was 64.61 per cent., and the decrease in their foreign trade was 69.49 per cent. This per cent. seems to represent not just the money value of the decrease, but the number of factories reporting a decrease in production, while the factories reporting an increase for the same period were 12.31 per cent. in the home trade and 10.17 per cent. in the foreign trade, with approximately 20 per cent, reporting neither increase nor decrease in the business. The products mentioned in the report as being manufactured by these industries is porcelain table and toilet articles, porcelain figures, toys and fancy articles, special articles, buttons, beads, hand-painted china, earthen and majolica ware, slabs, stone and earthenware articles. Of these the heavier quantities were in the table and toilet articles and the earthen and majolica ware, which constitutes the greater number of manufacturing institutions.

Commenting on the decrease in foreign business, it is said that the paucity of orders from the United States was especially noticeable, and as the porcelain industry depends largely on the American market, this condition of affairs was severely felt. It is said that the tremendous development of the ceramic industry in the United States of late has not only met competition sharply for the German products offering here, but they have been forced to reduce their

prices, and, even in face of all this, American manufacturers have captured a lot of the trade formerly held by the Germans. Indeed, it seems to be this condition in their export trade that is hurting the German ceramic industry more than anything else, because the factories which had manufactured exclusively for export have been dumping their surplus stock on the domestic market in Germany, and this has had a depressing effect on both the market and the prices. Incidentally, there is mentioned a new factor in the competition with glass toilet articles. It seems that the glass people are entering this field and there is some apprehension that eventually the glass industry may capture quite a lot of the trade, and this should be of interest in the United States, as well as in Germany, because if glass finds favor in some clay products lines in any one part of the country it will soon be followed in other parts, and if they are beginning to feel the competition of glass toilet articles in Germany, we may soon have to meet more of it here.

Speaking of the tendencies of the trade, this report says the tendency toward simplicity in form of artistic decorations on china is pretty strong, and all useless decorations are avoided. The novelty of the year is a certain kind of net work in blue which covers the whole article uniformly. This design acts as a substitute of the Tokyo design of the previous year. It is said the new design is useful, particularly for vases and flower pots. In wash basins and toilet articles there are late as well as new forms, with modern arabesque and line decorations. Handles on wash basins seem to be taking the public fancy, and are being put on the market in large quantities. A novelty in coffee, tea and dessert articles is the use of a rich shining glaze, which reminds one of Persian glass. The handles of the pitcher are white. Technically, these glazings are said to represent the best and highest class of porcelain ware technique ever produced in the Coburg district. Silver and nickel vessels are being imitated most strikingly, and the glazing over on the largest pieces is said to be beautifully and artistically done. One novelty in the form of a toilet set is said to consist of the usual wash bowl, but in place of the customary pitcher there is a cylindrical vessel to hold the water hung at the back of the washstand on a marble pedestal, which swings from a brass frame. It is said this novelty is rather striking and a demand may be created for it in the more luxurious homes for the reason that when the water is poured into the large wash bowl, instead of it being necessary to handle the heavy pitcher, one has only to tip the swinging water cylinder slightly forward.

CRETE, THE CRADLE OF CIVILIZATION.

That little island of Crete in the Mediterranean, about which there has been some little war clouds in the east lately, really deserves a better fate than the wearing of the yoke of another country, because it is one of the famous landmarks in history and civilization. Historians credit Crete as being the cradle of modern civilization, and it is from this island that, according to tradition, we received many of our wood-working tools and other industrial ideas. The saw and the auger, and likely the turning lathe, too, seem to have originated among the early craftsmen of this island, which, in those days, was thickly populated with Hellenic races.

IN MEMORIAM.

Death of Albert Augustin.

Mr. Albert Augustin, the founder of the Clayworking School of Laubau, died May 1, 1909, at the advanced age of eighty-four years. He had been connected with the clay industries of Germany since 1850, and with the clayworking school from its start until three years ago, when he resigned on account of age.

A MODERN COLOSSUS OF RHODES,

Who Has Promoted Good Brick Roads in California.

UNDER the caption, "Men of Affairs in Los Angeles," the Daily Times of that city pictures Mr. Charles H. Frost, president of the Los Angeles Pressed Brick Company, as a sort of Colossus of Rhodes, as the reader may see from the accompanying production. Mr. Frost has long been an important factor in the building world of the Pacific coast. A decade or more ago he retired from the brick manufacturing business in Chicago and hied himself to Los Angeles in the search for health. He found it, and then again engaged in brickmaking, establishing a plant near Los Angeles, which has grown to be one of the largest in the country, and the output of which has gone into many of the largest structures and most beautiful homes of that section.

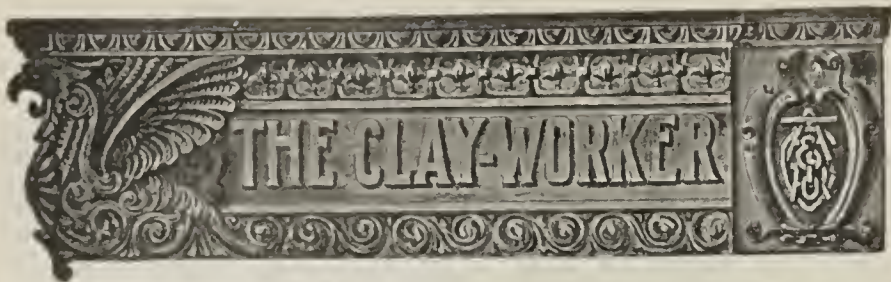
Notwithstanding the fact that the Los Angeles Pressed Brick Company manufactures many millions of common brick and



Chas. H. Frost, President Los Angeles Pressed Brick Company.

large quantities of high-grade front brick and terra cotta, including a line of fine enameled brick, Mr. Frost found time, a year or two since, to establish a building brick plant at San Francisco, just to help out the builders of that section.

Of late years Mr. Frost has given considerable attention to brick roadways, and has succeeded in interesting the municipal officers of Los Angeles sufficiently to induce them to lay several miles of brick streets, and these brick roadways are proving so superior to the asphalt, wooden block and similar pavements previously put down that the demand for paving brick now taxes the capacity of that department of their immense plant. Knowing the care and responsibility of managing such an enterprise, the reader may judge that Mr. Frost has lost none of the Chicago spirit, and well deserves to be characterized as one of the leading men of affairs on the Pacific coast.



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No. 3.

CURRENT COMMENT.

It is no longer a panic, but just a memory—forget it.

* * *

Credit is a splendid old work horse that should be well cared for and not worked too long on one shift.

* * *

For the young man one of the best safeguards against the hard knocks of life is to learn some useful trade.

* * *

It is now the season of the school teacher and the matinee idol, one of which is needed most and the other enjoyed most.

* * *

A reputation for furnishing a high-grade product is better any day than a reputation for furnishing it cheaper than the other fellows.

* * *

Sometimes one cause for disappointment in connection with dryers and kilns is that we expect them to do double work on half rations.

* * *

There must be a long-legged legislator down in Georgia, for one of the bills offered at the late session of the legislature was to compel hotels to supply nine-foot sheets on their beds.

* * *

African hunting yarns and North Pole exploring stories will now vie with each other for first place in the public mind. It will at least be a refreshing change from muck-raking.

* * *

With its beginning at the dawn of civilization, brick has maintained its position as a satisfactory and enduring structural material. Time and the elements fail to injure it. So far as records go, brick was known and used and the structures in which they were used most freely remain intact.

Stone and wood have long since disappeared, but brick has endured through the ages.

* * *

Tile drainage is a little hard on crawfish and mosquitos, but it is a good thing for the community and a paying investment for the man who owns the land.

* * *

Many a brickyard foreman has to solve matters pertaining to race problems and traits as well as clay and its working, because of the different brands of foreign element in the available help.

* * *

Why not do some waking up of the country town, as well as the big cities, to the benefits of brick street paving. It will not only help some of itself, but it should be an important step on the way to brick road paving.

* * *

Let not the people in your community forget that burnt clay is one of the best road-covering materials made—better in some respects even than crushed stone. It may help you to dispose of some scrap product, and besides, it is a good idea to promote among the people in the country.

* * *

The empty cars are now getting filled and the idle hands are finding plenty of work to do when they don't take a notion to strike. It is one of the unfortunate, but seemingly unavoidable accessories to prosperous times—this thing of having strikes. Let us hope that we will soon learn to reduce the number and magnitude.

* * *

While clay roofing tile is becoming more prominent right along, it needs still more pushing to keep it in step with the progress of brick itself in home building. It looks like we need both more factories and more advertising. And the time never was better for pushing such a product, because the old shingle roof is rapidly giving away to other material, and the entire roofing problem is in a chaotic state because of the confusing lot of offerings, both in composition and metal roofing, any and all of which are inferior to the clay product.

NEW YORK'S BUILDING CODE.

The controversy which grew out of the attempted adoption of a new building code for New York has brought about some interesting disclosures. One is that fireproofing is used in 60 per cent. of New York's construction, and the bulk of this work is done by the National Fireproofing Company. Sixteen concrete firms of one sort or another divide the other 40 per cent. among them.

The tests ordered by Mayor McClellan are proceeding, and by fall it will be known what the experts discovered. The discussion has had the merit of developing many interesting and instructive facts regarding fireproofing, and has unquestionably increased the use of the standard in New York.

THE NORTH POLE.

By long odds the greatest news of the month is the announcement of the discovery of the North Pole. This is a news item and a sensation that has completely overshadowed some of our other national problems, Roosevelt in Africa, and everything else of general news interest. Not that the discovery of the pole is such an important item in itself, except that it marks the final success of long continued efforts of exploration which have cost many human lives. The more important things are the mapping out of the polar country and of finally settling the question of the extent of land. There is still more of this kind of work to be done.

More mapping and charting and studying of nature, both of the land, sea and ice. It is more than likely that the final goal having been reached, there will not be the same enthusiasm about northern explorations. Should it result in a complete cessation of these exploring expeditions, it will be almost regrettable that the pole has been discovered so soon, because the exact location of the center or pole of the earth was already fairly well known. It was only a matter of determining whether it was land or sea, but now there remains plenty of other things to be determined about the northern country. For one thing, the possibility of further knowledge about sea currents and about ice-covered land, whether or not there is anything of economic value to be had out of the bleak northern country. It is to be hoped that in the interest of science, enthusiasm about the north will be kept up enough to inspire a continuation of the exploring expeditions, even if the glory of finding the pole itself has already been completed.

FLUE LINING LAWS.

Generally, in the cities where close attention is paid to fire protection in their building ordinances, there are specifications covering the subject of flue linings, and it is necessary for every builder to include the fire clay lining in his flue. If there are any cities where this kind of provision does not exist, those who are interested in fire clay products should call attention to it, and even those who handle such material in the country towns might develop more trade by calling the attention of the public through the local papers and personal communication to the fact that flue linings are made a part of ordinances to insure safety against fire, and the recognition of their merit in this kind of a legal way should encourage many other home builders to make use of them voluntarily. It is a good time now to get after this flue lining business and enlarge the trade. One good line of people to take it up through is the dealers in building materials in the country towns, who frequently handle things of this kind in their lines of products. And, naturally, with the coming of winter, there is more call for flue and chimney material, so that it is a good time to promote ideas in this line.

THE CLOSING SEASON.

The coming month will see brickmaking all over in the northern latitudes and practically over in the southern sections. The main manufacturers can look back on what may be termed a successful season. Disturbances in prices have been few, and, in most instances, were adjusted shortly, making no important difference with the actual result.

Construction has been active all the season, calling for great quantities of brick almost everywhere, and forcing yards to run to their full capacity to fill orders. Good prices have been paid, and in most instances makers will end their season well satisfied with their accomplishment. Perhaps not all have made money as rapidly as they wished, but the proportion who have not are relatively few, and probably in instances where they have not, the failure was due to local conditions which they could not control, and to which they forced to submit.

Reports from every section of the country seem to indicate that the closing season has seen a development of the brick industry equal, at least, to anything that has gone before, and in many cases it is better. It seems that brick have been used more generally for structural purposes than ever before, and public buildings, office buildings, dwellings and other buildings have specified brick more than ever before. Nor is this development at an end. The increasing cost of other material, like wood and stone, and the continued failure of concrete to satisfy, are responsible for a considerable proportion of this improvement. The same in-

fluence should prevail to continue this satisfactory condition.

Manufacturers have a duty to themselves and the industry to perform in this connection which is worthy of consideration. It is for them to know the conditions in the territory where they find a market for their product, and seek, so far as possible, to make their work conform to the plain requirements of the section. They can not hold aloof from this and hope to succeed as liberally as they would if they were in close touch. Hence, the necessity for individual understanding of actual and potential conditions is plainly indicated. It is for them to provide the product in sufficient quantity and of a quality which will satisfy buyers. Then all seasons will be like the one just passed, and the brick business will be on a more stable and more profitable basis.

BRICK AND CONCRETE IN INSURANCE SPECIFICATIONS.

The brick people have had occasion to face some unfair regulations that have been worked into city building ordinances here and there relative to the comparative thickness of a brick and concrete wall, and either following this or preceding it, there are to be found some similar unfair specifications or regulations by insurance people pertaining to this same subject. It is difficult indeed to understand where the ideas come from and how they are offered to the public as advice embodying the theory that a 10-inch concrete wall is as good a fire protection as a 12-inch brick wall.

In a pamphlet before the writer on what is called the Insurance Standard Woodworker, covering instructions and specifications for building and maintaining woodworking institutions so that they will be standard insurance risks, there is to be found this same discrepancy in favor of concrete that has so often cropped up in building ordinances in the various cities. It appears under the head of construction, and the paragraph on the point of walls reads in part as follows: "Brick walls should be 12 inches thick in the top story and 4 inches thicker each story below. Stone walls should be 16 inches thick in the top story and 4 inches thicker each story below. Cement walls should be 10 inches thick in the top story and 2 inches thicker each story below."

The specifications of brick and stone should not be objected to in their comparison to each other, but when 2 inches less is quoted on cement in the top story and then only half the additional thickness required for lower stories, it is enough to set a man wondering what influence actuated the drawing of such specifications.

The writer is well aware that the insurance people themselves have no axe to grind in the matter, and no one to serve other than that of getting the best fire protection practical and it merely resolves itself into a question of whether or not they have demonstrated by actual tests the fire-resisting qualities, or whether they have been misled by enthusiasts in the cement business without having gone to the trouble of making severe tests. There can hardly be room for doubt but that if the insurance people were once properly shown the relative efficiency that they would embody specifications in keeping with the facts of the case, because their main interest is fire protection. This, therefore, is a matter which might well be taken up by the N. B. M. A., and such thorough demonstrations made and data furnished that there would be no going behind. Surely with this kind of data before them the insurance people would change their regulations.

One can not help but believe that it would be a splendid plan to get some of these insurance people down to the next meeting, where there will undoubtedly be people competent to tell them about the fire-resisting qualities of clay products as compared to others, and there would be plenty of authority to make it convincing, so that they would go home and not be easily misled again.

The pamphlet from which the above quotation was made

is one gotten out by a number of mutual insurance companies operating together who make a specialty of insuring lumber and woodworking institutions throughout the country. Whether or not their specifications as to what might be regarded as standard construction is in line with that of the regular old line fire insurance companies the writer is not informed, but the fact that these concerns make these specifications is a handicap to progress in clay products that should be removed. It is simply helping promote an inferior product, and one that has no comparison with clay when it comes to standing as a fire wall in a building. It is not a question to be dropped with a little mere discussion, either, but it is one that some action ought to be taken on.

ANOTHER CONCRETE BLOCK FAILURE.

"At 5 o'clock in the morning of September 8 fire destroyed the Jackson Hotel, together with its contents, causing a loss of about \$25,000. At 2 o'clock a fire was discovered in the kitchen of the hotel, was quickly put out, or supposed to be, but two hours later a second alarm was turned in, and the whole building was in flames and the building was soon a mass of ruins. The north and west walls fell in. Insurance to the amount of \$7,500 was carried on the building and furniture. The building was owned by W. T. Jackson, of Greenville, Tex., and it has not been learned whether he will rebuild. Concrete blocks were used in the construction of the building and water was thrown on them while hot. They crumbled and fell to the ground."

A STORY WITH A MORAL.

There was a man in our town,
And he was wondrous wise.
When business got a little dull
He'd always advertise.

And when his goods were all sold out,
With all his might and main
He'd hustle 'round and get some more,
And advertise again.

And now that man is very rich,
And he has just retired;
While the firms that didn't advertise
Have most of them expired.
—Somerville Journal.

WHEN THE WHISTLE BLOWS FOR NOON.

There's a charm about the chimn' of the great cathedral bells,
An' there's harmony allurin' when the big pipe organ swells;
There's a captivatn' sweetness in the thrillin' of a lark
Or a whip-poor-will a-callin' through the damp and dewy dark.
But say you've been a-workin' for a weary half-a-day,
A-blisterin' your fingers as you're earnin' of your pay.
The screechin' note that greets you seems the sweetest sort o' tune
As you drop your pick an' shovel as the whistle blows for noon.

It's a raspin' note discordant to a highly-cultured ear
But to every hungry feller it's a message soft an' clear;
An' you mutely bless the music as you take from off the nail
The dainty home-made knick-knacks in the battered dinner pail.
Why, the daughters of Terpsichore, that sat at Pallas' feet,
Ne'er tripped a ripplin' measure that to ears was half so sweet;
That, no doubt, was soul enthrallin'; this a hungry stomach's boon;
An' the pipes o' Pan seem playin' when the whistle blows for noon.

There are artists upon music, an' there's critics, it is true,
But a hungry man at noontime is a judge of music, too!
For he's given not to thinkin' how the sweet crescendos roll,
An' a stomach's not the vagueness of a music-lover's soul.
An' so, I say, the hummin' of the plump, brown-belted bees
A-hustlin' after honey in the famed Hesperides
Ne'er with the swish o' busy wings a melody did croon
As sweet as stealeth to me when the whistle blows for noon.
—Roy Farrell Green in *Leslie's Weekly*.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 341.]

WANTED, FOR SALE, ETC.

WANTED—By a graduate of the New Jersey Ceramic School, a chance to learn some branch of clay business. Salary nominal. Some experience in the manufacture of terra cotta. Address Box 849 Care Clay-Worker.

ARTHUR KOPPEL CARS.

Four 1½ ton capacity side dump steel cars, 24-in. gauge. Used about 30 days; fine condition. Cost \$97.00, sell for \$65.00 each; a bargain.
G. W. B.,
1222 Stephen Girard Bldg., Philadelphia, Pa.

FOR SALE CHEAP.

One E. M. Freese brick and tile machine with cutter.
One Quaker mud machine.
One Chandler & Taylor engine and boiler as good as new, cheap.
GEO. F. PETERS,
Browning, Mo.

For Sale, Wanted, Etc., Ads Continued on
Pages 332-334.

"DON'T QUARREL, BOYS;

I BEAT YOU TO IT"

THE AMERICAN EAGLE ALWAYS GETS THERE FIRST



THE AMERICAN EAGLE WINS AT THE POLE.

The American Eagle again triumphs by winning new laurels at the North Pole.

Like the American Eagle Repress it is first in every contest. This machine, like the national bird, wins because of its "get there" quality.

No Repress ever built will compare with the American Eagle.

It will press more brick with less trouble and expense than any other press, and at the same time do better work. That's why it rules supreme the world over, whether it be at the North Pole or at the Equator.

Write for detailed description of the Eagle Repress or any other Clayworking Machinery. We build every machine and appliance required to make clay products by all processes. Every machine equal to the quality of the Eagle Repress. Every machine a winner in every contest.

THE AMERICAN CLAY MACHINERY CO., Bucyrus, Ohio, U.S.A.

The World's Best Clay Screen.



Greater Capacity.

Less Wear and Tear.

Improved Output.

Here is a radical departure in Clay Screens. The motion is centrifugal instead of vibratory. The life of the machine is thus lengthened and the capacity increased.

As the accompanying cut shows, the screen is made up of two hoppers substantially mounted on a steel frame. The screen plate is circular with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft which is connected to the driving shaft by a pair of bevel gears.

Just beneath the screen plate is a steam coil heater arranged to heat the screen plate to prevent damp clay from clogging the perforations in the plate.

Surrounding the vertical shaft is a cast iron hopper or spout through which the clay is fed to the screen plate. This hopper can be raised or lowered to regulate the flow of clay on the screen. The hopper being always full of clay keeps an even flow to the screen. The screen as it revolves throws the clay from the center to the outside of the screen plate, the flow being even and regular. The larger particles of clay, too large to pass through the perforations, pass over the screen plate to the outside and fall through the outer housing to a spout conveying them to the grinding pan for regrinding. The fine particles of clay sift through the screen plate into the inner housing or hopper and pass to a conveyor and into the clay bin.

The whole operation is rapid and thorough and the principle insures great capacity and freedom from trouble. Many of these screens have been installed and are giving universal satisfaction.

In actual operation the No. 147 Screen, which has a screen plate six feet in diameter, is screening equal to the capacity of two nine foot dry pans. We also build this screen with a four foot screen which will handle clay to the capacity of one pan.

Full particulars as to the construction and operation of this screen will be sent upon request.

We build every machine and appliance required for the manufacture of every class of clay products by all processes. We are much the largest manufacturers of Clayworking Machinery in the world. Manufacturing as we do every machine and appliance right in our own factories, we are better prepared to serve you at a saving in time and money than others.



CENTRIFUGAL CLAY SCREEN.
Patented and Patents Pending.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

Quality Points in Dry Presses.



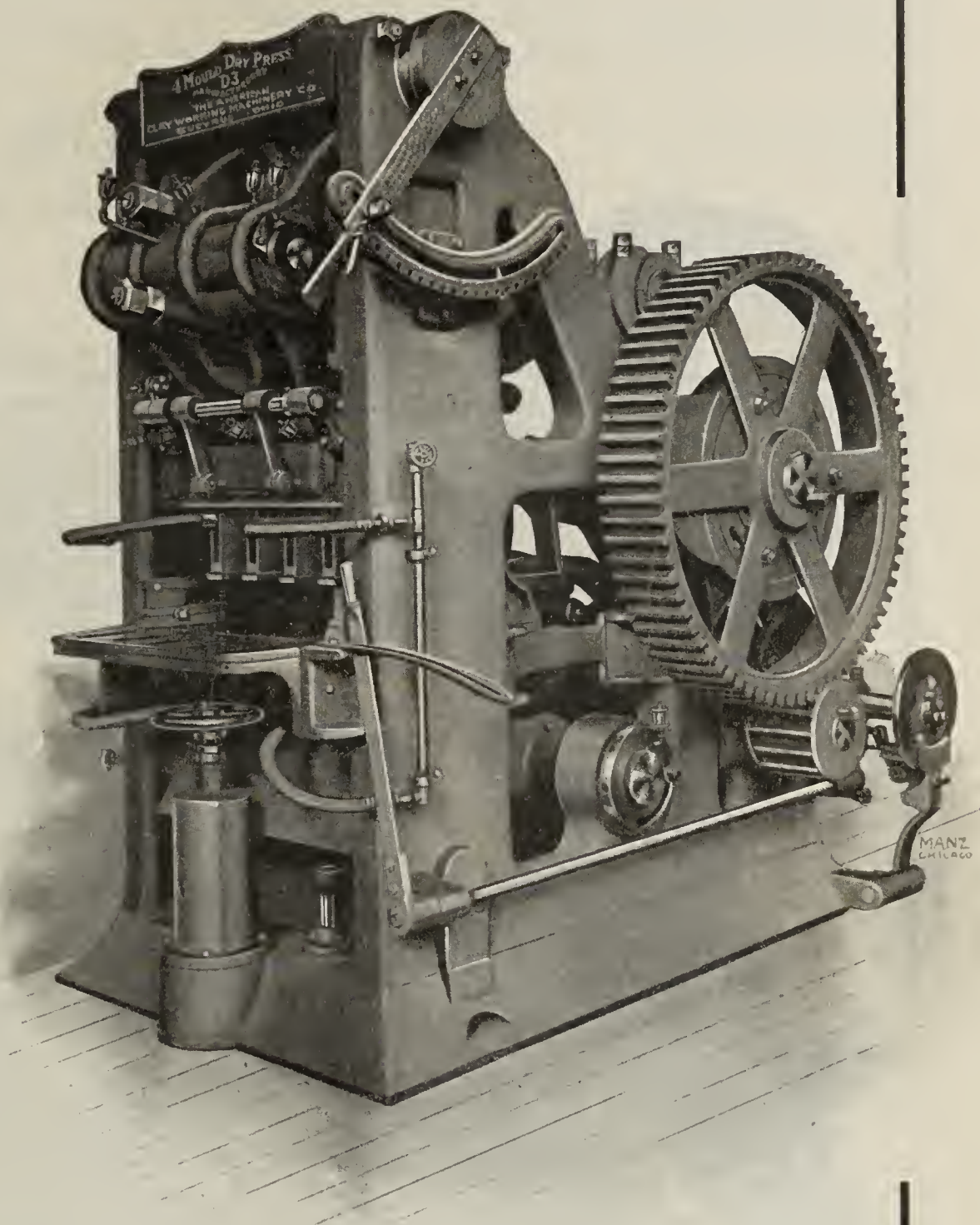
The construction of the machine is high class throughout, the best quality of material is used, and the most skilled workmen are employed. The frame is cast solid between the bearings where the heaviest strain is applied. All the principal working parts are of steel castings or steel forgings, and are designed with a view to obtaining the greatest strength with the least possible weight of materials. The main crank shaft and crank pins are 6 inches in diameter. They are made of forged steel. The center toggle pin is bushed with a steel bushing. All the bearings for the shafts on the frame are well babbitted with the best grade of babbitt metal. The cam and rocker beam rollers are bushed with bronze. All the gearing is heavy and the pinions are shrouded, giving additional strength. The crossheads are steel. The guides on the upper steel crosshead are 11 inches long, and are fitted with adjustable iron gibs. The guides on the lower steel crosshead are 9 inches long, and are also fitted with adjustable cast iron gibs. The adjustments on both are conveniently accessible, and the plungers and molds can always be kept in perfect alignment.

The charger has an extra long throw, and is as easily adapted for the Roman size brick as for the standard size brick. The cam track which regulates the movements of the charger is attached to the inside of the master gear. The cam is adjustable and the charger is also adjustable on the connecting rod. The hopper is provided with double screw adjustments and relief springs.

The mold box is six inches in depth. The mold frame is secured by steel wedges slotted and held in place by cap screws. The loosening of two cap screws releases the wedges and the mold can then be removed. This style of construction is designed for convenience and accessibility.

Three distinct pressures are applied in making the brick and they are moved in the mold box under pressure. The thickness of the brick can be instantly changed.

Write for complete description of Dry Press Brick Machinery. We build every machine required for making Clay Products by all processes.



Four-Mold Dry Press.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

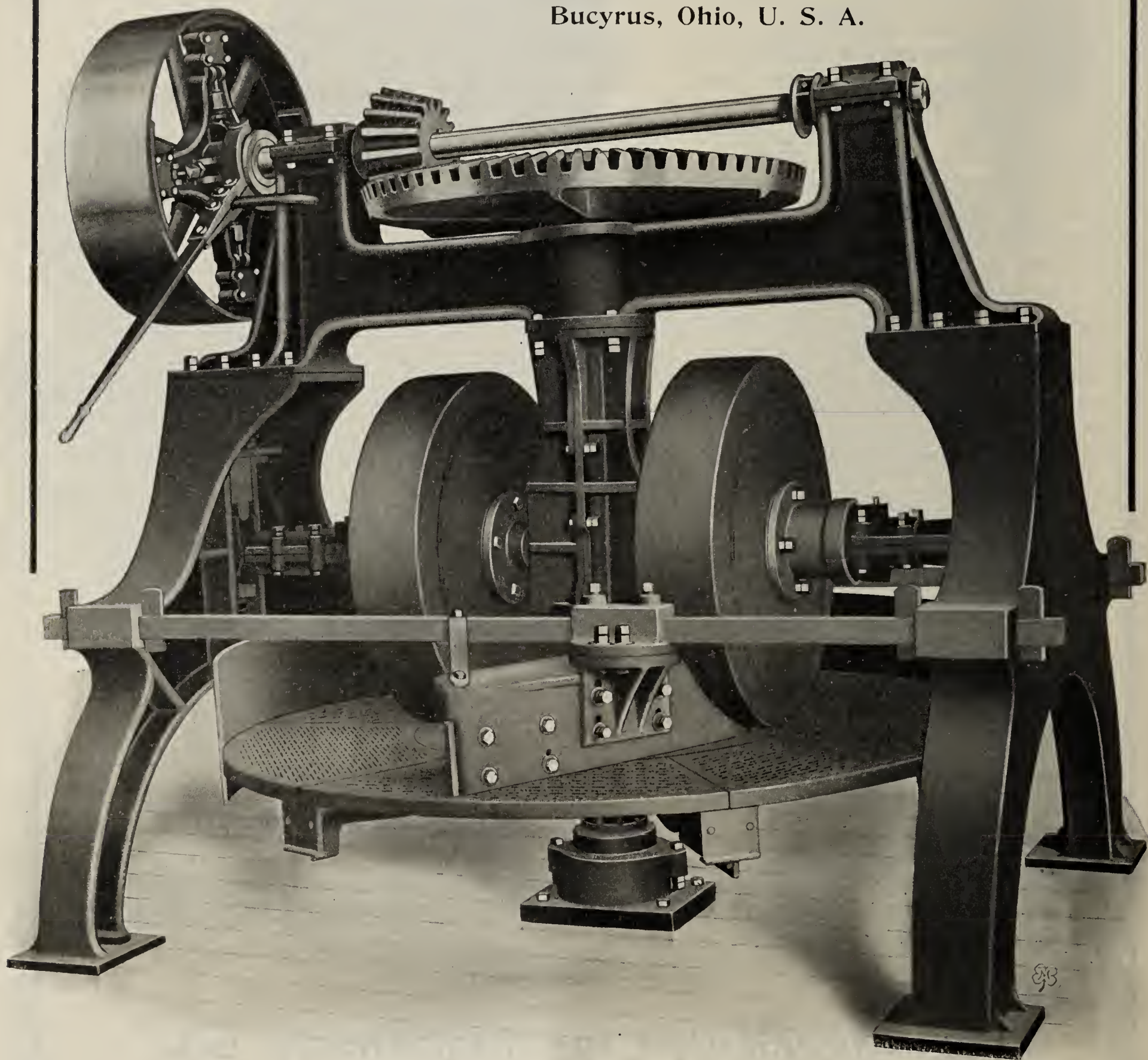
Eight Foot Dry Pan



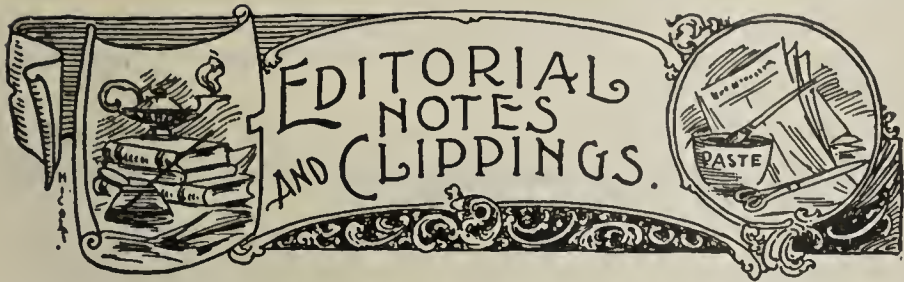
This cut shows our Eight Foot Dry Pan. Note the lines of strength and quality. It is built of the best material obtainable. The workmanship is faultless. The force of men engaged in building these pans are pan specialists, and from one year's end to another build nothing but pans. Every pan is erected and carefully inspected before shipment. We know every pan to be perfect because of the care of building. We can guarantee it. We should like to send you photos and particulars about any pan we build. You can get no adequate idea of their worth from an ordinary cut. Write us regarding any machinery wants, as there is nothing in the line of Clayworking Machinery which we do not make. Each machine is "Built Right and Runs Right."

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Be sure and mention THE CLAY-WORKER in answering ads.



O. A. Kentner, of Caney, Kans., will locate a brick plant of 100,000 daily capacity at Sapulpa, Okla.

A. Mathern has purchased the interest of his partner, J. T. Nesbit, in the brick and tile factory at Traer, Iowa.

Mayer Bros. will erect a building and paving brick plant at Frostburg, Md.

The plant of the Whittet Brick Company, at Edgerton, Wis., was recently damaged by fire which started in the kiln sheds.

The Elliott's Knob Coal and Iron Company contemplates the erection of a plant at Buffalo Gap, Va., for the manufacture of paving brick.

C. Markley has leased the plant of the Webster Paving Brick Company, at Roanoke, Va., and will put same in operation at once, turning out a high-grade paving brick.

The Albany Brick Company has purchased the plant of J. W. Margon, at Albany, Ore., and will install new machinery and make a number of improvements in the plant.

The plant of the Owensboro Sand-Lime Brick Company, at Owensboro, Ky., was destroyed by fire recently. The loss is estimated at \$35,000, on which there was \$20,000 insurance.

A paving brick plant of 100,000 daily capacity is to be erected at New Cumberland, W. Va., by a company of which J. M. Porter, of Pittsburg, Pa., is at the head. The plant will be equipped with machinery from the shops of E. M. Freese & Co., Galion, Ohio.

The West Virginia Clay Products Company has been incorporated with \$200,000 authorized capital stock. The incorporators are: W. E. Caldwell, J. W. Jennings, R. H. Yates and A. H. Robinson, of Louisville, Ky., and J. H. Heighbaugh, of Sonora, Ky.

The Steelton & Harrisburg Brick Co.'s plant at Harrisburg, Pa., was almost totally destroyed by fire, causing a loss of \$50,000. The flames started in the dryer, and as there had not been fire in the plants for several days, incendiaries are to blame. The plant will be rebuilt at once.

Wm. M. Shinnick, treasurer and general manager of the Mosaic Tile Company, Zanesville, Ohio, bought the plant of the Zanesville Tile Company at sheriff's sale, and has announced that the plant will be operated in connection with the former plant. The purchase price was \$68,600.

The plant of the Menlo Park Tile Works, at Menlo Park, N. J., which was destroyed by fire some time since, is to be rebuilt at once. The property was so well insured that the actual loss was slight. The new plant will be fireproof and be equipped throughout with modern machinery and appliances.

A new firm recently incorporated at Salt Lake City is the Rocky Mountain Fire Brick Company, with \$250,000 capital stock. The company owns valuable clay deposits and will erect a plant at Salt Lake City for the manufacture of refractory clay products. L. O. Ensign is president and John W. Ensign treasurer of the concern.

The plant of the Muskogee Brick and Terra Cotta Company, at Muskogee, Okla., was sold recently at forced sale to Richard Howard, of that city. The plant had not been in operation for some time. Mr. Howard has not announced his intentions in regard to the plant, but it is presumed that arrangements will be made to operate the plant on a paying basis.

The Summitville Drain Tile Company, of Summitville, Ind., is constructing two large brick dry sheds and an addition for the new electric light plant recently purchased by them. These sheds will give the plant a dry shed floor space of one and a half acres. Both Summitville tile companies are having a steady run of orders, the plants never ceasing operation, and from time to time are building additions to take care of their orders, which come from all parts of the country. Both companies put out an enormous output of large drain-

age and sewer tile for county work in consignments of several cars each.

The Southern Brick Company, of Atlanta, Ga., has been incorporated by T. E. Simmons and W. L. Pethel, with \$15,000 capital stock.

The Lanius Pressed Brick Company, of Abilene, Texas, has filed articles of incorporation. C. A. Lanius, O. P. Thomas and M. J. Craig are the stockholders.

At a recent meeting of the stockholders of the Alabama Fire Brick Manufacturing Company, Birmingham, Ala., it was voted to expend \$30,000 in enlarging and improving the plant.

James Luke, manager of the Black Horse Brick Company's plant, at New Cumberland, W. Va., was badly injured by a gas explosion caused by the ignition of the sparker while Mr. Luke was repairing the gas engine.

The Hanrahan Brick and Ice Company has been incorporated to manufacture brick, gather ice and operate refrigerating plants, etc., at Kingston, N. Y., with \$30,000 capital stock. The incorporators are W. Rafferty, Saugerties; J. T. and R. J. Dwyer, of Kingston.

The Texas Brick Company, Carrollton, Texas, has been sued by Joe Quezada, a former employe, for \$28,000 damages for injuries received while working for the brick company, which necessitated the amputation of his left arm, and rendered his right hand and arm useless.

L. A. Rehr, general manager of the Montello Brick Company, Reading, Pa., has just opened the first kiln of brick since the plant has been running under the new management. Mr. Rehr has put a force of men at work on the other plants of the company, and will have same ready for operation in the early spring.

The plant of the Alfred Tile and Terra Cotta Company, Alfred, N. Y., was almost completely destroyed by fire, entailing a loss of \$50,000, which is partly covered by insurance. The origin of the fire, which was started at 2:30 in the morning, is a mystery. The plant will not be rebuilt for some time, and then probably not on the present site.

Nicholas Mathieson, one of the pioneer brick manufacturers of Trenton, N. J., died recently at the advanced age of eighty-six years. He first engaged in the brick business in Trenton fifty-five years ago, and retained an active interest in the business until a few years since, when he retired on account of age. Four sons and one daughter survive.

Horace A. Bruns has filed suit for \$10,000 damages against the North Iowa Brick and Tile Company, of Mason City, Iowa, for injuries received while foreman of that company. Mr. Bruns alleges he was hurt by falling clay, and that the accident was due to improper lighting, as he was working at night.

Zanesville, Ohio, is to have a new pottery and tile factory to be built by J. B. Owens, who returns to Zanesville after an absence of several years. Ground has already been broken for the plant, and Mr. Owens expects to have same in full operation before the beginning of the new year. The first main building will be 160 feet wide and 350 feet long, and will be constructed of brick.

Wm. H. Dennis, of the firm of Dennis & Petzner, of Hartford, Conn., while attempting to tighten a bolt on an engine, was caught in the fly wheel and killed before the engine could be stopped, his body being almost torn to pieces. Mr. Dennis was fifty-nine years old, and had been identified with the brick business all his life, having started in the business with his father when quite a boy. He leaves a wife, three sons and four daughters.

Suit for \$5,000 damages against the Alliance Clay Products Company was brought in the courts of Mahoning county, Ohio, recently by William H. Mitchell, of Alliance, Ohio, by his next friend, Mrs. Sarah J. Mitchell. Plaintiff is a lad of twelve years, and the mangling of a hand by the explosion of a dynamite cartridge on July 2, 1907, is the basis of action, negligence on the part of the defendant company contributing, it is alleged, to the accident.

E. C. Kimbell, better known to the trade as "Dick" Kimbell, has severed his connection with the Hydraulic Pressed Company, with which he was identified for so many years, and so prominently that many think it can be correctly said that the Hydraulic Company, in its many phases, was identified with him. He resigned from his post as vice-president and manager of the Chicago branch, which he has held since

(Continued on page 324.)

EDITORIAL NOTES AND CLIPPINGS—Continued.

the final reorganization of the company into its present form. He was succeeded by Harry A. Walters.

John Spiers, superintendent of the Spiers-Fish Brick Co.'s plant at Rochester, N. H., died September 15th from pneumonia.

The Marion Steam Shovel Company write that they are running their plant at Marion, Ohio, night and day. August was one of the best months in the history of their company.

The Bloomfield Vitriified Brick and Tile Company, of Bloomfield, Ind., has let the contract for the construction of four large kilns. A number of other improvements will also be made in the plant.

Louis May, of McComb, La., and John and Robert Cain, of Summit, La., have acquired possession of the Summit Brick Manufacturing Company's plant, which has been idle some time, and will at once commence operation, turning out a fine grade of building and paving brick.

The Moist-Proof Pressed Brick Company is the name of a new concern recently incorporated at Norfolk, Va. E. E. Pelot is president; R. E. Pelot, vice-president, and Gertrude Pelot, secretary and treasurer. The object and purposes of the company, according to the application for charter, is to manufacture a "moistproof" brick.

The Sedalia Clay Manufacturing Company, Sedalia, Mo., has been incorporated with \$50,000 capital to manufacture brick, sewer tile, fireproofing, drain and roofing tile, fence posts, interlocking tile pottery, and terra cotta clay novelties. The incorporators include J. F. and Glennie L. McCuster, Jerome Moyer, H. K. Dente and C. L. Wilson.

The Standard Brick Company, of Macon, Ga., has had a very busy season. They have recently enlarged their plant by the addition of six large down-draft kilns, and are now turning out 75,000,000 brick per year, including paving brick and high-grade face brick. Besides caring for the local trade, they ship to all parts of Georgia, Alabama and Florida.

The Western Fire Brick Company, which was incorporated to manufacture fire brick and built a plant at Argo, Colo., has found conditions against the business and has sold the plant and property to the Denver Sewer Pipe and Clay Company, Denver, Colo. The new owners will convert it into a pressed brick manufacturing plant and operate it in connection with their present plant.

At the annual meeting of the Farmers' Co-operative Brick and Tile Company, held recently in Mason City, Iowa, officers for this year were elected. J. H. Brown was named as president to succeed Wm. Colby, who resigns to go west and continue his work with the Washington Brick, Lime and Sewer Pipe Company, of Spokane, Wash. The other officers are: Secretary, W. H. Gleason; treasurer, W. R. Flemming, and general manager, Tom L. Flemming.

The plant of the Harris Brick Company, Zanesville, Ohio, was totally destroyed by fire September 8, which is supposed to have started in the dryer and raged for six hours. The plant was running full-handed in order to keep up with the demand, which had been very heavy all summer, and will be rebuilt at once and on modern lines. R. E. Weaver, who is at the head of the company, expects to have the new plant ready for operation in six months.

J. C. Steele & Sons, Statesville, N. C., manufacturers of New South brick machinery, have had an unusually good season. They have recently made shipments as follows: No. 3 outfit to Marion, N. C.; No. 3 outfit to Columbia, Tenn.; No. 3 outfit to East Radford, Va.; No. 2 outfit to Sardinia, S. C.; No. 2 outfit to Radford, N. C.; No. 2 outfit to Washington, Ga.; No. 3 outfit to Danville, Va.; No. 2 outfit to Toluca, Old Mexico, automatic cutting tables to brickmaking concerns at Norfolk, Va. and Georgetown, S. C., and two No. 3 brick machines to replace two brick machines of other manufacture to Greensboro, S. C.

Fred W. Conradt, resident manager of the Tiffin plant of the Great Western Pottery Company, died suddenly August 19 of neuralgia of the heart. Mr. Conradt was fifty years old and apparently in perfect health. He had been identified with the pottery business since 1893, when, in connection with his father and brother, he organized the Great Western Pottery Company. In 1889 they acquired the Tiffin factory, and Mr. Conradt moved to Tiffin as manager of same. In addition to his pottery interests, he was identified with a number of industries, being president of the Tiffin Art Metal Company, and a director in the Commercial National and

the Tiffin Savings Bank, and was known as one of the most progressive and public-spirited citizens of Tiffin. A wife and one child survive.

The Mutton Hollow Brick Company has purchased an eighty-acre tract of land at New Brunswick, N. J., on which they will erect a hollow brick factory.

The Star Brick Company has been incorporated to manufacture brick at Nowata, Okla., with \$25,000 capital stock, by E. C. Pollard, Jr., J. Riner and P. L. Kirk, of Nowata.

C. H. Beumer, manager of the St. Augusta Brick Company, St. Cloud, Minn., advises us that his company is in the market for a drying system for their soft mud brick plant.

John Oloff, one of the oldest residents of Rock Island, Ill., died September 9, following a stroke of apoplexy. Mr. Oloff was a member of the brickmaking firm of Oloff & Atkinson. Mr. Oloff was born in Sweden in 1840, and had lived in Rock Island since 1854.

The plant of the New York and Philadelphia Brick Company, at Whippany, N. J., was burned to the ground September 14. Cause of fire unknown. Arthur Haslam, of Newark, N. J., is president of the company. The loss is partly covered by insurance. The plant, which was one of the best equipped in that part of the state, will be rebuilt at once.

BRICK NEWS FROM BUFFALO.

A distinct improvement characterizes business in the local clay industry. The building situation in this city is very active. An unusual number of large structures are soon to be erected, and many fair sized additions are being contemplated. The brick men report business to be unusually good, and besides supplying much material for local jobs, are making large shipments to various points throughout the country. The demand for building supplies shows a perceptible gain, and optimism over the future business outlook is everywhere noted in the local trade.

John H. Black reports business to be very good. Mr. Black is supplying brick for the large new additions now in course of construction on the Hengerer building, the Ziegele Brewing Company and the new St. Mary's Club building, which is being erected at a cost of \$100,000.

Business is reported to be excellent at the offices of the Queen City Brick Company, C. S. A. Coe, Bray & Lukens, Elliott Brick Company, and the Jewettville Pressed and Paving Brick Company.

According to the annual report recently issued by the Buffalo Bureau of Building, considerable brick was used in this city in the year ending June 30, 1909. Permits issued in that period for buildings of every kind involved an expenditure of \$8,433,000. The various structures for which permits were issued included churches, warehouses, lodge rooms, one brick fireproof hospital, brick and frame sheds and stables, two-story brick buildings, two-story brick veneer dwellings, twenty-one brick stores and dwellings, and fifty-two brick and frame additions.

Bids for the construction of a new sewer system for Batavia, N. Y., will be opened on October 14.

The Erie County, N. Y., supervisors recently considered in Buffalo the improvement of the White's Corners and Orchard Park roads, near that city. The roads are to be paved with brick. The supervisors also approved the plans of New York State, which is to improve these highways. The Buffalo-Hamburg road to be built will be sixteen feet wide and will cost \$104,000.

Contractor C. A. Willey has about completed a new sewer in Binghamton, N. Y., and a force of paving employes have been laying some new brick pavement in that city. It is expected that many pavements will be laid in Binghamton in 1910. A report from that city on the subject says: "There will have to be a new brick pavement on Front street, in this city, and it will have to be built from Ferry street to Prospect street. A new brick pavement will be laid on a section of Water street. It is expected that the first brick pavement ever laid in Binghamton, on State street, from Henry to Lewis street, will be replaced with a modern brick block pavement. There will also be extensive repairs to some of the other brick pavements."

KNICKERBOCKER.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



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Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

INCREASING building operations on this side of the North river have aided materially in improving the brick market of the entire eastern section of the country, including New York. Not for three years has there been any such demand for Hudson river brick, which includes also the brick made in New Jersey, near New York. For example, Washburn Brothers have a call for 8,000,000 for the new tobacco factory which is soon to be erected in Jersey City. Cook & Genuny, of Newark, have ordered 3,000,000 of the same firm. The Adams Express Company's stables in Jersey City will require 900,000, and the Prudential Insurance Company is taking 5,000,000 from the Rose Company, while the Fireman's Insurance Company and the telephone building in Newark are taking 4,000,000 each. The new skyscraper office building of the Union Trust Company will shortly be erected in Jersey City, a new postoffice building will be erected close by, the Colgate Perfume and Soap Company will erect a new office building, and the First National Bank of Hoboken is figuring upon a new building.

These are but samples of what is being done. Though these operations are all of considerable size, there are very many smaller ones, though in the aggregate they amount to a good deal. All are requiring brick, and New Jersey manufacturers are finding an excellent market for their product in their own state. This is especially true of Newark and Jersey City, in both of which places something approaching a building boom has developed during the past few months. The reason that Hudson river brick has been taken in such considerable quantities is that it has been possible to buy it at quite as low figure as the Raritan brick has been bringing in New Jersey, with the result that the Jersey demand has proved a sort of equalizer of the situation, and the outlet this side of the river has assisted materially in relieving the situation on the other side. The best part of this is to come, because there is not the slightest indication that these good things will cease. The building boom which has developed in north Jersey, following the opening of the Hudson tunnels, is likely to be permanent, and real estate owners are confident that the near future will see a development which has never been suspected hitherto. Everyone seems convinced of this, and moneyed men are loaning for operations of this character in liberal volume. The Hudson tunnels are to be opened further into Jersey City, thus affording a quick and cheap means for residents to go to New York.

Brickmakers in New Jersey might profitably investigate these conditions and seek wherever possible to secure some advantage from them. The era for brick construction is unquestionably here, and there is ample opportunity to increase the use of brick, largely because it is relatively cheaper than wood and much cheaper than stone. Nothing is left with which brick can be said to compete but concrete. Apparently, concrete is not likely to be a competitor. It has failed too many times in the test, and the situation in this respect has not improved.

Along with factories and warehouses and office buildings, there is a development of the construction of dwellings of brick. The rapid increase in the cost of wood and the failure of concrete under rigid test has caused builders to turn to brick as a practicable solution of the problem of material. The effect of this is to increase the designing of dwellings to be constructed of brick. This is a good thing, because no material known lends itself more pliantly to the varying problems of dwelling construction. Brick can be utilized advantageously where nothing else, not even wood, could be made effective. The recent development of the art of molding ornaments of clay has had a salutary influence in inducing architects to specify brick for construction. If architects can be influenced to exert their power in behalf of brick, its

use will increase very rapidly, and it will, eventually, become more popular than either wood or stone. Many brick houses are noted springing up through the northern section of New Jersey, and wherever they have been rightly treated they form a very satisfactory solution of the housing problem.

A. L. B.

Written for THE CLAY-WORKER.

BRICK NEWS FROM DIXIE LAND.

SOUTHERN CITIES are showing a good building situation for the first part of autumn. Quite a good deal is going on in this line at Nashville. Chattanooga is active. Memphis showed last month an increase of almost 45 per cent. over building figures for a year ago. In this work, brick is playing an important part.

In the new eighteen-story skyscraper to be erected at Memphis by the Central Bank and Trust Company, the contract for which has been let to the Murch Construction Co., of St. Louis and Memphis, brick will be used except in the lower floors.

Walter W. Talbert, of the Memphis Paving Company, is one of the active candidates for mayor of the city of Memphis. He stands a good chance of success. Mr. Talbert recently made a suggestion looking to the erection of a monument in Confederate Park, Memphis, to the memory of Dan Emmett, the writer of Dixie. The suggestion has met with much favor in veteran, theatrical and business circles.

Charley Pratt, a contractor and brick mason at Dresden, Tenn., has in operation there a brickmaking machine that, it is claimed, is destined to revolutionize the manufacture of pressed brick and make Mr. Pratt, the inventor, wealthy. The machine has been placed on the market and is proving a success. It makes hard pressed brick from plain, dry dirt, no water being used in mixing. The dirt is hauled from the pit to the machine, without any doctoring at all, or addition of sand. This dirt is ground to a dust and conveyed to the molds, where, by hydraulic pressure, the bricks are formed. These bricks are firm and weigh one-half pound each more than the mud-made brick; they are free from pores which are in the common mud-made brick. Mr. Pratt claims no water will be absorbed by them after being placed in the wall. Mr. Pratt claims that three hands can manufacture with his machine the same quantity of brick per day that is required for ten hands with the old machine. Many brick men from a distance have been to Dresden to examine the machine and to test its product.

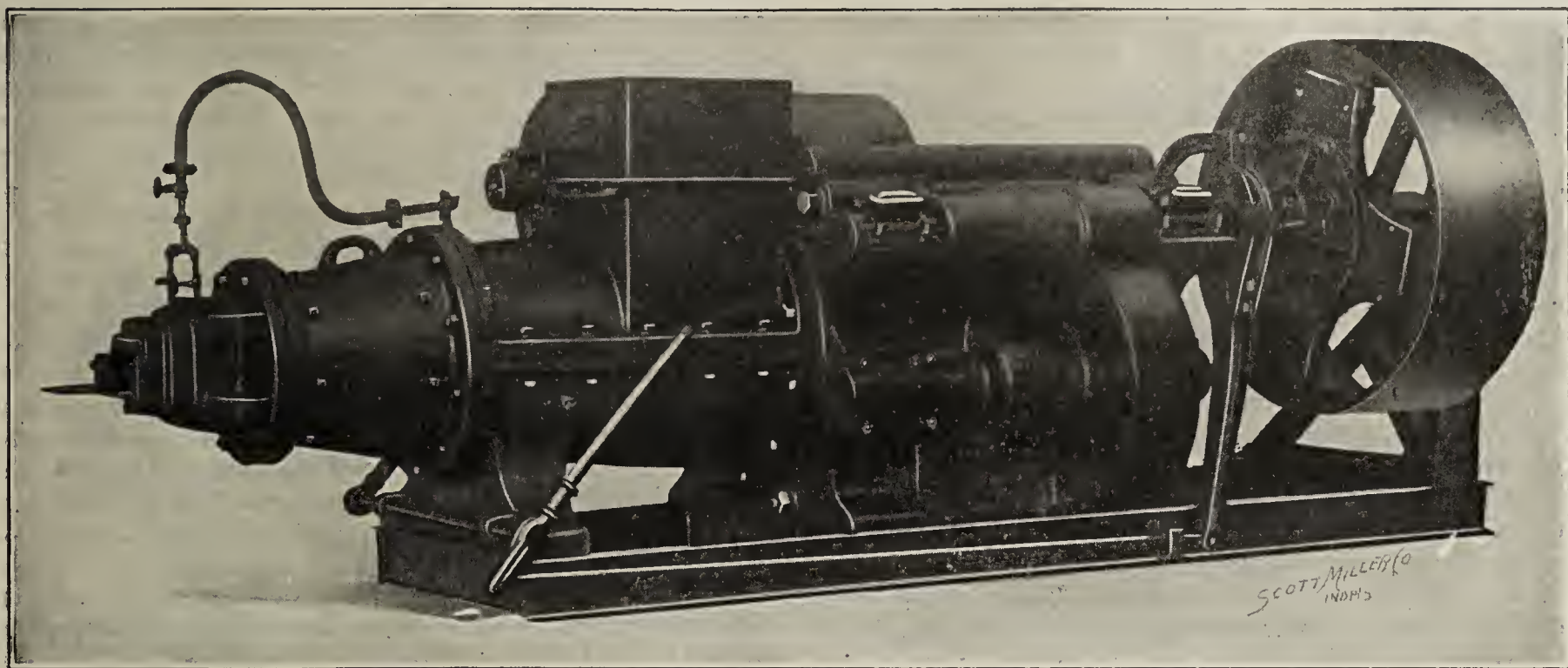
The Chattanooga River Brick Company, at Chattanooga, Tenn., reports a very good trade in that territory. This company was established in 1880 and incorporated in 1895, with a capital of \$25,000. The plant is located on the belt line at Chattanooga, and has very convenient shipping facilities. The grounds cover twelve acres, fifteen wagons are kept busy, and employment is given to sixty persons, who draw \$20,000 yearly in wages. The management of the company is vested in Joseph Moore, secretary and treasurer. The trade of the company extends through Tennessee, Georgia and Alabama.

Manager Deppen, of the Chattanooga Sewer Pipe and Fire Brick Company, Chattanooga, states to the CLAY-WORKER's correspondent that business has improved over what it was in the spring and summer, but there is yet room for improvement. This concern is the successor to Montague & Co., and occupies several acres in the heart of Chattanooga's manufacturing district. At the plant is manufactured sewer pipe, fire brick, fireproofing, flue pipe, flue lining, wall coping, farm drain tile and other clay products.

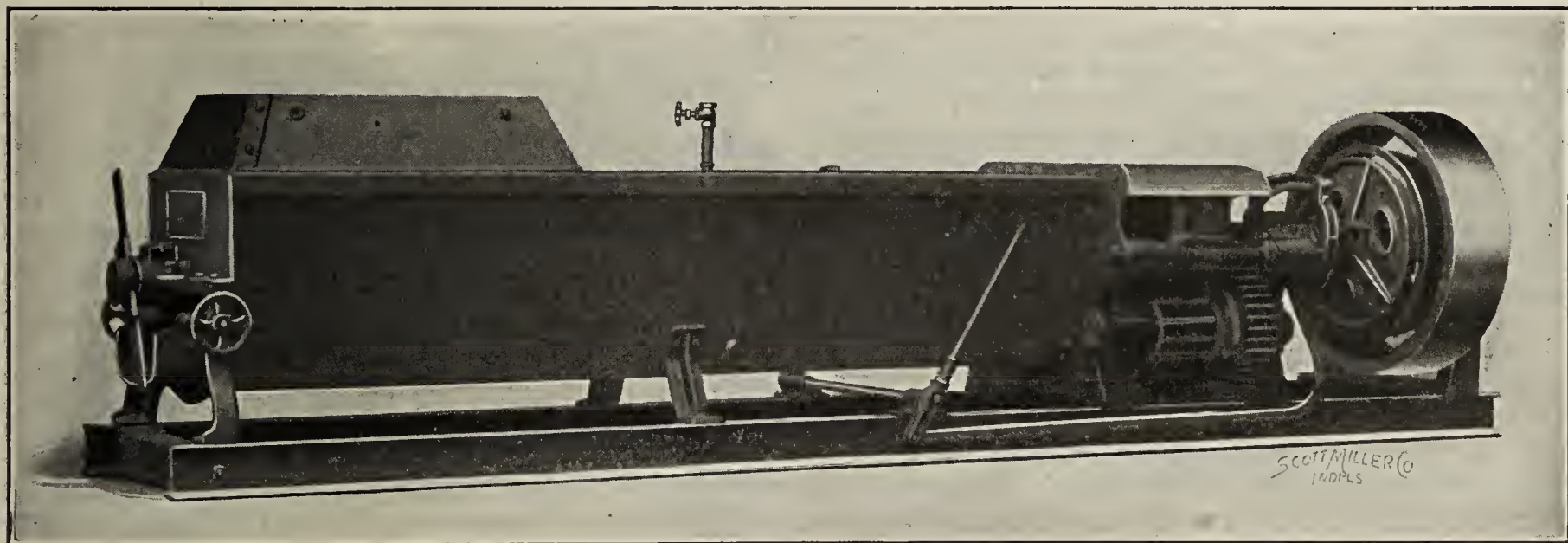
DIXIE.

It won't do any harm to preach the gospel of brick construction this winter when you are not busy looking after the yard and superintending its operation. You can't impress its value as a structural material too strongly upon those who may be contemplating building of some kind.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

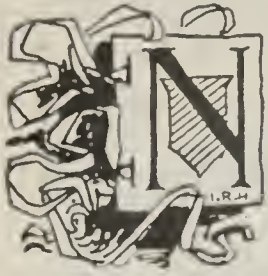
Galion, Ohio.

(Mention The Clay-Worker.)

See ads on pages 362 and 363.

Written for THE CLAY-WORKER.

CLEVELAND BRICK AND BUILDING SITUATION.



NO COMPLAINT is being uttered by the brick dealers and manufacturers in this territory concerning the building outlook for the fall season. Weather conditions permitting, there promises to be a continuation of operations in this territory well on to the end of the year. The number of projects being launched at even this later date is surprising to many. Cleveland is rapidly expanding, an average of fifty permits a week for new residences being taken out, while the number of apartment houses increases month by month.

Work is well under way on the new \$125,000 normal school for the Board of Education, which is being erected on University Circle, in the East End. The general contract for this structure is held by the National Concrete Fireproofing Company. Despite its title, the company is using nearly 500,000 brick in the construction of the building. This brick is being furnished by the Contractors' Supply Company, recently launched by Robert C. Mitchell. About 265,000 Iron Clay romans are being used for the exterior walls. This is claimed to be the largest order of this kind of brick ever made in Cleveland. Over 200,000 Sparta brick are being used in the lining operations. The new school will have many novel features. With its two wings, it will be 318 feet long. Among the unusual features will be an observation school, where children will attend to afford training for the embryo teachers. There will be an aquarium built, so the fish may be seen from outside or inside, and a fountain devised to attract birds. There will also be a marvelously constructed geography laboratory, with clay continents and rivers and oceans of real water. There will also be shower baths, gymnasiums and a swimming pool.

Another fine newspaper office is to be erected in Cleveland. The Plain Dealer recently completed a \$250,000 terra cotta and granite building, and now the Cleveland Press is preparing to build itself a new home. The Press has purchased land at East Ninth street and Rockwell avenue, and is busy having plans prepared for a fine new five or six story building. Contracts will probably be let some time during the winter so actual building operations can begin early next spring, as soon as the frost is out of the ground. The land has a frontage on East Ninth street of about 100 feet and runs back a considerable distance in an "L" shape, with frontages on a side street and an alley. The new building will probably be of brick with terra cotta trimmings.

John A. Kling and Charles Miller, formerly owners and in charge of the Cleveland Builders' Supply Company, have invested heavily in a new enterprise for the building of electrical refrigerators, and will erect a fine new plant in Collinwood, a suburb of Cleveland. The refrigerators work on the ammonia principle and have been tested out for some months, so the promoters believe they have a good thing. Kling and Miller sold out their interests in the supply company for about three-quarters of a million dollars.

Euclid avenue is to have another handsome terra cotta building. The contract to grade for the new W. M. Brown building, on Euclid, has been let to the Reaugh Construction Company, while the Interstate Engineering Company, of Bedford, will erect the steel work. J. Milton Dyer, the architect who is designing it, believes in the elaborate use of terra cotta and is using five large panels for the front of the structure, which is about 160 feet wide. Each panel will have a battery of windows. The structure will be six stories high, although the foundations and structural work is being put in to accommodate a building sixteen stories high.

The Ohio Clay Company, the Hydraulic Press Brick Company and a stone company were interested during the past

month in an odd suit to have the bond of a local justice forfeited because he ordered sold quantities of building material, although its ownership had already been passed upon by another justice. It seems that one C. W. Young bought a quantity of tile, brick and other building material. The companies concerned now claim the goods were fraudulently obtained. A plumber secured a writ and seized the goods, whereupon the brick companies brought suit to recover their goods. Then the other justice broke into the game and ordered the goods sold for the benefit of the plumber. The brick companies seek to have the justice disqualified and his \$1,000 bail bond forfeited.

An attractive space has been secured by the new supply company, the Hunt-Queisser-Bliss Co., in the Builders' Exchange, where a fine display is to be installed this month. The new supply company reports a very active business.

Great preparations are being made for the good roads convention to be held in Cleveland September 21, 22 and 23, under the auspices of the American Automobile Association. In addition to the regular business sessions to be held, there will be a big display of roadmaking machinery at the Central Armory, and many entertainment features. About \$4,000 has been subscribed by local autoists for the entertainment of guests.

A permit has been issued for a twenty-four suite apartment house to be erected as an addition to the Alhambra, at East Eighty-sixth street and Birchdale avenue, by the Zimmerman Realty Company. The building will be three stories high and of the same general character as the Alhambra. It will be of pressed brick to conform with the existing building.

Probably the healthiest evidence of the return of prosperity is the continued announcements that big Cleveland factories are erecting additions. The Bishop & Babcock Co. has taken out a permit for a \$50,000 brick and steel factory, at 1204 East Fifty-fifth street. It will be fireproof throughout. Joseps & Feiss, clothing manufacturers, have purchased a lot 100 feet square in the rear of their St. Clair avenue plant, and are having plans drawn for a five-story brick and steel building to cover the full area of the land.

Cleveland builders are figuring on a new high school for the city of Youngstown, contracts for which are to be awarded shortly. The plans for the structure were prepared by Architects Owsley, Boucherie & Owsley, of Youngstown. It will be a three-story brick building with stone trimmings.

BUCKEYE.

DO YOU WANT SOMETHING?

For cheap machinery the reader is referred to our "For Sale" columns. We do not advise the purchase of cheap machinery. As a rule, cheap machinery is dear in the end, but for some places second-hand machinery answers a very good purpose. Those wanting experienced help will also find the "Wanted," "For Sale," etc., columns a means of satisfying their needs.

Trained men are in demand.
 ——— Give the boy a
 technical education. ———
 STATE COLLEGE of
 CERAMICS. ———
 ALFRED, NEW YORK.
 Charles F. Binns, Director.
 ——— Catalog mailed on application. ———



AUGER BRICK MACHINES

Chambers Brothers Co., Philadelphia, Pa.

End=Cut vs. Side=Cut STREET PAVERS.

Another established manufacturer of Paving Block and Brick in the Central West has just placed his order with us for one of the heaviest **Chambers End=Cut Auger Brick Machines with Round Corner Cutter.**

His letter covering the order contains this paragraph:

"With regard to the results of our rattler
"tests, beg to say that we got results from
"7 to 9 points better with your end-cut
"machine than with our side-cut."

This gentleman made his tests most carefully and deliberately, commencing them in May last. He came to Philadelphia in person to see his material worked, had the dried product, both block and brick size, shipped to his works, burned them in his own kilns under conditions that prevail in regular manufacture and then subjected these samples to Standard Rattler tests in comparison with his own best side-cut products.

With 7 to 9 points improvement in product the next logical move was the purchase of

The Chambers End=Cut Auger Machine
And He Made It.

CHAMBERS BROTHERS COMPANY,
PHILADELPHIA AND CHICAGO.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.

DEALERS in building brick are not so optimistic as they were some time ago. Building contracts are not developing as rapidly as it had been hoped, and brick business is reported very dull. The first half of the season promised to bring some redeeming features into the situation, and, as the supply of building brick was then limited, it was anticipated that things would be humming before the building season was closed. Recent developments have been discouraging. Brick men say that there are now more building brick in Toledo than they know what to do with, and that they are selling at all kinds of prices. Some sales are reported as low as \$5.50 per thousand, and there is little regularity connected with the trade. Fortunately, the country trade has helped out considerably, and fair prices have prevailed in this class of business. Of the nine brick plants which Toledo formerly supported, four have gone out of business altogether, leaving but five plants here, and a couple of these are said to be closed down temporarily, so that only three plants are running at the present time, and they are not operating at capacity. It is denied that the cause of this condition is due to the fact that structures this season have run to other materials, prominent brick men claiming to see other perfectly natural reasons for the present depressions in the business. At any rate, the year thus far has been better than last year, and much of the present pessimism is based on future speculation, rather than upon actual conditions. Building operations in Toledo are still nearly a million dollars ahead of last year up to this time, and there are many large uncompleted contracts. It would appear that the season, taken as a whole, will be a much better one than last year, and that it may strike a fair average when the books are balanced for the year.

The Buckeye Clay Pot Company, of Toledo, has been incorporated with a capital stock of \$100,000. The incorporators are: Harold W. Fraser, E. M. Flowers, S. Clevens, B. Young and B. F. Longnecker. It is understood that these are not the real parties in interest, the true names being withheld from the public for the present. It is also claimed that Toledo glass interests are behind the concern, which will manufacture glass house pots and glass factory supplies under a secret process. The new company is looking for a suitable site, and will erect its own plant as soon as details are out of the way. It is said that the business will be conducted on a large scale, and that 500 people will be employed. Plenty of capital is back of the enterprise.

Frederick W. Conradt, treasurer and manager of the Great Western Pottery Company, recently died at his home in Tiffin, Ohio. Death came as the result of a stroke of apoplexy. He was fifty years of age.

The first brick structure erected in Allen county, Ohio, recently succumbed to the flames, occasioning a loss estimated at \$6,000. It was built nearly a century ago, and was occupied by Alex Allen and family and Robert Ellison, who maintained bachelor quarters in the old mansion. Many historic mementoes of the track were lost, Ellison being a well-known horseman.

Plans have been prepared for a \$350,000 hotel building at Akron, Ohio, to be located at the corner of Main and Market streets. It will be of pressed brick and stone. Bids are now being accepted by the owner.

John Henry Robinson died recently at his home in Bucyrus, Ohio, after an illness extending over a period of five years. He was confined to his bed as the result of locomotor ataxia since February, 1905. He had been employed at the shops of the American Clayworking Company in that city for eleven years prior to his illness.

Brick men at Dayton are figuring on one of the best resi-

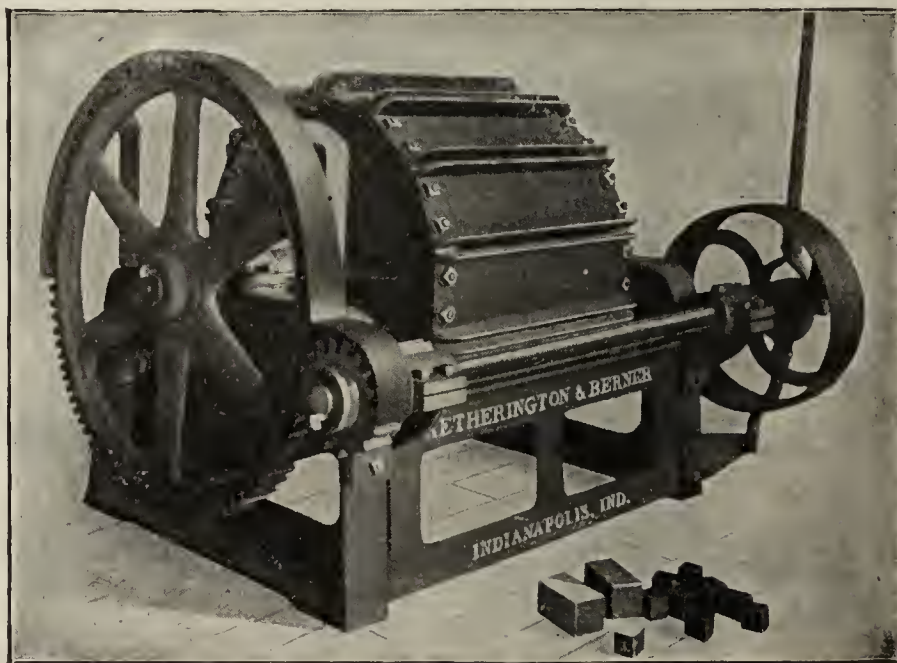
dences to be erected in Dayton this summer. It will be constructed of brick, by W. B. Shuler, of Hamilton, and is estimated to cost \$28,000. T. O. D.

COAL OIL BUTTER?

With the recent announcement that the Standard Oil Company has perfected a method by which it can produce butter as a by-product of coal oil, we are reminded that science has accomplished wonders in connection with our food stuff. It is not so far back that cotton seed oil products came into competition with lard and later with butter. And while there was some fighting about it at first, and it was used rather on the sly, it is now standing on its own feet, so to speak, and it is a pretty well recognized product of the trade. In some respects, were it not for the opportunities of such things to furnish the unscrupulous for adulteration, there might be a claim of superiority in these chemically manufactured products, because they would at least be free from disease germs that infest live stock from time to time. There will probably come a time with the further progress of scientific work in food production when all this will have to be carried on under the most rigid supervision, and then perhaps attain a scientifically pure food in many products that are actually superior to the natural products of earlier days. Meantime, what the jokesmiths will do to coal oil butter will be a plenty.

The STANDARD RATTLER FOR TESTING PAVING BRICK.

Every municipality and every manufacturer of paving brick should have a Standard Rattler and thus be able to make frequent tests of brick and block.



This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

Hetherington & Berner,
Indianapolis, Ind.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



OR SOME reason, not quite clear to the average person, brick took a sudden tumble last month and for a time it looked like a demoralized market, with more or less difficulty because of a surplus. It was talked that making would be curtailed, or stopped

entirely, but quite as suddenly demand was renewed and business was resumed with all its former activity. And as this is written demand is quite up to the average, with prices well maintained and apparently comparatively little possibility of a troublesome surplus. It might be well to have some surplus, but too much would cause a disturbance in the market which might upset the price equilibrium, and put things in a more or less bad shape. Prices are not quotably lower, but it is unquestionably true that many sales have been made under negotiations between buyer and seller, and it might be difficult to say just what has been the ruling figure on the common grades. However, if demand is maintained, as it promises to be, the price question will be easily solved.

Up the Hudson manufacturers are preparing to close up their work for the season. Not necessarily that this will be done immediately, but fall is approaching and in those northern latitudes cold weather comes early, and unless the autumn proves unusually warm, brickmaking will have to cease before very long. It is argued that if the season is not unduly extended the market will be better during the remainder of the fall, and will open up better in the spring.

Deliveries in New York are still somewhat liberal. Schooners and barges are coming down the river daily, bringing heavy loads of building brick, some for use in contracts now in course of construction, and others to be stored until they are wanted. The proportion to be stored is understood to be

relatively light, however; most of the present arrivals are required to fill contracts. One gentleman in close trend with the situation gives it as his opinion that the surplus above contracts already placed will not be large, at least not large enough to create any special difficulty. It is thought that building will open so well in the spring that the surplus will be absorbed, and the market will be no more than normally stocked by the time the first burnings are ready for delivery.

Without being able to enter into a detailed review of the building operations of the year, it is proper to say that they have reached about normal proportions. The different classes of buildings usually in course of construction in New York and its environs have been erected in fairly liberal numbers, indicating that the period of depression in this important industry is virtually over. Conditions have been somewhat mixed this season, and the uncertainty of the past contributed in some degree to the retardation of certain important projects which might have developed into larger operations. Toward the close of the season these conservative influences seem to have developed again to some extent, and have resulted in holding over some operations until next spring. But perhaps sufficient are left to maintain about a normal activity, and keep the situation substantially as it has been.

Discussion of further subway development goes on and it seems reasonably well assured that one will be undertaken by the beginning of next summer to relieve the present Lenox avenue tunnel, and open a section of the Bronx now without adequate rapid transit facilities. Mr. McAdoo will begin his extension from Twenty-third to Forty-second streets. Brick-makers will, it seems, have a larger demand than they have had this year for the grade of product most wanted in construction of this character. This isn't coming all at once, but it is in the not far-distant future, and it makes the manufacturers' outlook encouraging.

BURTON.

FOR SALE, WANTED, ETC.

WANTED.

A practical and experienced man in pottery to take charge of souvenir plant. Must have some capital to invest in the business.

HOT SPRINGS POTTERY CO.,

9 2 d Hot Springs, Ark.

DRY PRESS FOR SALE.

We have for sale one American four-mold dry press as good as new. A bargain if sold at once. Address

THE DES MOINES CLAY MFG. CO.,

Des Moines, Iowa.

FOR SALE—Brick plant in central Wisconsin. Good location. Sixty-one acres of land, good clay, new residence, all modern. Good reason for selling. Offered at big sacrifice. Address

J. J. H.,

9 1 lp Care Clay-Worker.

BRICK PLANT FOR SALE OR LEASE.

A conveniently located brick plant on the Southern Railway, 90 miles north of Brunswick, Ga., 100 miles north of Jacksonville, Fla., 100 miles from Savannah, Ga., all of which are good, steady markets for brick, together with a good local territory. Have 350 acres of fine clay land, with ample fuel. Have all necessary machinery in first-class condition, including a Chambers automatic end-cut brick machine, kilns, ample yard room, etc. Capacity of plant, 40,000 brick per day. Good labor very cheap. Present owners engaged in other lines of business which occupies all their time. For further information, address

MAX L. McRAE, Sec. and Treas.,

9 1 dm McRae, Ga.

WANTED—Experienced man with capital to take share in pressed brick concern and assume management at good salary. Good clay, large market, bright prospects. Location, western Canada. Address

CELTIC,

9 tf d

Care Clay-Worker.

FOR SALE.

One 8-foot Taplin, Rice, Clerkin Co. wet pan.

One 40-inch Taplin, Rice, Clerkin Co. sewer pipe press, including multiple tile dies and hollow block dies.

One clay feeder.

One wet clay elevator.

The above machinery has only been used sixty days, and is in first-class working order. Will be sold cheap if sold at once.

Address THE WADSWORTH BRICK AND TILE CO.,

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Wadsworth, Ohio.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers.

Address

T. A. RANDALL & CO.,

Indianapolis, Ind.

FOR SALE—A stiff mud brick plant in Minneapolis, Minn. Will sell the yard as it stands in running order at present time. Good clay and enough of it. Write for further information. Address

"ANTHONY,"

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Care Clay-Worker.

FOR SALE.

One all iron horizontal Potts soft mud machine, together with Potts sander, two dozen steel-lined cherry molds and 20,000 foot pallets, standard size. Address

BALLARD BRICK CO.,

519 Pioneer bldg.,

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Seattle, Wash.

FOR SALE.

Paving brick plant of the Camden Clay Company, situated at Spilman, Mason county, W. Va. The entire plant of this company fully equipped for making 25,000 paving brick per day, a four-mold Boyd dry press, and a Murray clay roofing shingle machine, together with a right to an abundance of shale closely situated, fifteen employes' houses, two residences, thirty acres of ground in fee on bank of Ohio river, an abundance of coal with incline from mine to yard, six two-track fire-proof dryers, twelve 30-foot down-draft kilns. Entire yard paved. Shipping facilities, Baltimore & Ohio Railroad through property and sunken switch through yard, and incline to Ohio river. This plant is for sale at a very low figure. For further information address

M. G. TYLER, Trustee,

9 1 dm

Spilman, W. Va.

(Continued on next page.)

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED.

One good second-hand housing for Stevenson 9-foot dry pan, two pieces. Address
BOX 52,
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WANTED—Situation as superintendent of either paving or fire brick plant. Twenty-five years' experience. Strictly temperate and best of reference. Address

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MOLDERS.

We have steady work for eight good brick and tile molders. Bright foreigners given equal chance. CHICAGO RETORT AND FIRE BRICK CO.,
9 1 c Ottawa, Ill.

FOR SALE—One J. D. Fate double-shaft pugmill and auger machine, one hand-cutting table and one Quincy clay gatherer. All in first-class condition.

ST. AUGUSTA BRICK CO.,
9 1 1p St. Cloud, Minn.

WANTED—FOREMAN.

In a fire brick plant. One competent to take full charge of hand molding and setting. In reply, state age, experience and salary expected at start. Address

"RETORT,"
9 1 d Care Clay-Worker.

FOR SALE AT A BARGAIN.

An up-to-date drain tile and brick plant in a live town. Demand for entire output at good prices. Owner is old and wants to retire, and will sell it very low. Address

S. H. RECORD,
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WANTED.

Superintendent of combined dry press and stiff mud yard. Capacity, about 60,000. Best equipped plant in the south. Want a high-grade experienced man, married preferred. Right salary to right man.

GULF STATES BRICK CO.,
9 tf d Beaumont, Texas.

FOR SALE.

Practically new Potts brick machine, sander and disintegrator, Martin machine, dump table, brick gravity carriers, Brewer 6A tile machine, Fate automatic end-cut brick cutter, brick pallets, and cast iron yokes for Barron dryer cars. Prices right. Address

D. C. HAEGER,
9 2 d Dundee, Ill.

WANTED.

A young or middle-aged man of habits strictly good, honest and reliable, one who is experienced in the manufacture of clay products, and also able to handle correspondence pertaining thereto, and the use of machinery for the manufacture thereof, for position in sales department of reliable machinery manufacturer. In reply to this advertisement, state salary that would be expected, and give several references as to ability and character. Address

R. O. P.,
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WANTED—Sand mold brick machine. 35,000 to 40,000 capacity, sander and sand dryers.
C. H. BEUMER,
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WANTED—A thoroughly practical brick man with some money to invest to take complete charge of a plant making dry press, stiff mud, drain tile and sewer pipe.
"MAC,"
9 1 d Care Clay-Worker.

FOR SALE CHEAP.

One hot blast
One 125 h. p. slide valve engine.
One Smith vaile duplex pump.
All in good running order.

BLACK RIVER STARCH CO.,
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CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address

FRANK P. CLEVELAND,
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WANTED—For cash, machinery and complete working equipment for up-to-date drain tile factory. Give full and accurate description of everything, maker's name, length of service, original cost, etc., and your price f. o. b. point of shipment. Address

P. D. Q.,
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FOR SALE.

A fine brick plant, located on two railroads, within eight miles of Pittsburg, Pa. There is an abundance of raw material and the plant is well-equipped throughout. Will sell either half interest or entire stock. Prolonged illness of owner cause for selling. Address

Box 809,
9 1 d Care Clay-Worker.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
2 tf L Richmond, Va.

FOR SALE AT A BARGAIN.

One 2D three-mold American Clay dry press, together with radial, octagon and round-cornered pressure feet, with mold box, all complete in elegant condition. Our reason for selling is that our material will not make dry pressed brick successfully. Also, one Steele & Sons' end-cutter in good condition. The trade in this section prefers side-cut brick.

VICTOR CUSHWA & SONS,
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FOR SALE.

One hundred and twenty-six-acre factory site, centrally located, containing all the requisites for the manufacture of all kinds of clay products. Tested for sewer pipe, pavers, etc. Good vein fire clay. Two trunk lines on the land; 6-cent freight rate to Chicago. Plentiful supply of operatives. A priceless site to the parties who can make use of it. Plans, surveys and farm crop thrown in. On account of permanent breakdown in health of owner, will sell at a bargain. Address

JOHN H.,
6 tf dm Care Clay-Worker.

FOR SALE.

Four-mould Boyd Dry Press.
CLAUDE HARDWICKE,
Liberty, Mo.

WANTED

Salesman familiar with selling to municipalities. Good salary to right man. Must be experienced. Address

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YOU ARE A LIAR

If you say these pallets are not cheap at \$12 per thousand; 15,000 pallets, 10x32; 3/8 to 1/2 thick; cleats, 1x1 1/4; 2 feet 5 inches between cleats.

THE ELLIS BRICK CO.,
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WANTED.

Situation as superintendent of brick plant. Am thoroughly experienced in manufacture of dry pressed, stiff mud and paving brick. Can handle men successfully. Am in charge of a plant now, but for good reasons want a change. Best of references. Address

8 D,
8 2 d Care Clay-Worker.

FOR SALE.

Two second-hand American Clay Machinery Co. No. 2 automatic cutters.

One Western Wheel Scraper Co. No. 2 jaw crusher.

HYDRAULIC PRESS BRICK CO.,
Brazil Branch,
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SALESMAN AND MANAGER.

Brick salesman with thorough knowledge of the Ohio face brick trade and fireproofing wanted. Only a strictly first-class man with broad experience wanted for position, which may develop into that of sales manager for one of the leading clay and brick enterprises in the country. Great opportunity for man of ability. Give experience, references and salary expected. Address

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THE UNITED STATES PENITENTIARY, LEAVENWORTH, KANS.

has installed a new stiff mud brickmaking plant, therefore offers for sale, at very low figures:

One Ross-Keller six-mold dry press brick machine, with all belts, shafting, pulleys, screens, etc., as now attached.

One 65 h. p. slide valve steam engine.

The above property is in good condition for brickmaking. Inspection and correspondence invited.

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WANTED.

We want a good man to take charge of our machine room, one who understands Boyd presses and dry pans and engines, one who can keep things moving and make brick.

We also want a man to take charge of our stiff mud machinery; we have Freese machines; one who understands his business and can keep things moving, and can keep machinery up.

We also have openings for first-class face brick setters and first-class sorters.

We have nothing but first-class machinery, practically new, and manufacture nothing but a high-grade face and fire brick. Location good and positions permanent. Address

"LINCOLN,"
9 1 d Care Clay-Worker.

BRICK and MORTAR COLORING

For thirty years "COLORIFIC COLORS" have steadily grown in favor of Brick Manufacturers and Builders.
FREE SAMPLES ON APPLICATION.

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The tendency of the times is to give the brickmaker the advantage of scientific investigations. Large works have their own laboratories, chemists and specialists.

We Take Care of the Smaller Manufacturer.

We give you the advantage of our experience and make all necessary tests, at a charge so reasonable, that what we can save you will be many times our charges.

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Of the Mikola Patent Shovels

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Especially designed for handling shale, crushed stone, iron ore, clay, etc. Save time, labor and money by using shovels made just for your line of work. Write us about your needs and for Catalog Department A.



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Waste Engine Heat

drying bricks "solid" and AT LESS COST for
fuel or power than use of

Waste Kiln Heat.

The "natural" draft and "live" steam heating is used merely
to sustain capacity and prevent freezing at night.

The Condenser & Drier Co., Incorporated.

S. G. PHILLIPS, Patentee and Treas.
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WHEN WRITING TO ADVERTISERS
Mention the CLAY-WORKER.

WANTED—Master mechanic for brick plant. Man who is familiar with all classes of brickmaking machinery. Salary, \$100 per month. Only practical man need apply.
BURKE BRICK CO.,
7 2 d
Ft. Smith, Ark.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,
2 tf L
Cleveland, Ohio.

FOR SALE—Brick plant, consisting of sixty acres of land; 20,000 capacity. Machinery in good condition. Both surface and fire clay right at hand and no mining. This plant has paid as high as \$7,000 per year. Big demand for product. Only plant in city of 12,500. Address

H. H. BANKS,
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One of the most complete stiff mud brick plants in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address S. C.,
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Care Clay-Worker.

REBUILT ENGINES AND BOILERS.

The cleanest and most thoroughly rebuilt. All our own and in stock. Not scattered everywhere and merely listed.

ENGINES—

Corliss: 20x48 Wheelock, 20x42 Allis. 18x42 Hamilton, 16x42 Lane & Bodley, 14x36 Lane & Bodley, 14x24 Wright, 12x30 Allis, etc.

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Throttling: 18x24 Erie, 16x20 Chandler & Taylor, 16x18 Erie, 14x24 Atlas, 13x16 Chandler & Taylor, 14x14 Lewis Vertical, 10x16 Owens, Lane & Dyer, 10x12 Industrial, 9x12 Ajax, 8x12 Climax, 7x12 H., S. & G., 6x8 Clark, etc.

BOILERS—

Stationary: 72x19 High Pressure, 72x18 Standard, 72x16, 66x16, 60x20, 60x16, 54x16, 54x14, 54x12, 48x16, 48x14, 44x14, 40x12, 40x9, 36x16, 36x10, etc.

Fire Box: 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h. p., etc.

Vertical: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5 and 3 h. p., etc.

HEATERS—

All sizes, Open and Closed.

PUMPS—

All sizes, Single and Duplex.

SAW MILLS, LATH MILLS, EDGERS, CUT-OFF SAWS, TANKS, ETC. Write for list.

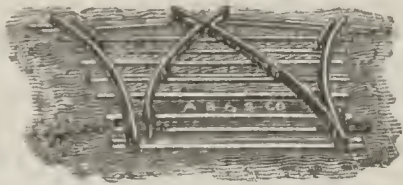
Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS and JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
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One 9-foot dry pan, iron frame.
One revolving screen.
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TRACTING CO.,
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Right and left-hand one, two and three
way switches of various gauges, radius and
weight rails at special prices.
THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio

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Established by the Legislature
in 1902 at the

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RUTGERS COLLEGE.

NEW BRUNSWICK, N. J.

Has a modern and complete equipment for
practical and theoretical instruction in the
clayworking industries. Two courses have
been provided: the regular course of four
years; a short course of two years, designed for
the young man who has had practical experi-
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THE OHIO STATE UNIVERSITY offers complete
courses in all of the usual engineering branches.
It is prepared to offer especially fine facilities for
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of Ceramic Engineering.

This department, located in a large new
building, is entering upon its 15th year. Sub-
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process. Its laboratories and equipment are the
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Terms First-class
reasonable. references.

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(25 years practical experience)

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Special attention paid to dry clay press
processes and down-draft kilns.

Contracts made contingent upon suc-
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Uniform Wires

Loops Double Twisted
Wires Straight—Ready for Use

Cutting Wires For Brick Machines

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ANY GAUGE, ANY LENGTH OF WIRE MADE TO ORDER
Send us your specifications for our quotations

Brickmakers Having Trouble

with old kilns, and those contemplating new ones, will do well to ask for particulars
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IMPROVED FLUE SYSTEM KILN.

Absolute Draft Control. Fuel and Time Economy.

This kiln has PROVED its worth with all kinds and grades of material, and IT IS
MAKING MONEY for all those operating it—IT WILL DO THE SAME FOR YOU.

You Owe it to Yourself to Investigate.

We invite correspondence and will cheerfully mail booklet and full information.
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White Pine Pallets

For Brick, Roofing Tile,
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The Best Are the Cheapest.

Send Specifications and Get Prices.

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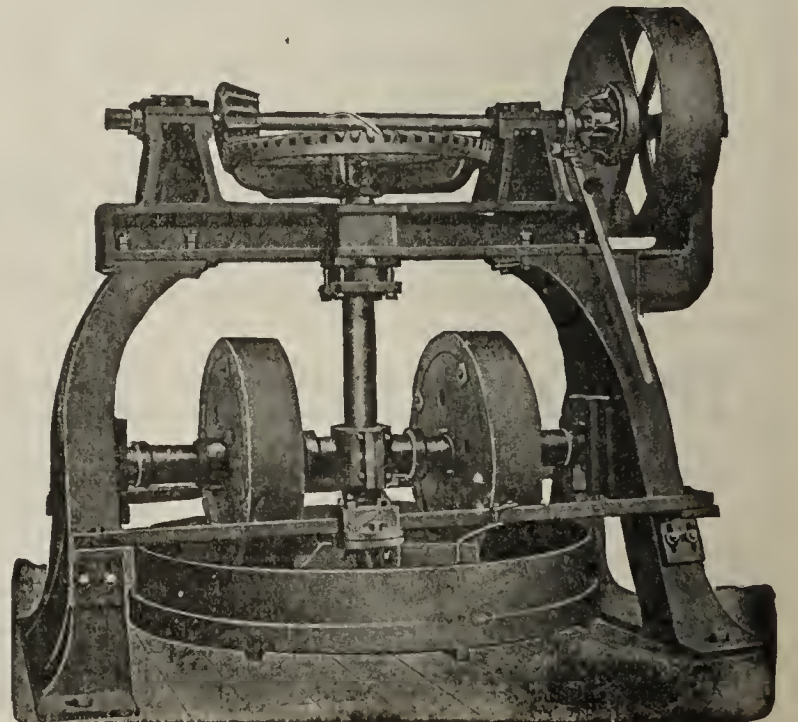
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PITTSBURG, PA.

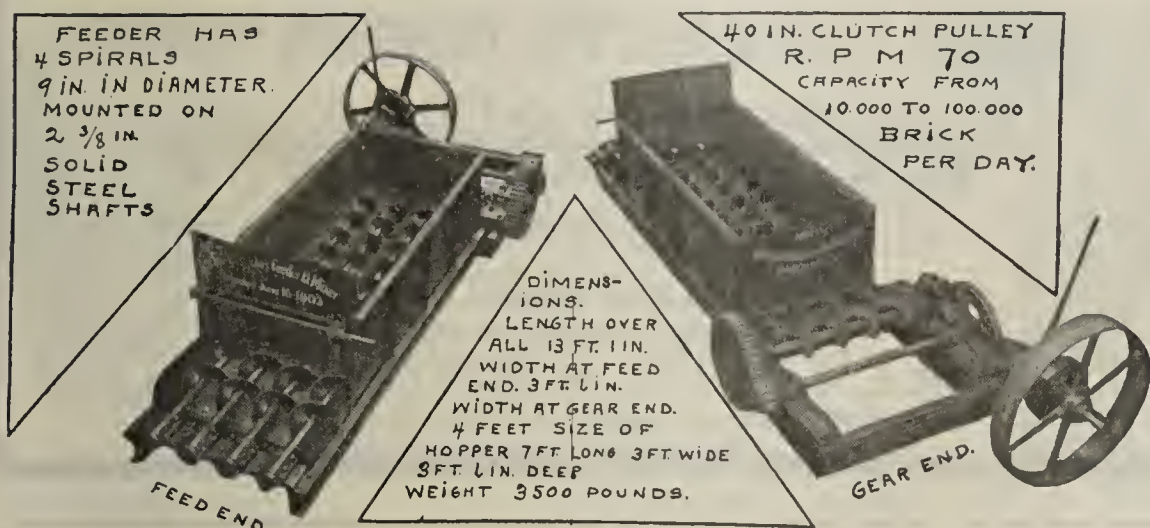
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When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

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The Rust Clay Feeder.

Don't let your profits run away. We can save you from \$500 to \$1000 per year through the use of this model Clay Feeder. Write today for our latest catalog fully describing this new Clay Feeder and Mixer.

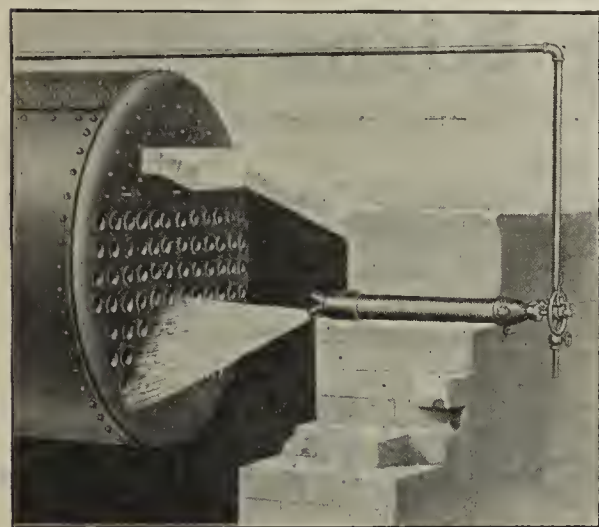
The Marion Flue Blower

Patented Feb. 23, 1909.

Will save 10 % of your fuel—Will insure you clean tubes—Will prolong the life of the boiler—Will prevent the accumulation of soot—Will save the cost of steam hose—Will enable you to clean your boiler while in commission.

The accompanying cut shows how the Flue Blower is installed in the rear wall of your boiler. Each Blower is fitted with a nozzle which rotates, and each opening in the nozzle blows a section of the boiler tubes at a time. We furnish different size nozzles as required, and positively guarantee to blow each flue clean.

Please send for our latest catalog fully describing this useful invention.



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It Looks Good

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It Looks Better

crushing shale, fire clay, rock and other hard material.

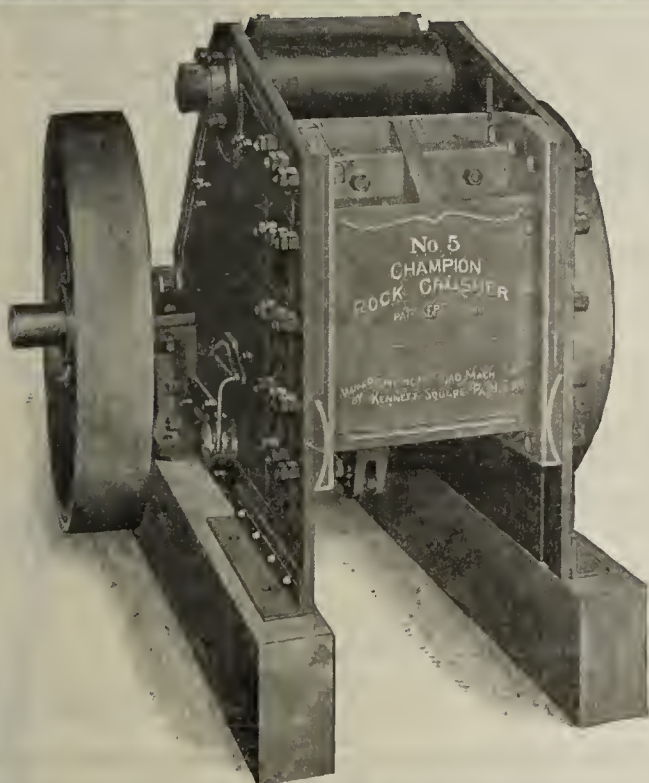
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is expensive, *to do without*, because it saves you money.

Catalogue is free on application. Address

AMERICAN ROAD MACHINE CO.

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NO. 5, 11x26 CHAMPION CRUSHER.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address

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LUMP, GRAIN AND GROUND

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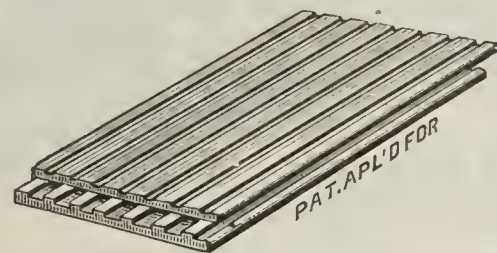
of time and weather have tried out Ricketson's famous Red Brick brand

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For Mortar, Brick, Cement, Stone, etc. Proved to be absolutely permanent. Red, Brown, Buff, Purple and Black.

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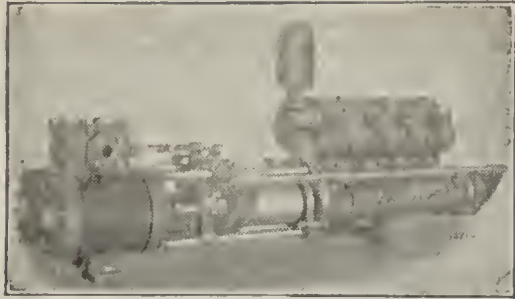


Patent Revolving and Hand Presses for Interlocking Tiles, Dies for all shapes, Hips, etc., in metal or plaster.

Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

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2935 Clark Avenue. St. Louis, Mo.

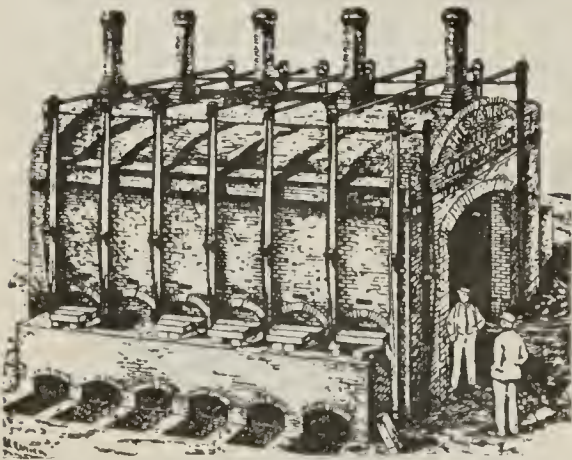


This is the most important improvement that has been made in the valve gear of duplex pumps for twenty-five years. Rock shafts are abandoned and one-piece levers substituted. The levers swing on steel studs having extra long bearings. Both levers are alike and they can be removed and replaced in five minutes. The stroke is long.

SINGLE AND DUPLEX PUMPS
JET AND SURFACE CONDENSERS
DEAN BROS. STEAM PUMP WORKS
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ARE your KILNS and DRYERS giving you perfect satisfaction in economy and output? If not, let me help you with my advice. Kilns and dryers erected or plans supplied to suit all clays and fuels. Satisfaction guaranteed. Advice also given upon installing new brick, drain and roofing tile plants. *Note*—I am not connected with any machinery firm, so am not interested in pushing unsuitable machinery. Consult the independent expert is sound advice.

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The Yates Patent Down-draft Kiln.
 Also Continuous.

References: Kane Brick Co., Kane, Pa.; Kushequa Brick Co., Kushequa, Pa.; Queen City Brick & Tile Co., Cumberland, Md.; Shawmut Brick Works, Shawmut, Pa.; Corry Brick & Tile Co., Corry, Pa.; and the Johnsonburg Vitrified Brick Co., Johnsonburg, Pa.; Shawnee Brick Co., Shawnee, Ohio.

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Conveying, Elevating and Power-Transmitting Machinery.



The only perfect spiral conveyor. Continuous flight—no laps or rivets.
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Belt, Chain and Cable Conveyors.

Ask for General Catalogue.

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ST. LOUIS, U. S. A.

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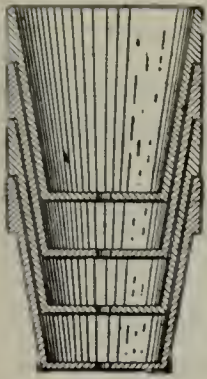
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\$2.00 THE CLAY-WORKER \$2.00
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WITH THE ONLY SUCCESSFUL

Flower Pot Machine

(PATENTED.)

No expert workmen required.

Capacity in 10 hours:

6,000 two-inch Pots; 3,500 five-inch Pots;

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Something New in Brick Kilns and Brick Dryers

Patented April 14, 1903, and September 8, 1903.

ANY KILN OF THE MORRISON OR WINGARD TYPE CAN EASILY BE CHANGED INTO THE DENNIS DOUBLE DOWN DRAFT KILN.

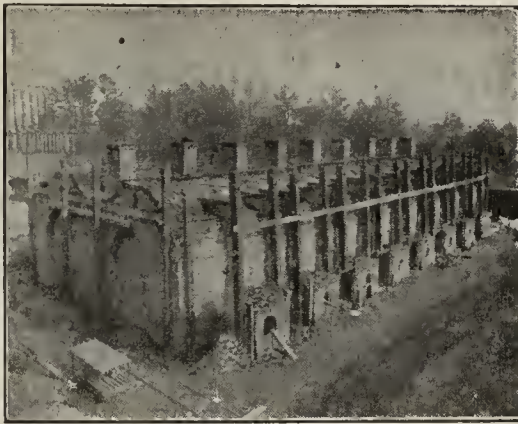
Some Claims Made for the Dennis Double Chamber Down Draft Brick Kilns.

Some New Features About This Kiln.

No buck stays, rods, or braces of any kind are used, the only metal used being furnace doors, grate bars, and sheet iron for chimney dampers, and as outside walls are battered, furnaces are built "within the walls," avoiding expense of outside furnaces and the loss of heat by radiation when in use, while the battered side walls and double arches form a perfect brace, each holding the other in position. In proportion to capacity, these kilns can be built for less money, burned with less fuel, and water-smoked and burned in less time than any other kiln upon the market, except the very costly and complicated continuous kilns, and by chimney dampering, the heat throughout burning, is under perfect control, and these kilns will burn with perfectly satisfactory results, soft mud, stiff mud, dry pressed, or paving brick, burning practically all hard. I have kilns built under this patent, of capacities ranging from 100,000 to 500,000 brick, and should be pleased to furnish names of users to prospective buyers.

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Let us tell you about Side-Walk Black.

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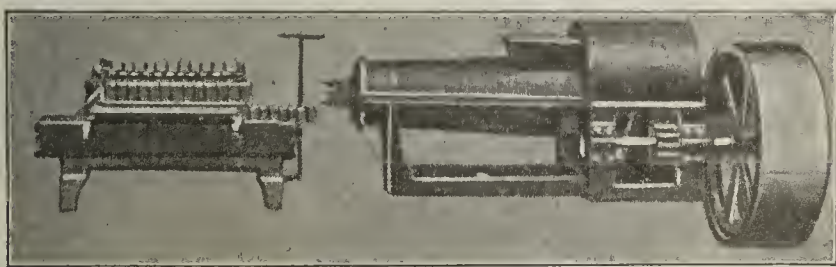
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The only preventative for scum and discolor-
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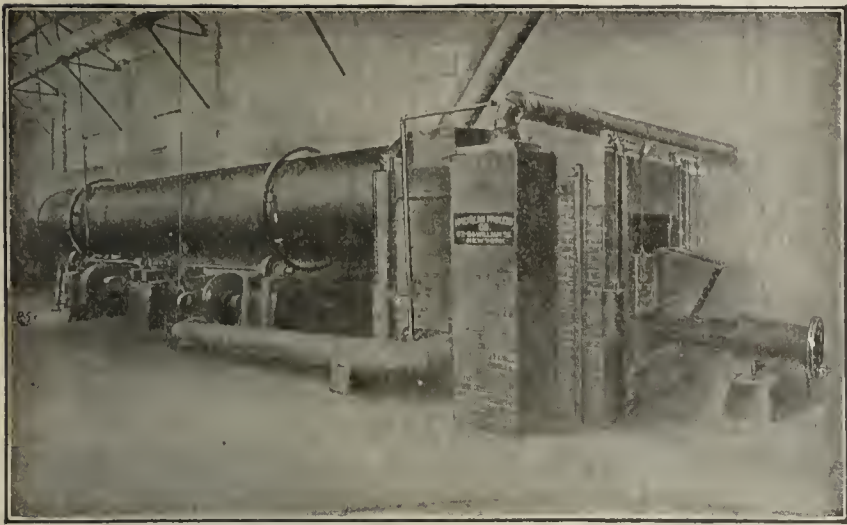
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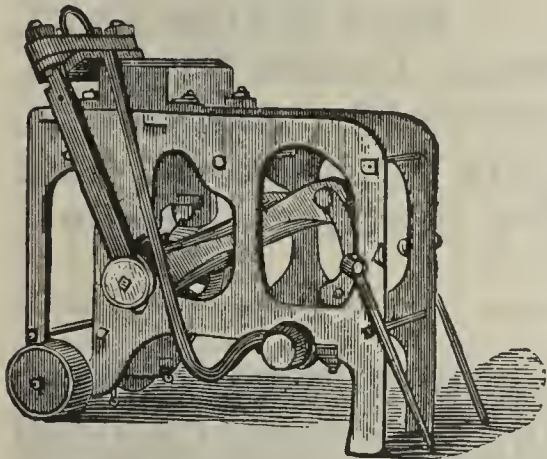
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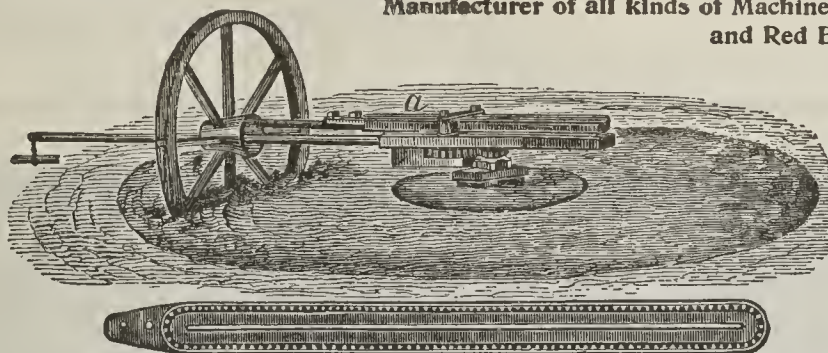


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Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

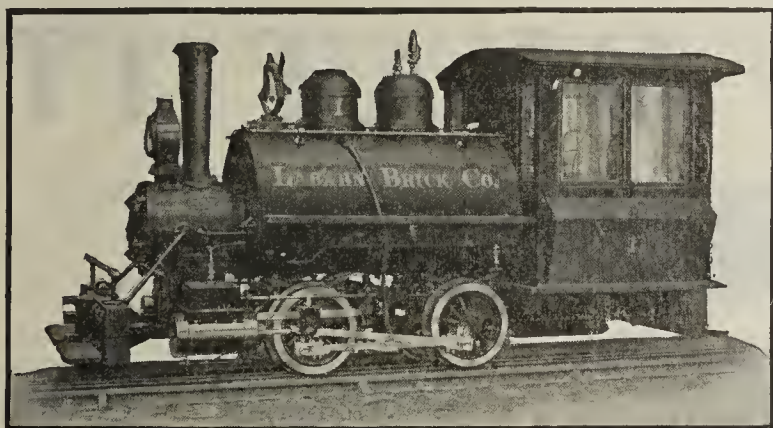
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Small Size

Reasonable Cost

Built especially for the use of clay-products manufacturers, for hauling clay or shale from pits or mines to plant.

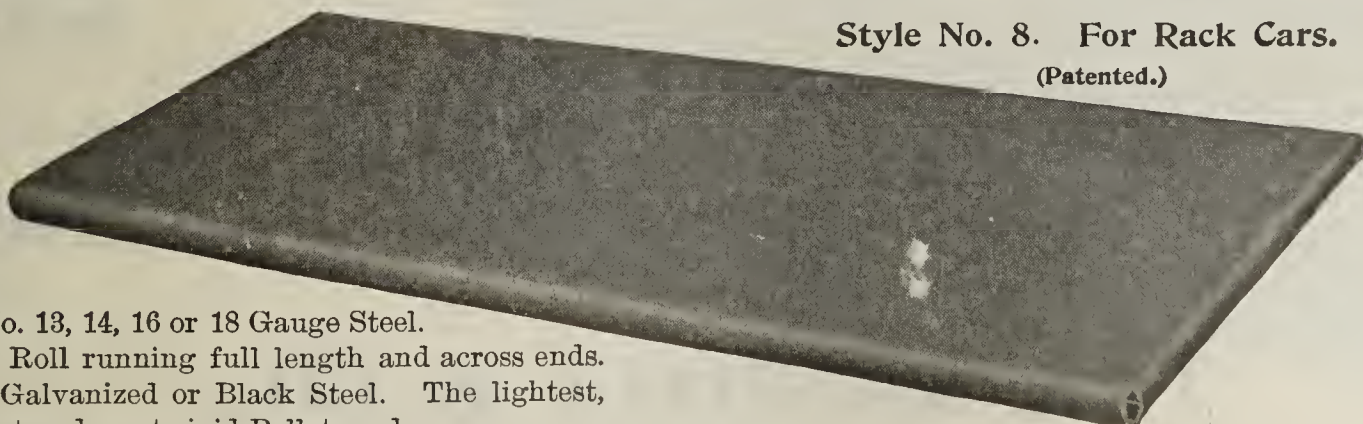
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CARBONATE OF BARYTES
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Write us for Clayworking Specialties, Brickyard and Pottery Supplies, Controlling Apparatus for
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By FRANK B. GILBRETH.

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Among the many labor-saving devices and methods in this book, none is more worthy of comment than what Mr. Gilbreth calls his "packet system" of handling bricks. The bricks are piled on small wooden trays or "packets," loaded on to wagons, hauled to the work and delivered to the bricklayers. This handling in units has worked a remarkable reduction in cost on Mr. Gilbreth's own work. Incidentally, by keeping tab on the number of empty "packets," the exact output of each bricklayer is recorded, which itself is a stimulus that works wonders in the output of the men.

The "fountain trowel" is another money-saving device. Space prohibits mention of more.

The book is now off the press, and ready for distribution. Its size is 6x9in., 330 pages, 167 illustrations and 73 bond charts. The price is \$3.00 net, postpaid.

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TECHNICAL BUREAU FOR CLAYWORKERS

Send for Pamphlet
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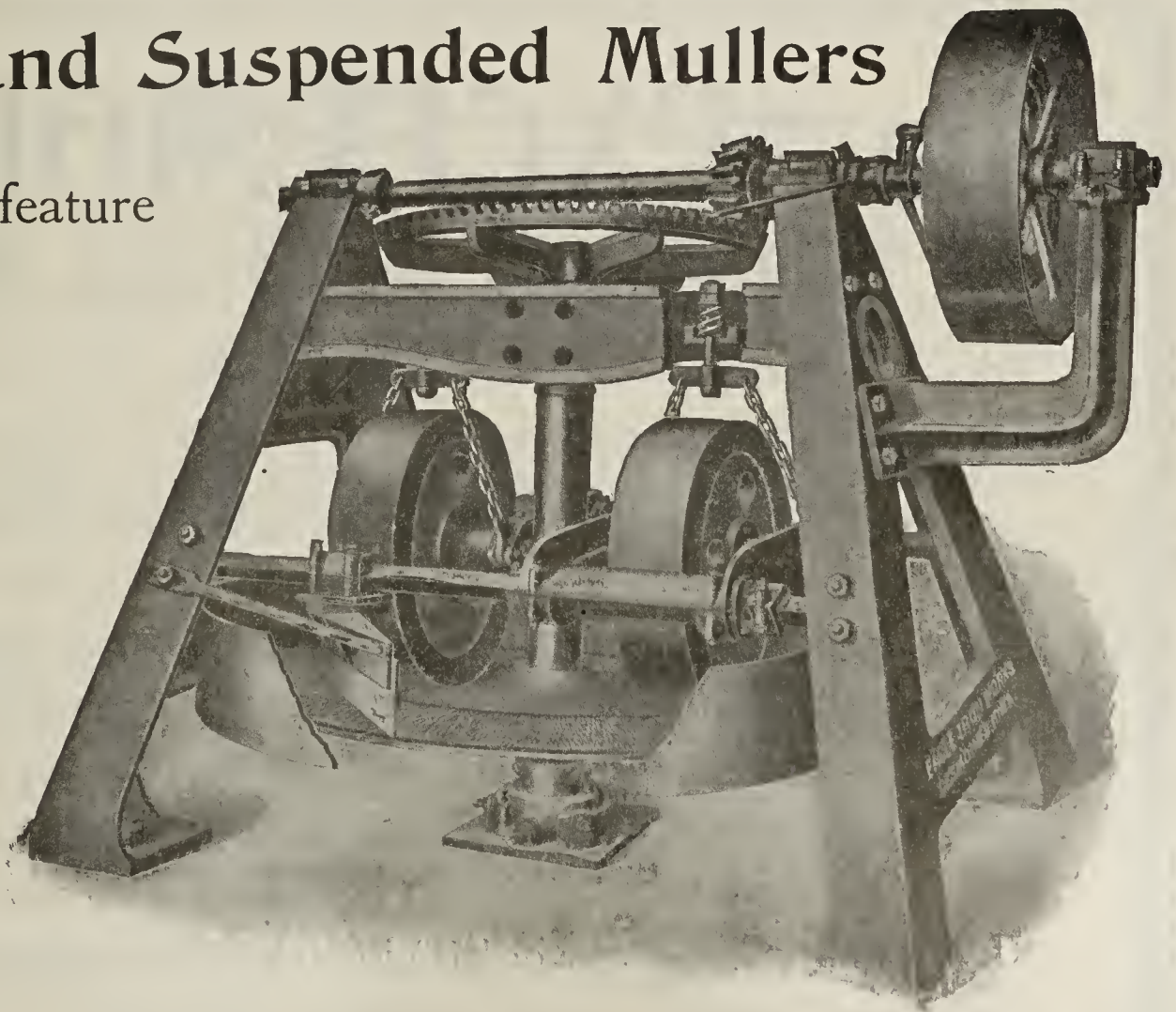
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the distinguishing feature
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Other valuable
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describes.



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118 Pearl Street,
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908 Ellicott Square,
33 Terminal Way,

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NEW YORK
BUFFALO
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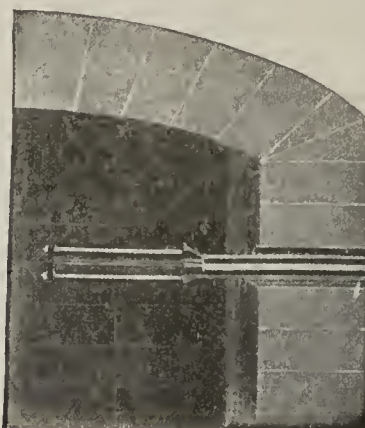
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BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

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For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

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The "EXCELSIOR" CONTINUOUS KILN

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IT IS THE OUTCOME OF YEARS OF PRACTICAL TECHNICAL EXPERIENCE AS KILN BUILDERS AND CERAMISTS.

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Manufactured out of highest grade Missouri semi-flint fire clay.
A large stock of Number One brick and shapes always on hand.
Let us quote you prices and we will save you money.
Samples sent upon request. Address

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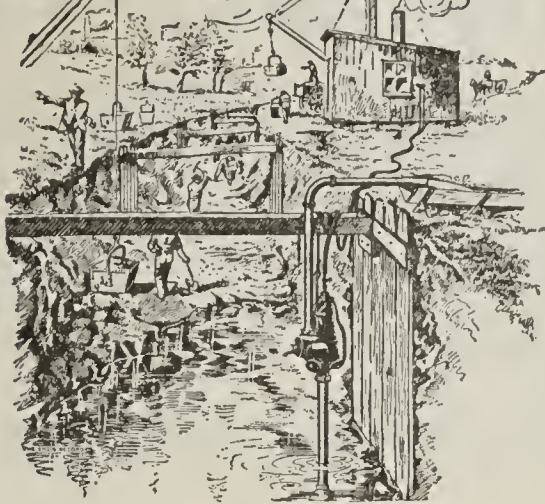
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ALWAYS READY

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DRAINING CLAY PITS

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary, and may be raised and lowered as occasion demands without interrupting its work.

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AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

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This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

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Every Brickmaker Who Has Kilns With an Arch on Should Have One.

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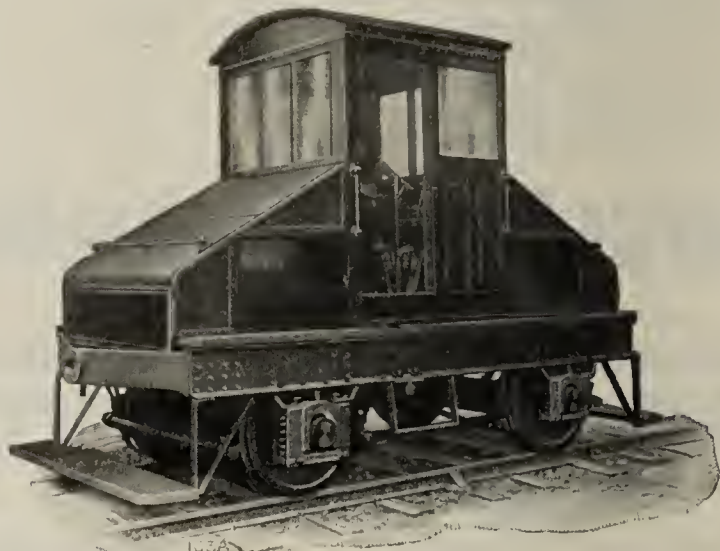


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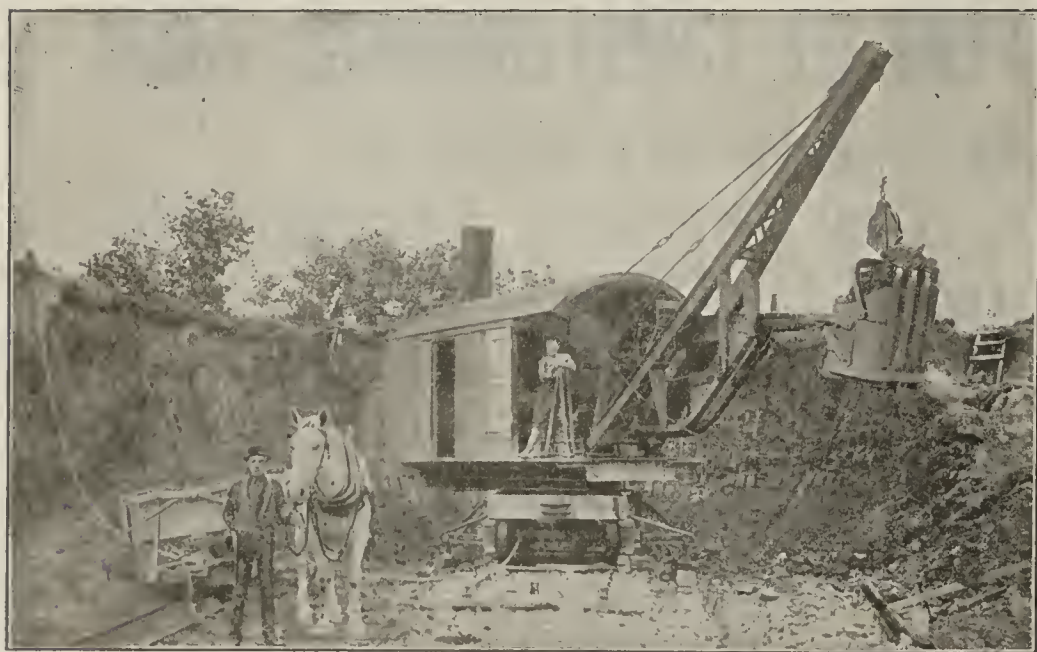
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Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
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Involves the Original Principle

Of Applying
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Burns all first-class
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at
40% reduction in
fuel cost.

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OUR SPECIALTIES

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Vertical mills for making tile from 12 in. to 24 in. The only successful vertical auger machine built.

Disintegrators, any capacity desired.

Pug Mills or Granulators, any length tub.

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MADDEN & CO.,

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Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

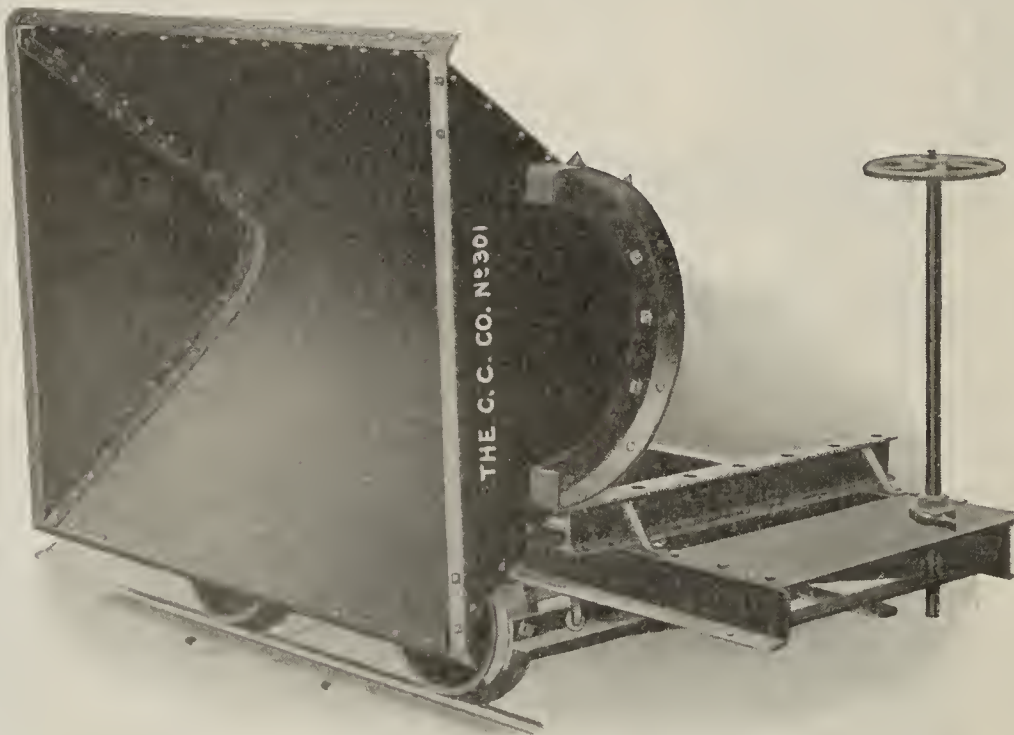
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Everybody duplicates orders; they must be used to be appreciated.

Price \$7.50 each.

Stock size wheel, 20 inches diameter.
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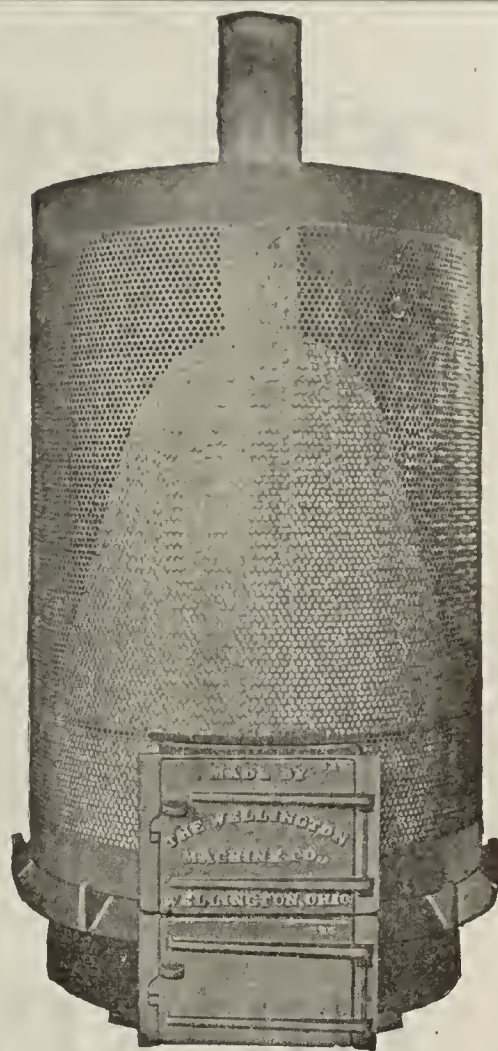


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Weight, 1,100 lbs. Every brick work needs one. Diameter over all, 3 ft. 1 in. Height 4 ft. 9 in. We will be glad to send one to any responsible party subject to ten days' trial and approval. We sell them that way and not one ever came back.

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We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

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Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

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Can't Make Brick in Winter Without A DRIER.

BETTER GET IN LINE.

"In reply to your favor of the 2d, will say our Drier, which you installed last spring, is giving the utmost satisfaction. We are drying more brick than you guaranteed, and can recommend it to anyone as a first-class Drier in every respect. Easy to operate and no expensive repairs, and never out of order. Wishing you success, we are,

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The National Dry Kiln Co.,
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THE CLAY-WORKER'S POCKET KIT.

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Yard Superintendents,
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Mechanics, Miners,
Farmers, Horsemen,
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ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

**CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.**

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

**One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.**

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

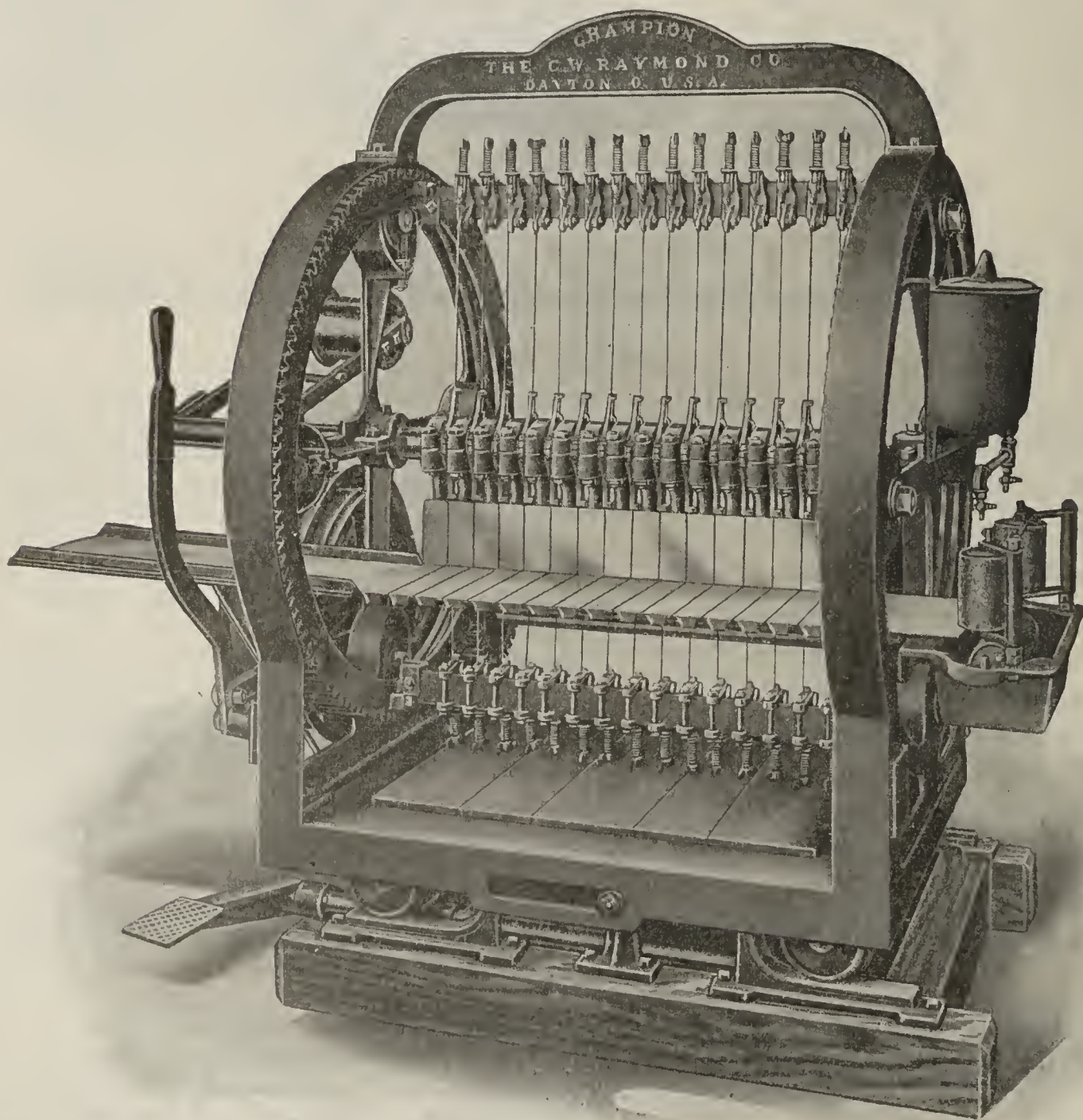
Street and Number

County State

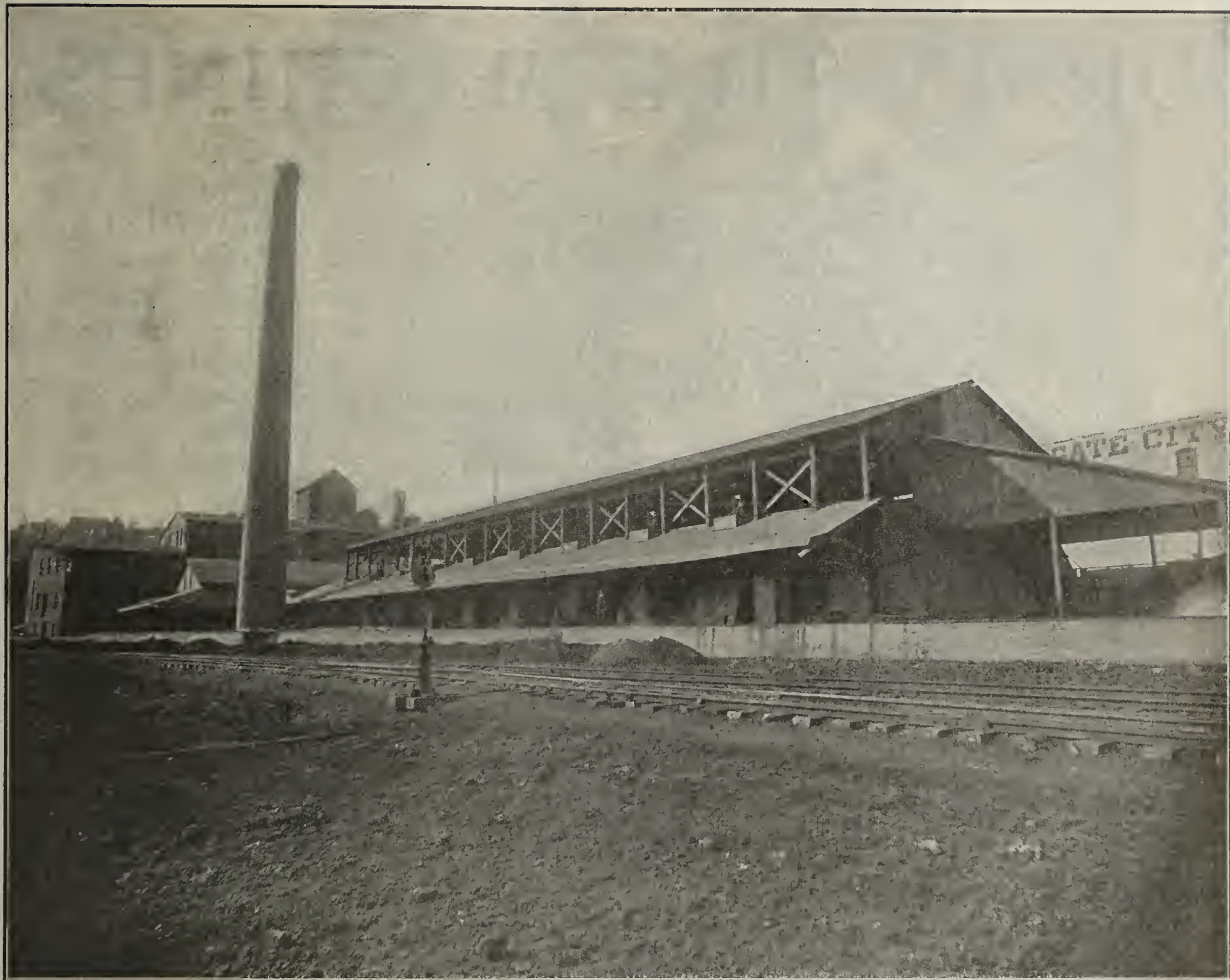
Imperative demands from all sections of the country for a cutting table to accurately cut stiff mud face brick has brought out the Champion, the next upward step in the evolution of Rotary Cutters. It is semi-automatic, and all of the desired qualities are there; we find nothing to improve about it. It has won its way by sheer merit. It has the good will of every face brick maker who uses it, and many more who have but seen it. It is chock full of perfection. We haven't room to tell you all about it here, but write now.

THE C. W. RAYMOND COMPANY,

DAYTON, OHIO, U. S. A.



The Youngren Continuous Gas Fired Kiln



As Installed at Omaha, Neb.

We are now ready to furnish licenses for the building of the Youngren Continuous Gas Fired Kiln.

The great labor saver and the wonderful fuel saver. It will give you a profit while your competitor is selling at cost. He can't stand up against your 60% to the good, besides the uniformity of burn obtained by no other method.

These claims are neither radical nor visionary, but susceptible of the highest proof, and we are ready to give this proof to you.

The C. W. Raymond Company,

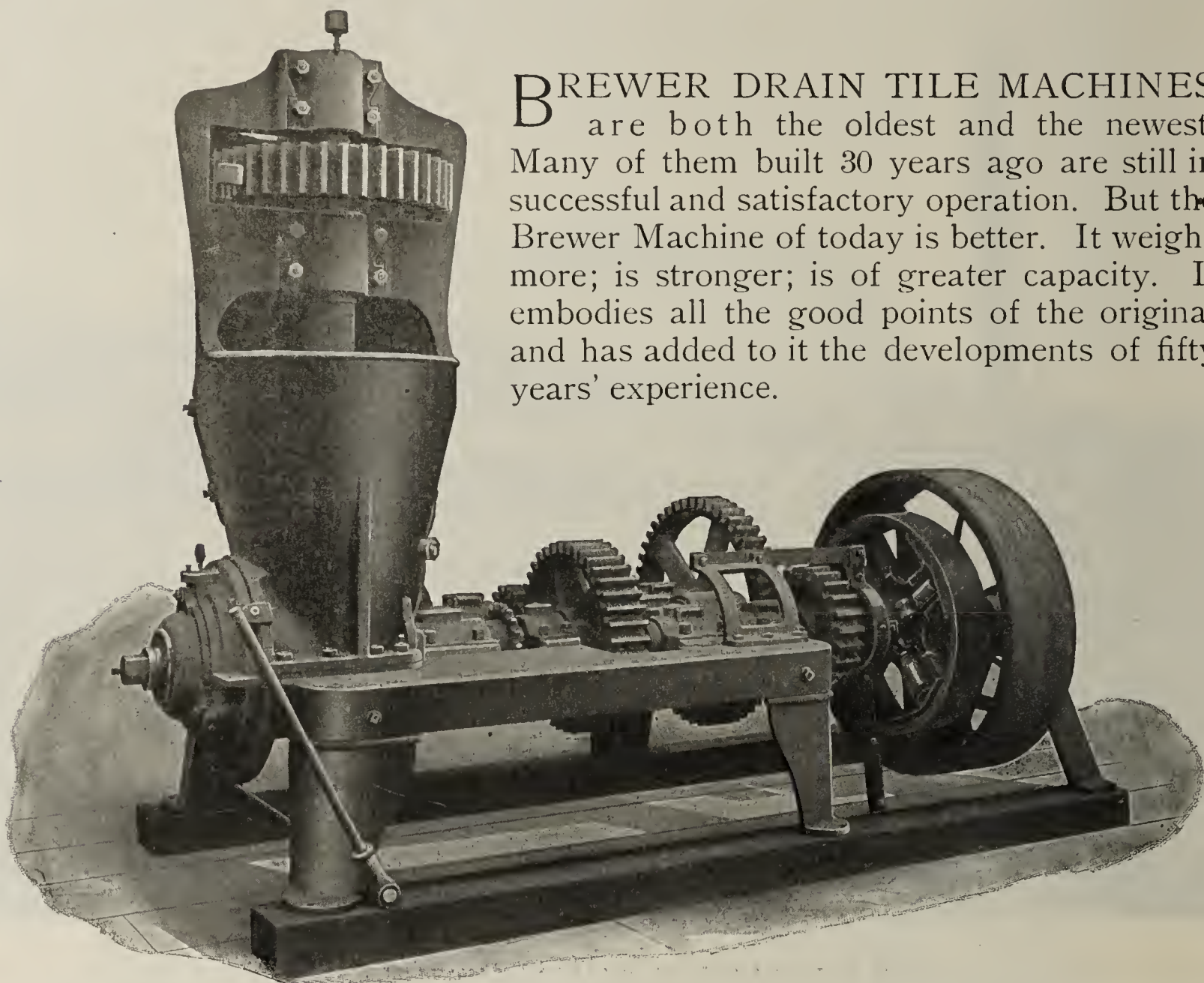
Exclusive Licensees of the Youngren Patents.

DAYTON, OHIO, U. S. A.

Mention The Clay-Worker.



DRAIN TILE MACHINES



BREWER DRAIN TILE MACHINES are both the oldest and the newest. Many of them built 30 years ago are still in successful and satisfactory operation. But the Brewer Machine of today is better. It weighs more; is stronger; is of greater capacity. It embodies all the good points of the original and has added to it the developments of fifty years' experience.

We Build Three Sizes

ranging in capacity from 1,000 4-inch tile per hour up to all that can possibly be handled by any present day method. They range in weight from 5,500 to 10,400 pounds. The upright portion is cast in one piece and machined to the frame. The frame is cast in one piece. The knives are forged from hard high-carbon steel. The augers and casings are of white iron. The cores of the tile dies are held without bridge or bracket or anything which parts the clay as it is being formed into shape. They make good tile where other machines fail.

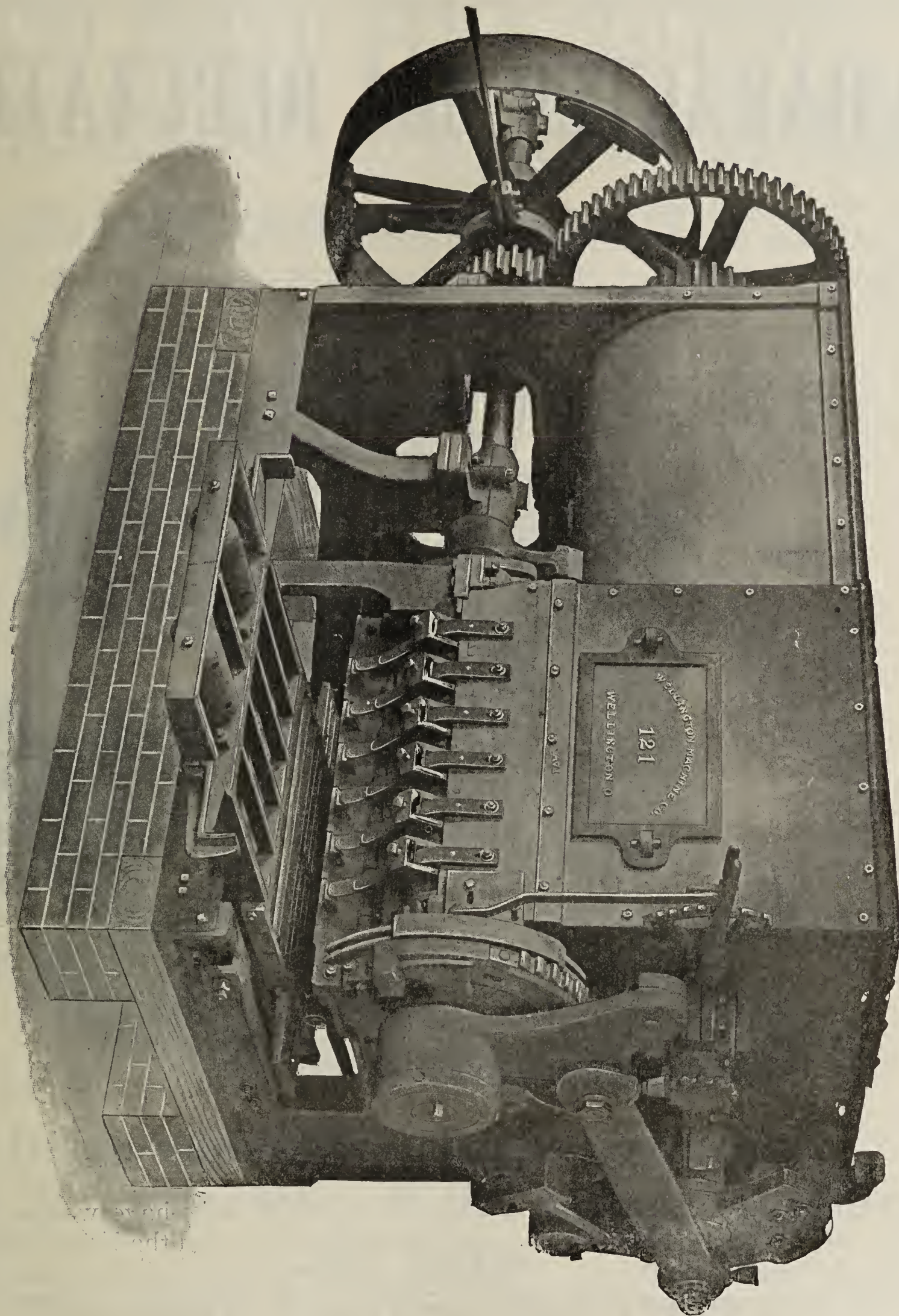
Our catalog explains all about them and gives detailed specifications.

H. BREWER & COMPANY, Tecumseh, Mich.

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

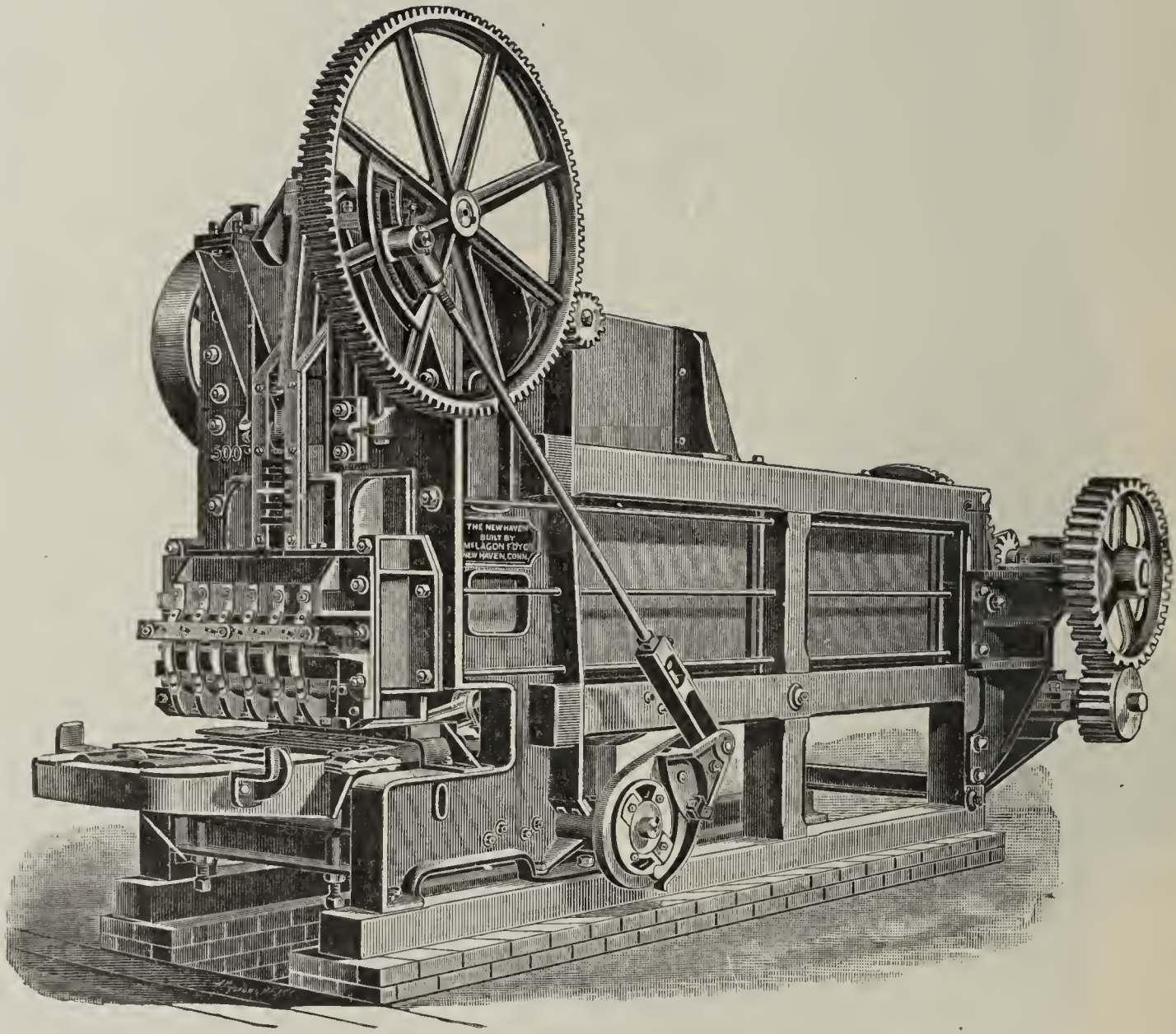
**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,
WELLINGTON,
OHIO.
Send for Catalogue.

Mention the Clay-Worker.

CHARACTER and REPUTATION.

"Character is what we are. Reputation is what people think we are." A happy combination is when character and reputation agree, as is the case with the New Haven Soft Mud Brick Machines. They are built so strong and so well that the character and reputation both are unquestioned.



"NEW HAVEN" HORIZONTAL BRICK MACHINE.

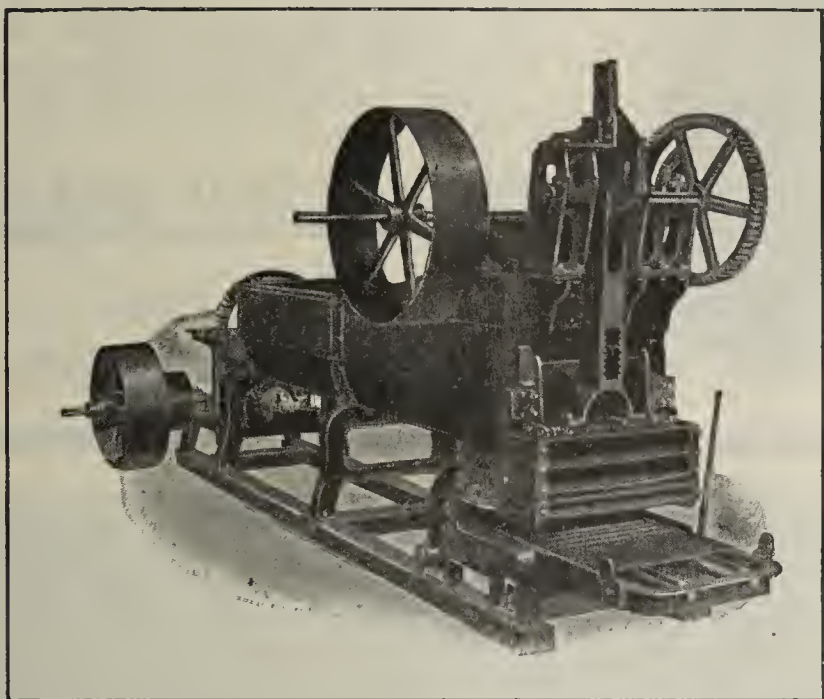
The enduring qualities of the New Haven Machines have won for them the approbation of soft mud brick manufacturers generally, and the New England brick manufacturers in particular. If you want a soft mud brick machine that will insure steady operation, high class products and regular dividends, buy a New Haven.

Catalogue for the asking.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

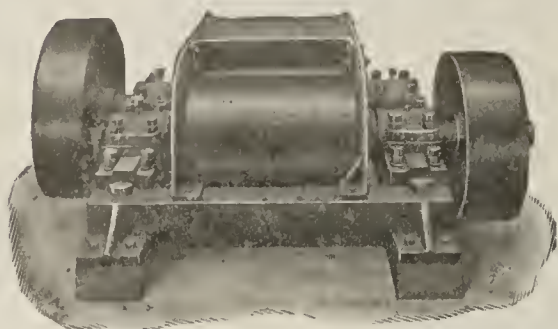
Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

Mention The Clay-Worker.



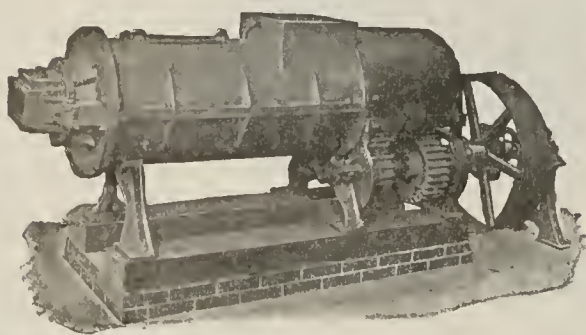
DISINTEGRATOR



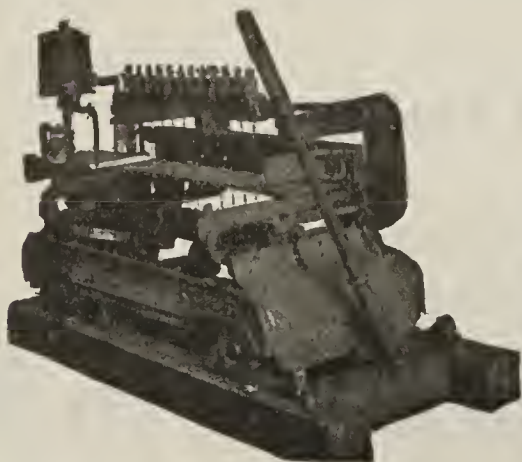
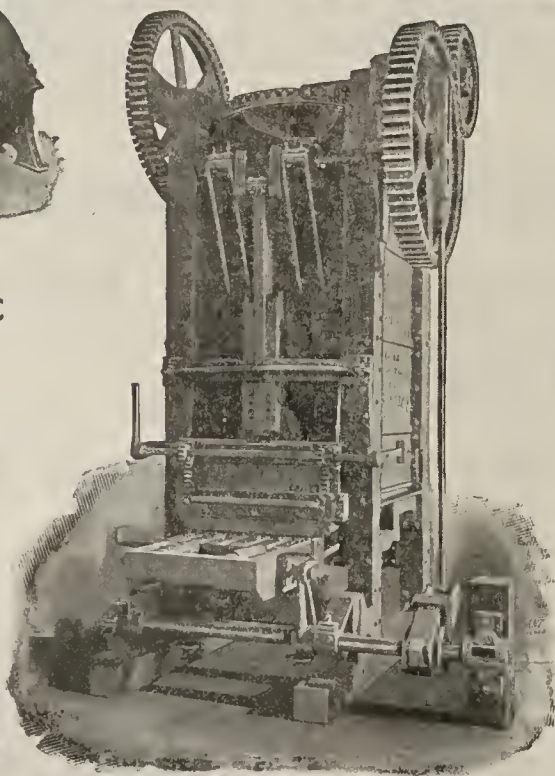
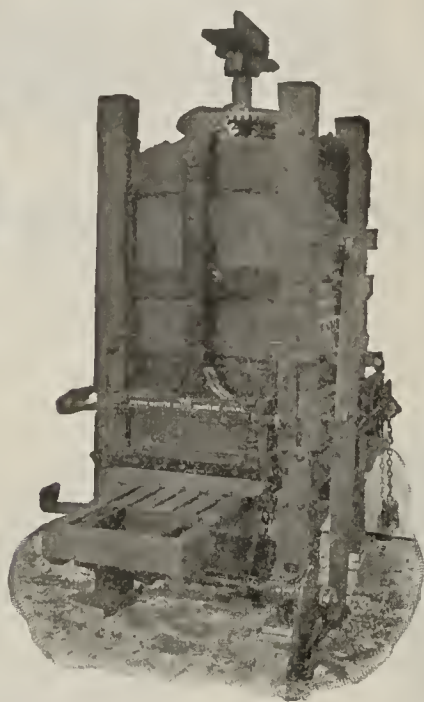
LET'S FIGURE TOGETHER

Handling Brick From  the Brick Machine to the "Martin" Patent Dryers

We Build the Most Complete Line of Brick Machinery, Disintegrators, Pug Mills, Elevators, Conveyors, Clay Cars, Hoisting Drums, Mould Sanders, Barrows and Trucks.



STIFF MUD BRICK MACHINE

ANIMAL POWER
BRICK MACHINE

STYLE "A" BRICK MACHINE

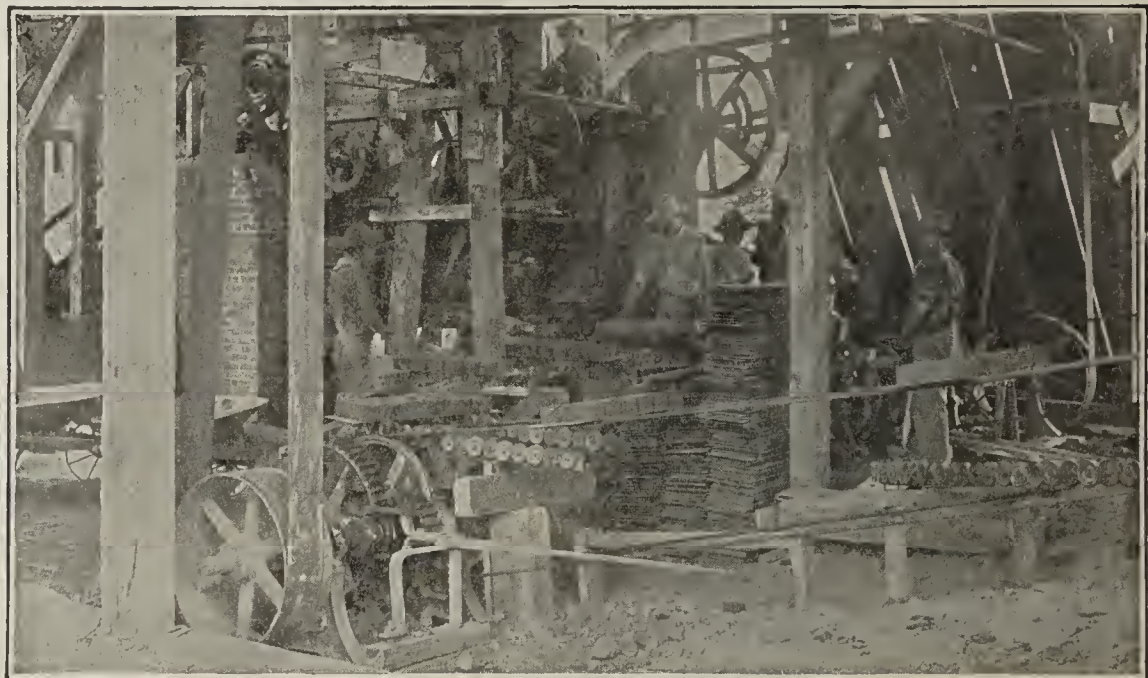
THE "MARTIN"

PLANS, SPECIFICATIONS, ETC.

WILL BE
CHEERFULLY FURNISHED

ON APPLICATION
FOR CONSTRUCTION OF
COMPLETE BRICK PLANTS

FOR THE MOST
LABOR-SAVING SYSTEM



"WE FURNISH EVERYTHING
THE BRICKMAKER NEEDS"

DO YOU HAVE OUR CATALOG?

It Will Show You How to
Manufacture High-Grade
Building or Paving Brick

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER SOFT OR STIFF-MUD BUILDING BRICK

FULLY COVERED BY PATENTS

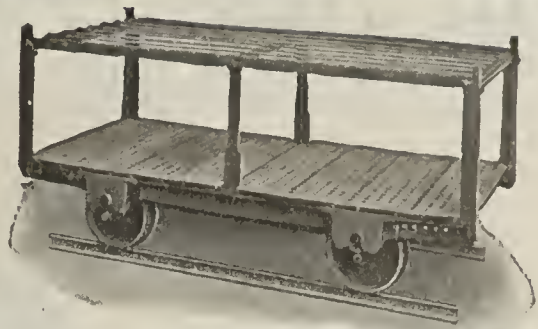
PATENTED

Feb. 22, 1898 -- 599509
Oct. 10, 1905 -- 95520
Nov. 14, 1905 -- 804489
May 26, 1908 -- 888831

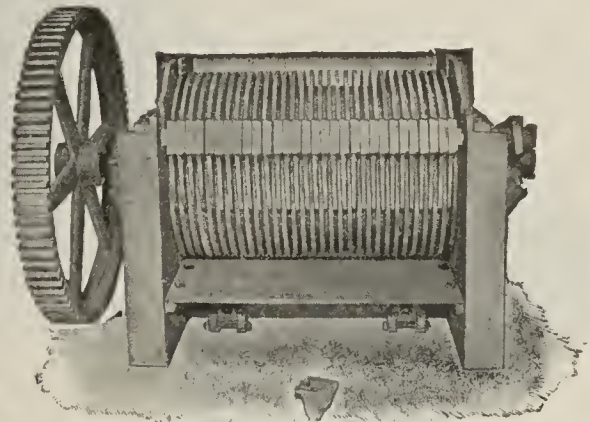
And Additional Patents Pending.

UNITED STATES & CANADA

SATISFACTION
SAND DRYER



DRYER CARS



CLAY SCREEN



Interior View of a
"Martin Patent System"
STEAM BRICK DRYER

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem -- Quick to Install and
Low in Price -- Write Us.

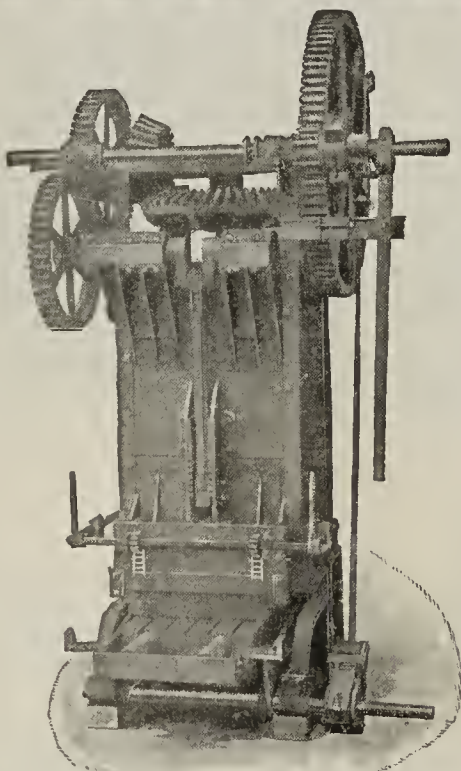
THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized

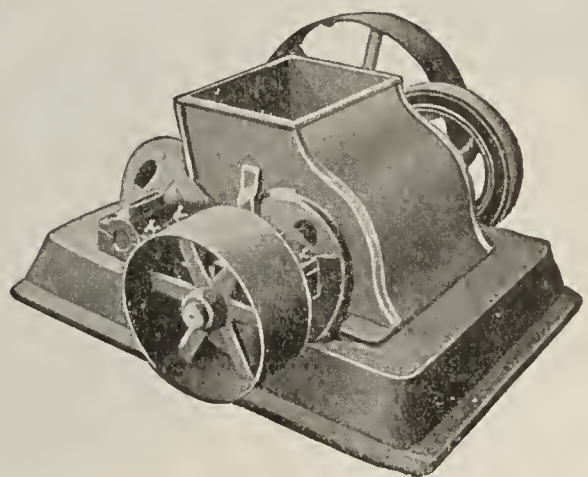
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

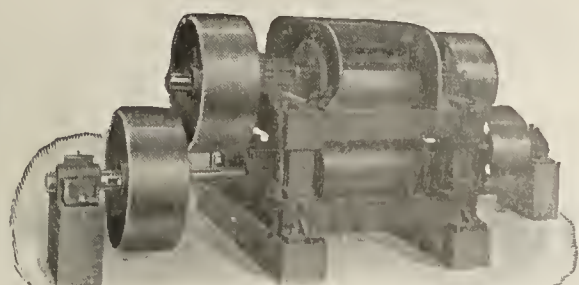
ALL CONTRACTS MADE BY
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



STYLE "P" BRICK MACHINE



HIGH SPEED CRUSHERS



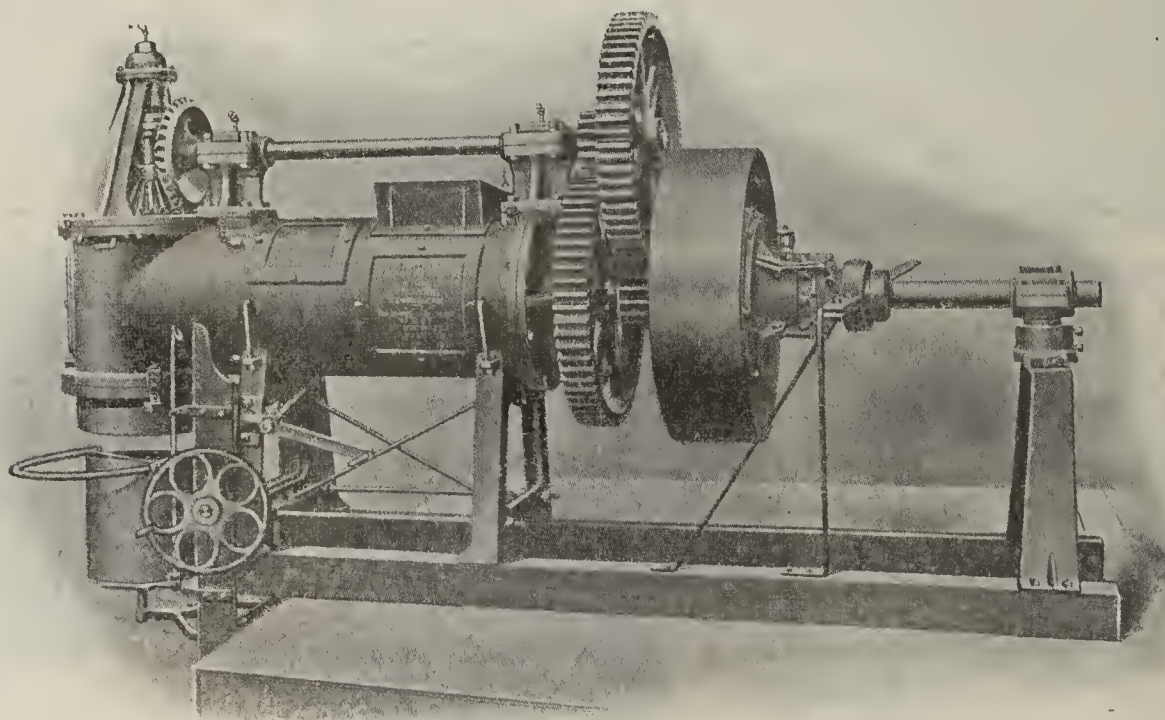
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

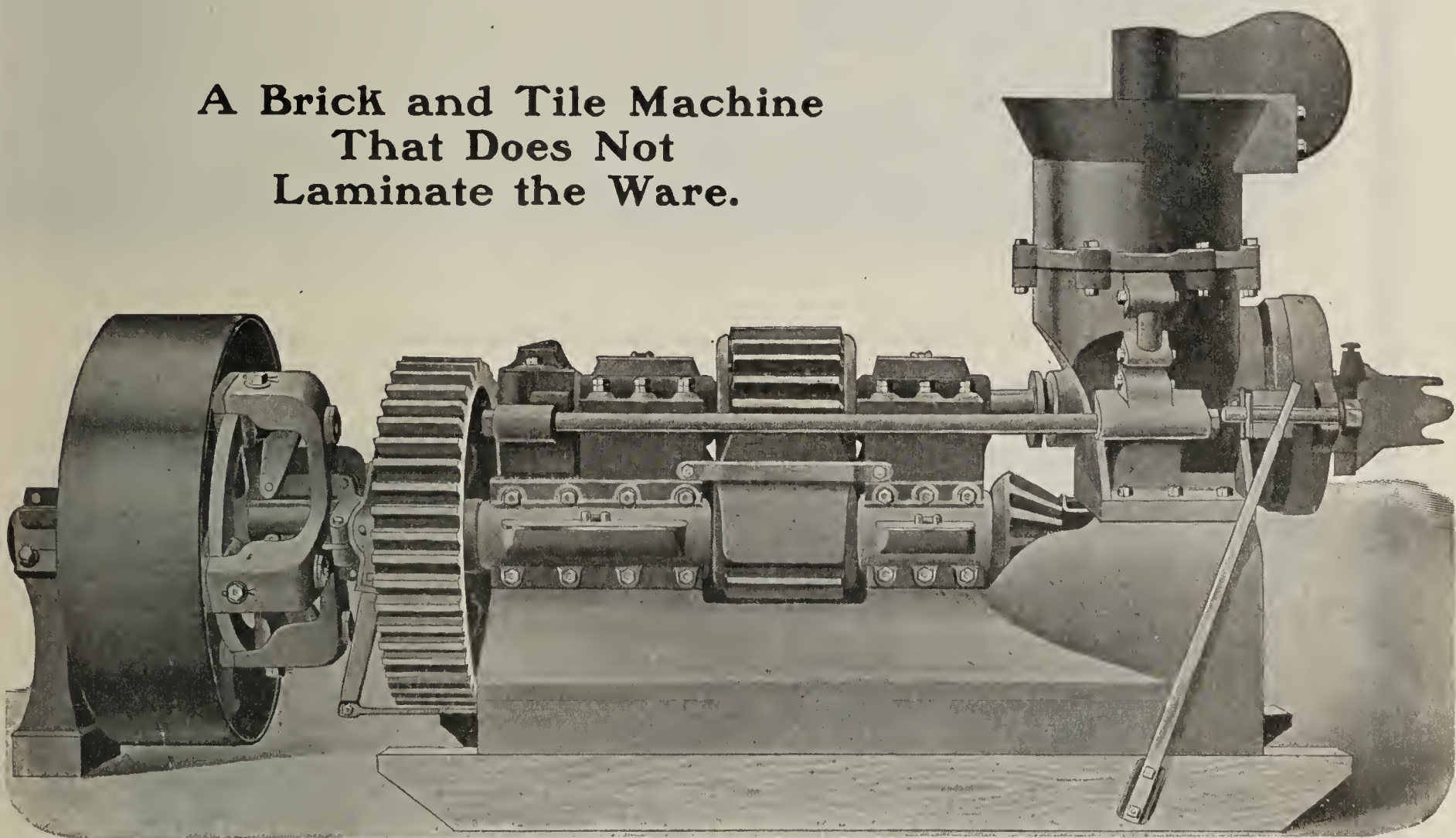
See ad on page 258.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.



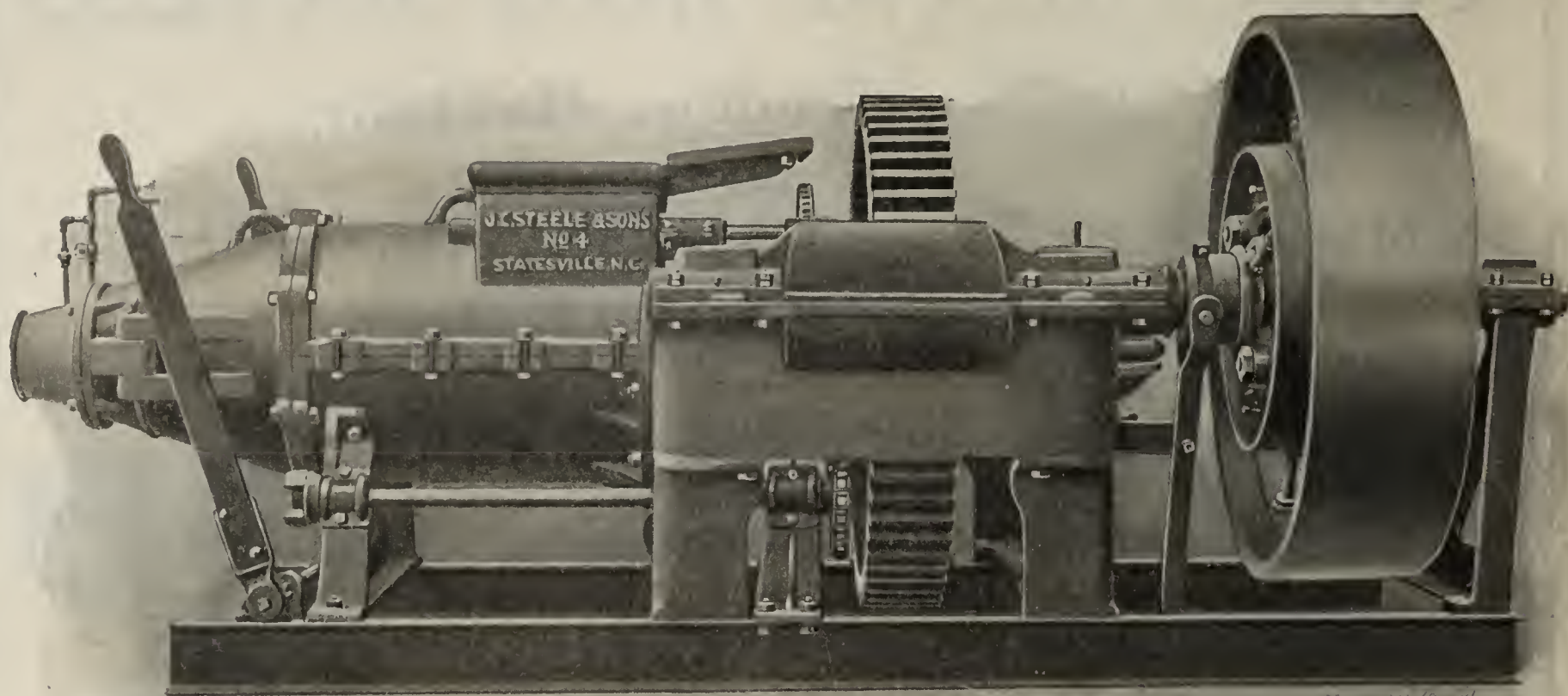
The Big Wonder Brick and Tile Machine.

We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

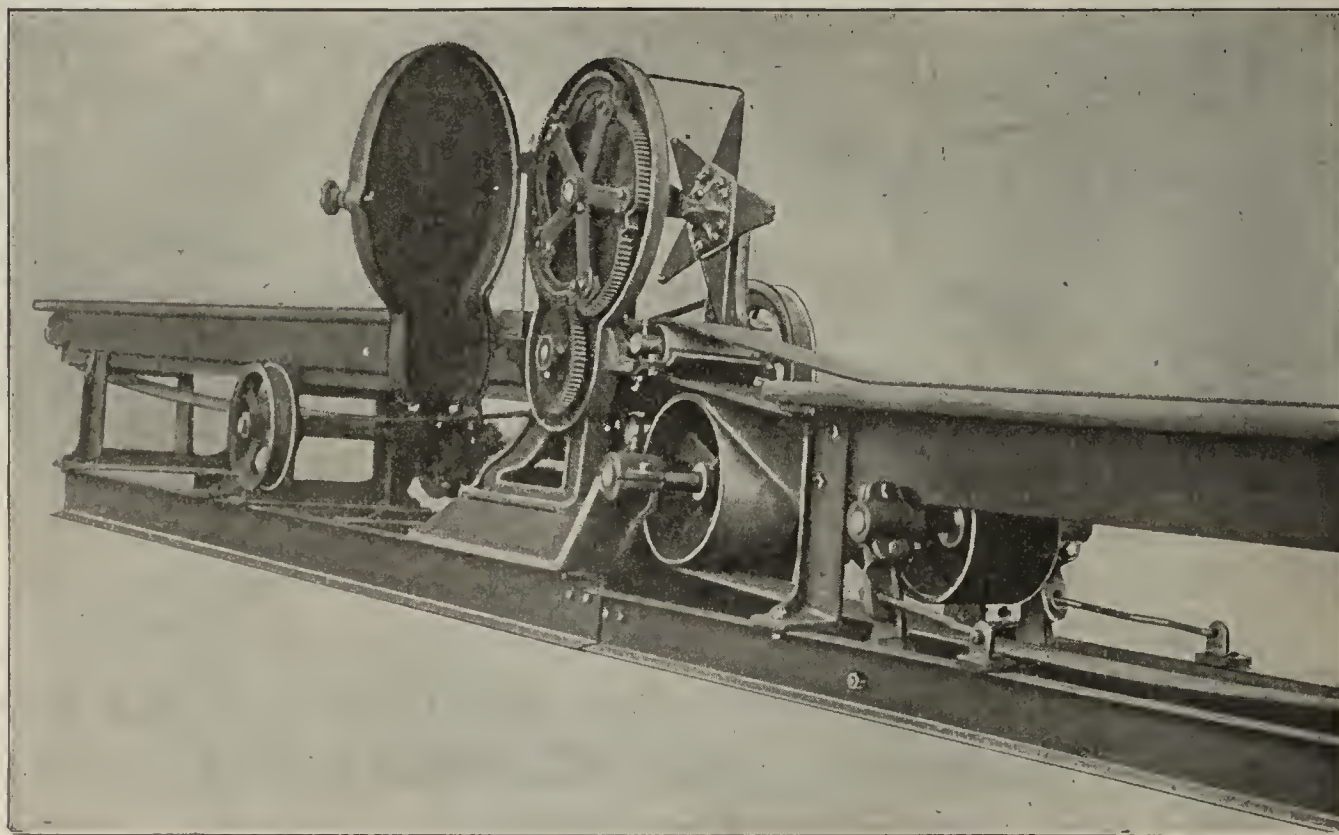
Ask the Man Who Owns One.



FRANKLIN (D. 71)

No. 4 BRICK MACHINE (Capacity 35 to 50 Thousand Brick per Day.)

Makes more brick and less noise per horse power than any other.



ROTARY BRICK CUTTER.

Does what it was made to do. Did you ever see anything so simple?
How can it get out of order?
Ask for catalog.

J. C. STEELE & SONS

STATESVILLE, N. C.

Success Brick Machinery Co., Memphis, Tenn., Western Agents.

Mention The Clay-Worker.

Modern Clayworking Machinery



THE CANTON SPECIAL
125,000 Daily Capacity.

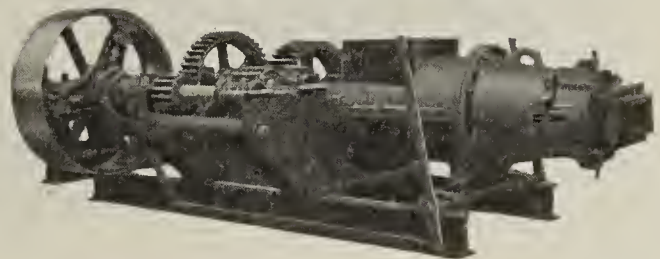


NO. 11 AUGER MACHINE
100,000 Daily Capacity

Single and
Combined
Brick
Machines
of any
Capacity



NO. 14 COMBINED MACHINE
25,000 to 40,000 Daily Capacity

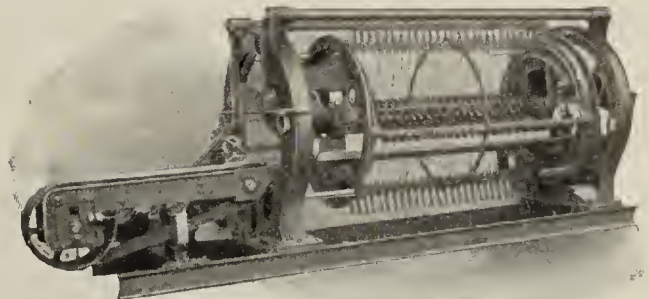


NO. 8 AUGER MACHINE
25,000 to 40,000 Daily Capacity

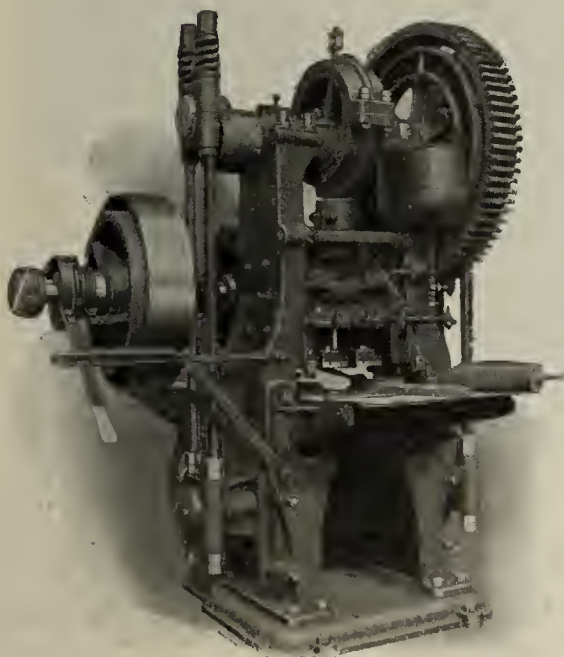
Rotary and
Side Cut
Tables
for Hand
or Power



12 FT. "C" PUG MILL

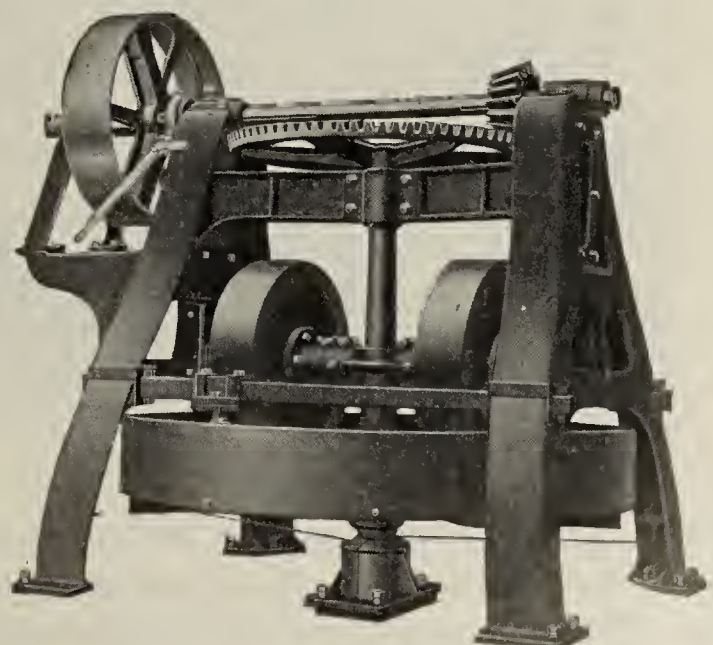


ROTARY AUTOMATIC TABLE
Daily Capacity up to 125,000



CANTON REPRESS

Pug Mills
Screens
Dry Pans
Elevators, etc.
and the
Canton Repress



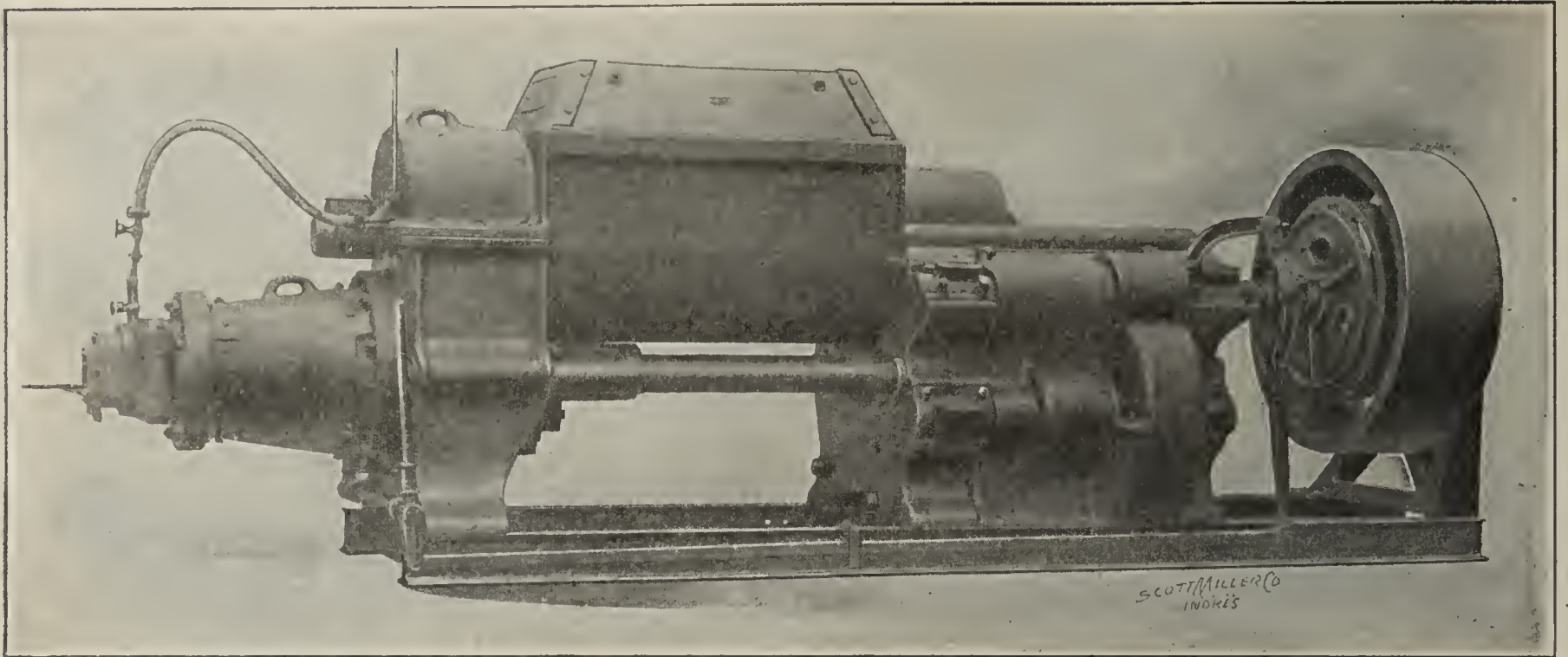
9 FT. DRY PAN

THE BONNOT COMPANY

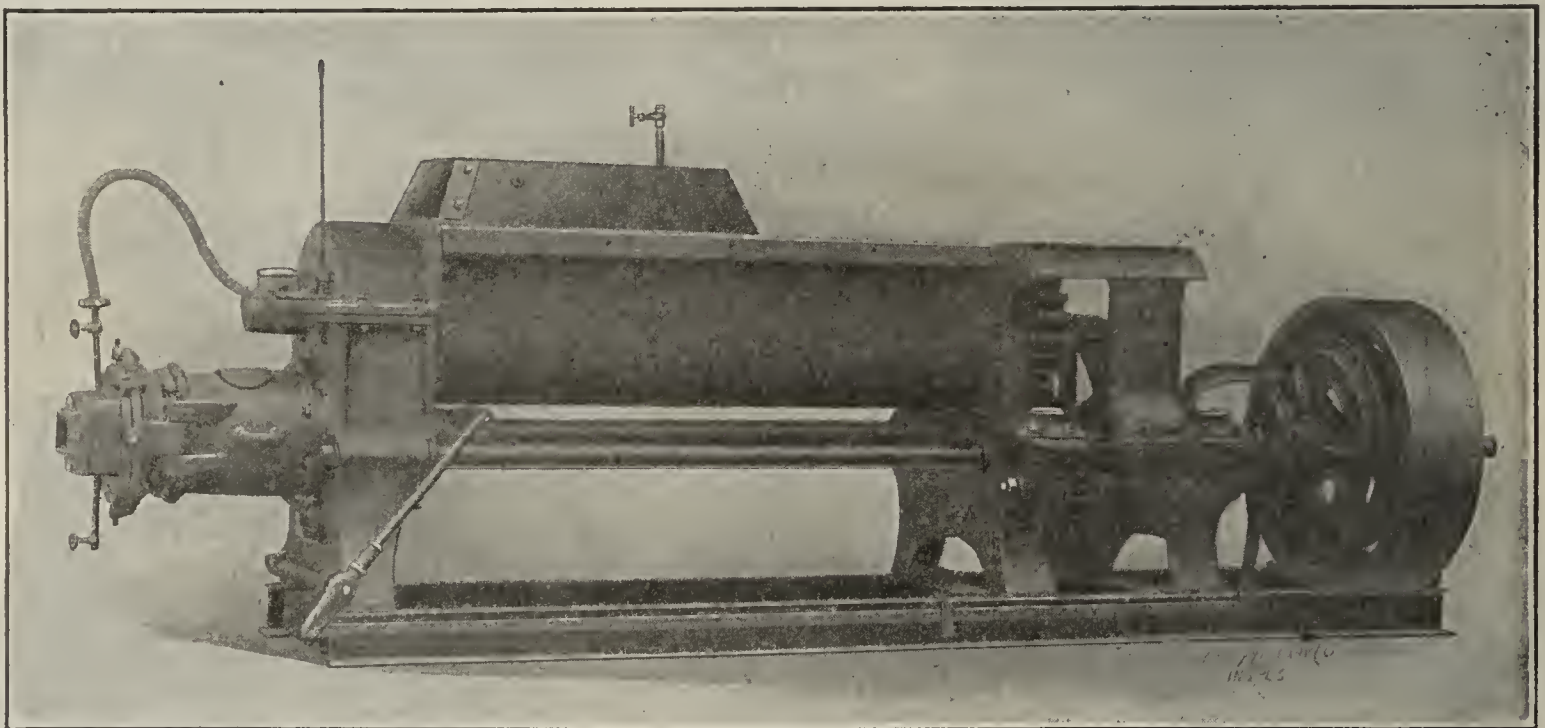
305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.
Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

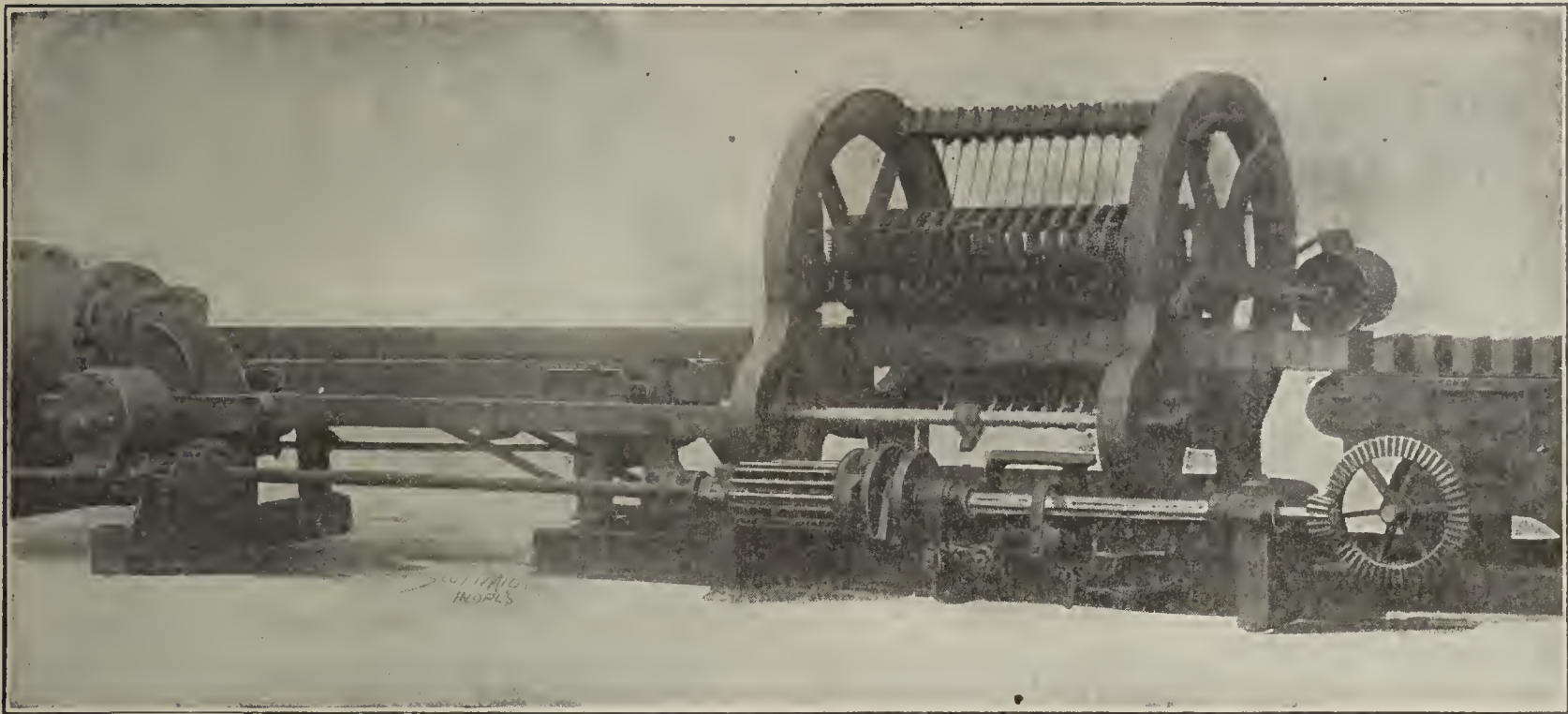
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

Write for Catalog.

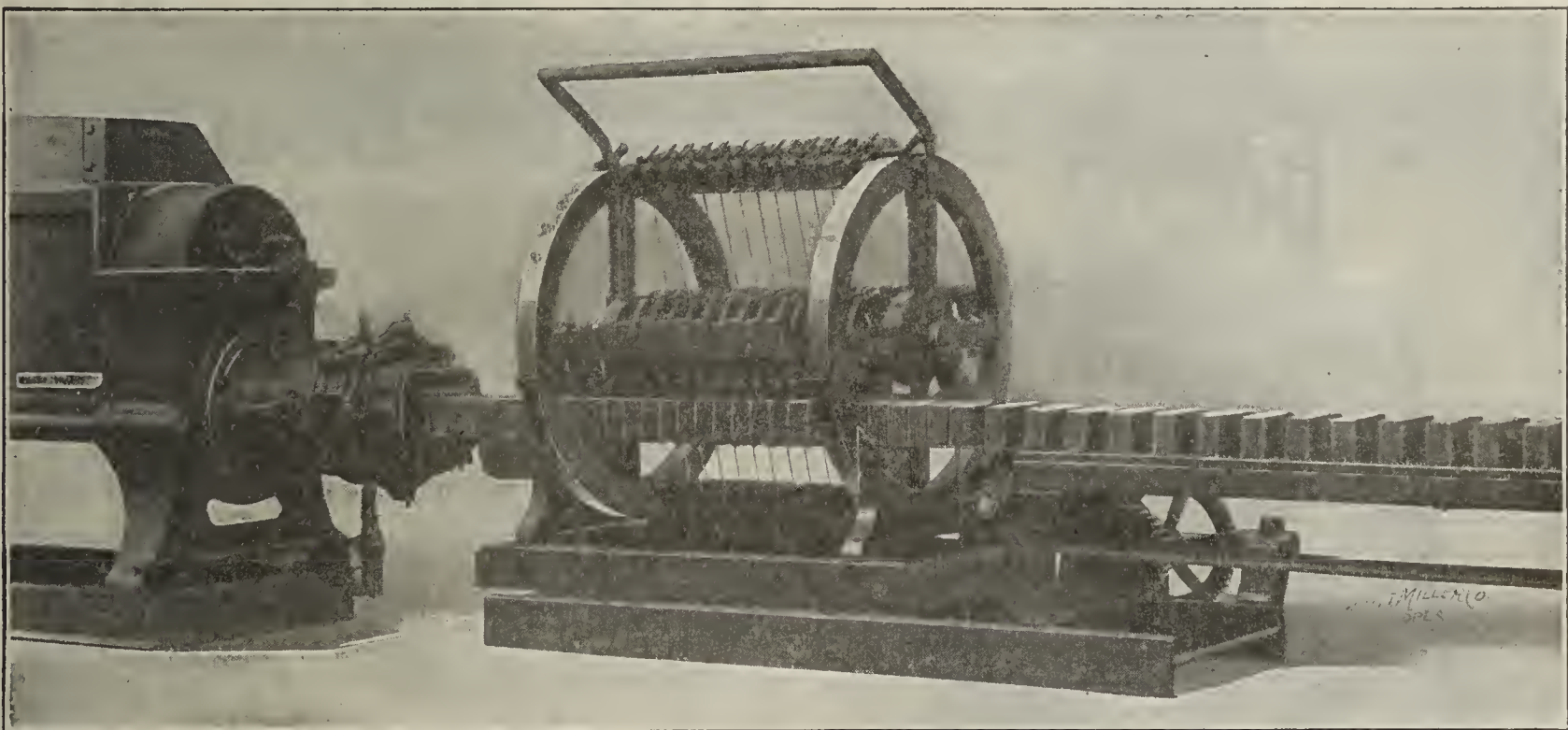
Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing.

Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

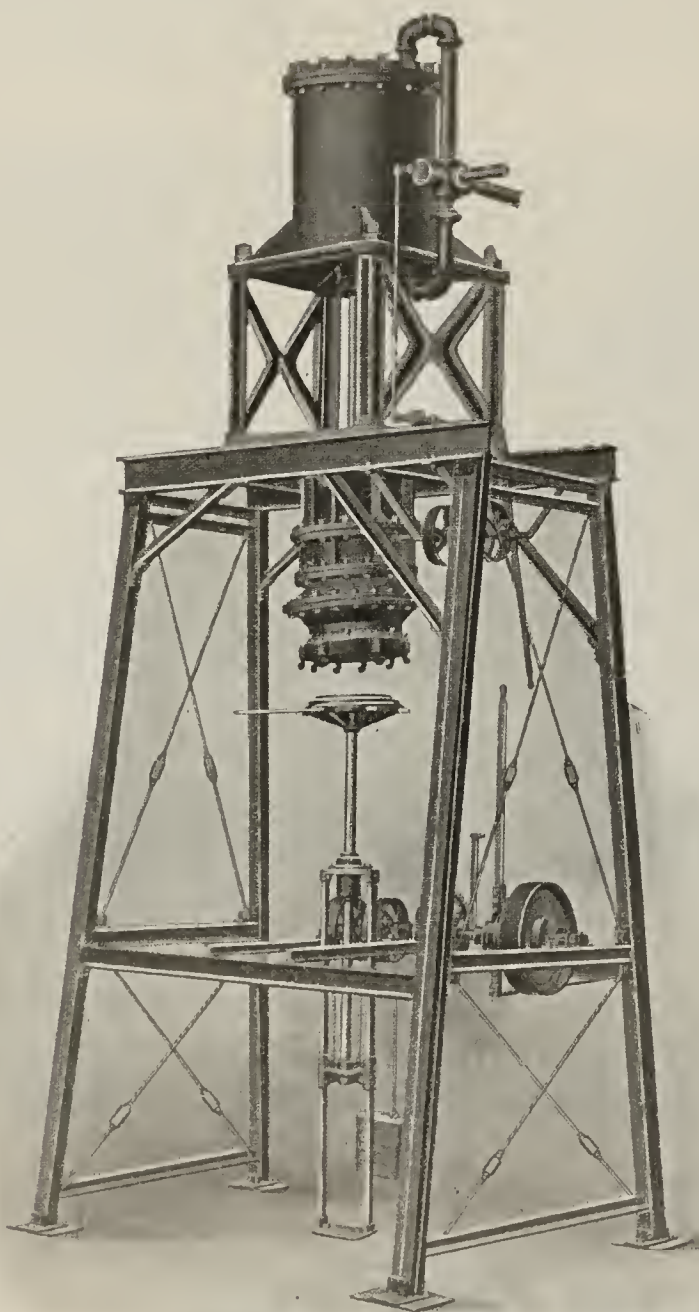
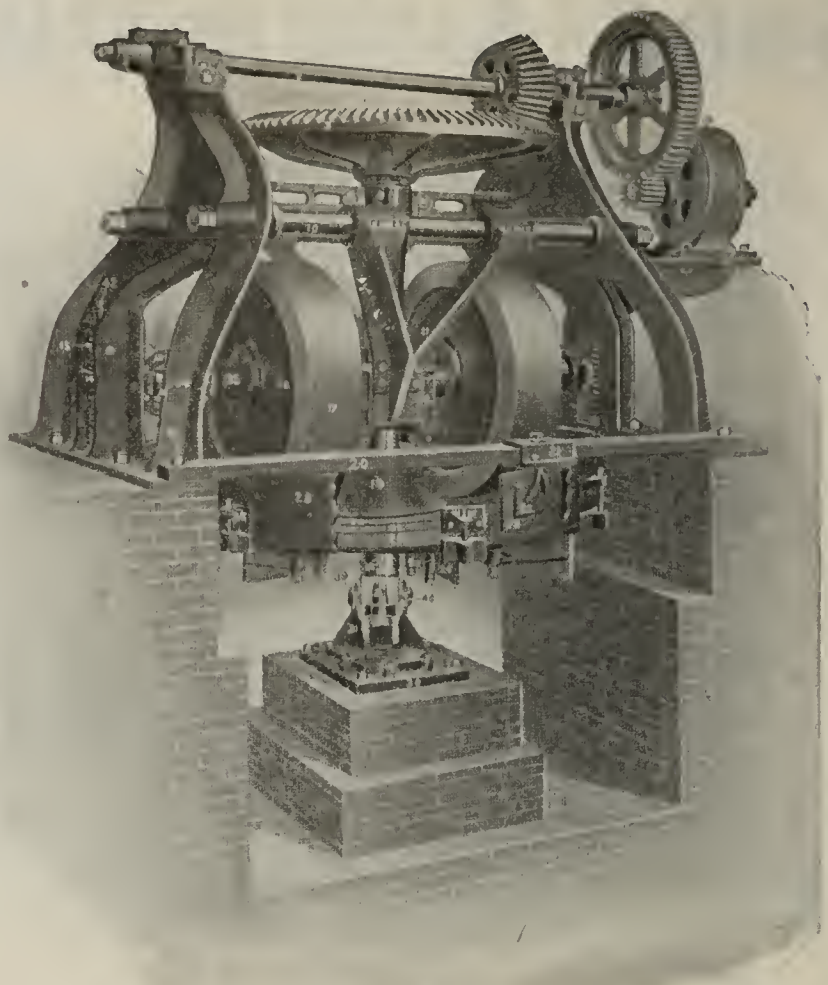
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

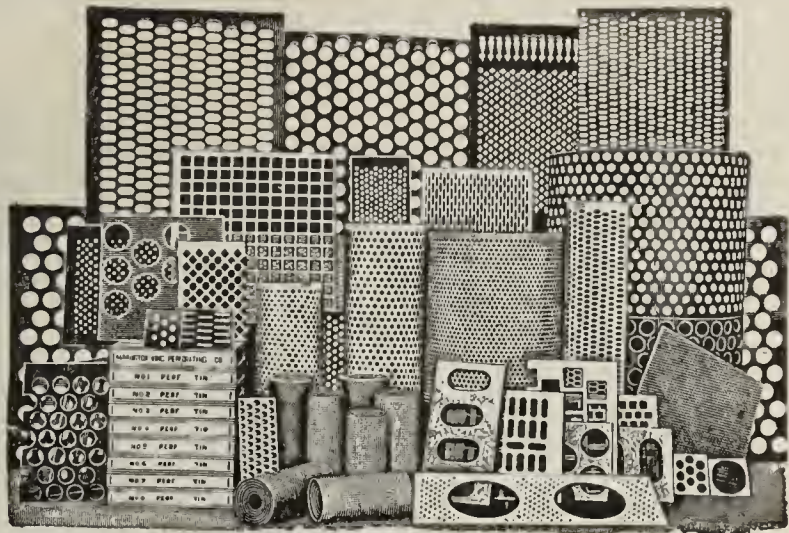
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



IDEAS

"Keep your eyes open and offer hospitality to ALL new ideas"

BUT

before adopting **A** new idea, which may necessitate radical changes in your plant, consider well the worth of the idea to **YOU**.

We're not prejudiced—we "keep the slate of our judgment sponged clean"—but we are not believers in ONE idea for EVERYONE. What we do believe is that, in order to get the best results obtainable—either in designing a new plant, or reconstructing an old one—the ideas furnished must be suited to all conditions existing at the particular plant under consideration.

If you are of the same belief and want ideas, for either a new plant or an old one, consult the

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

108 LA SALLE ST.

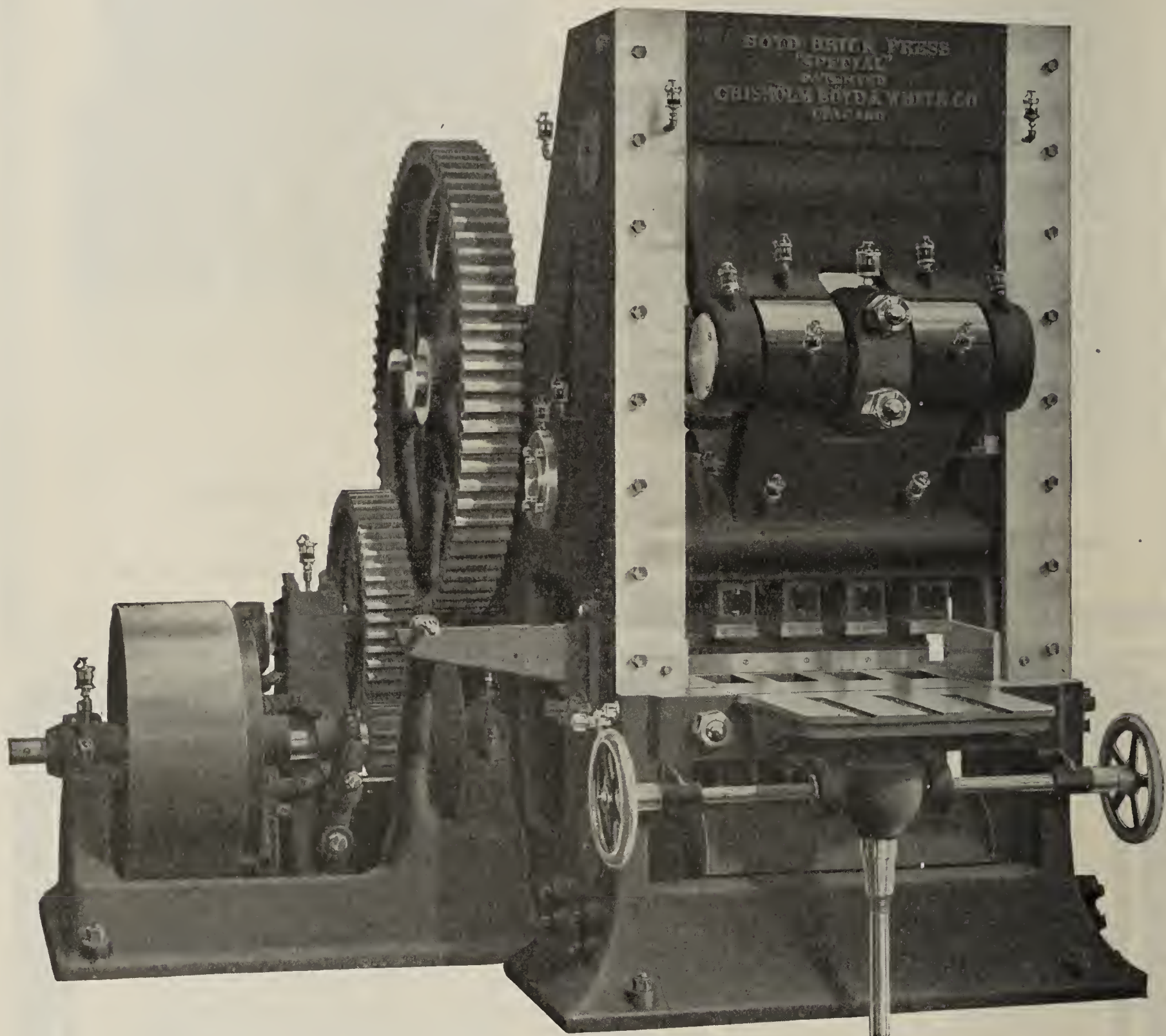
CHICAGO.



Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

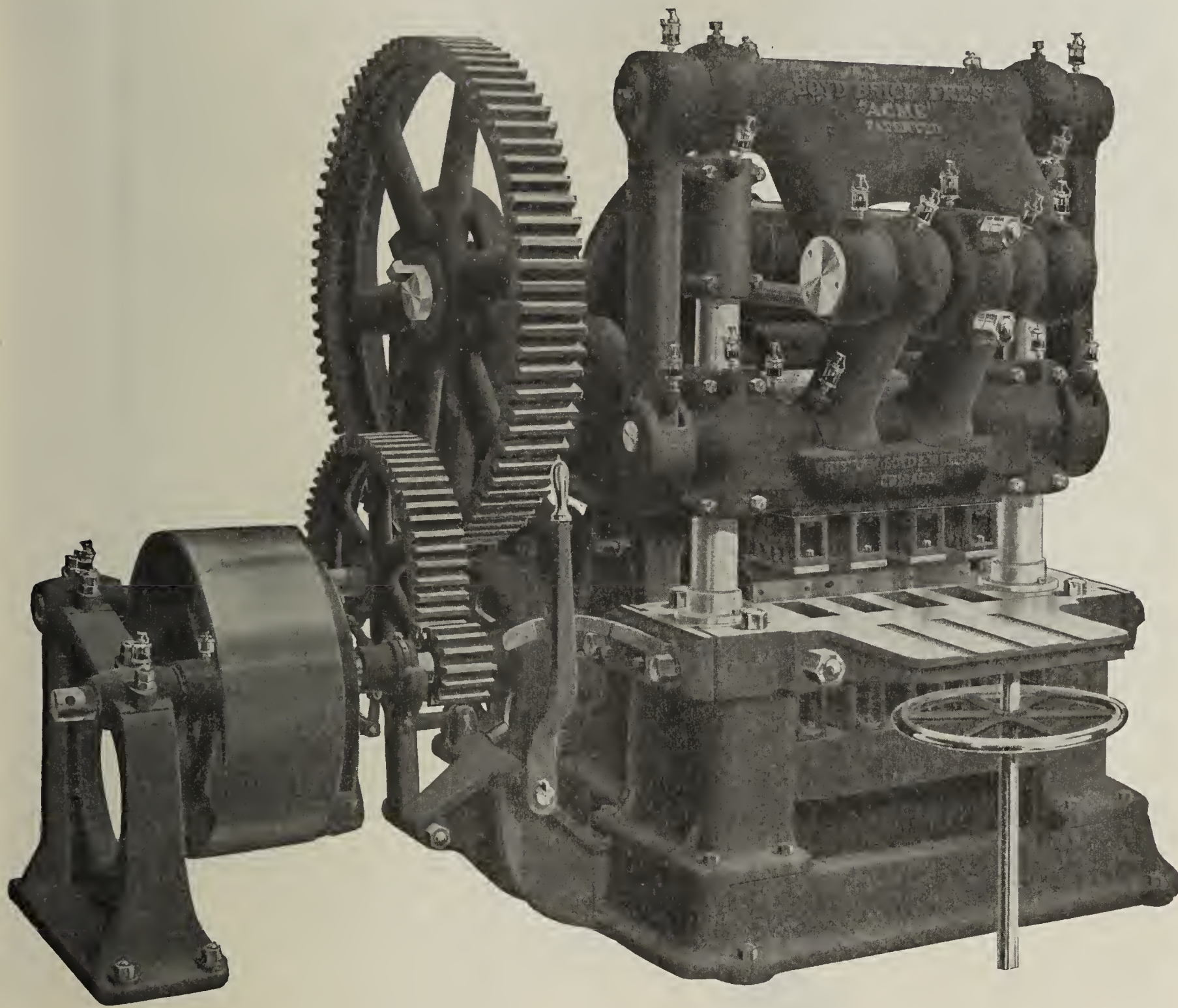
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

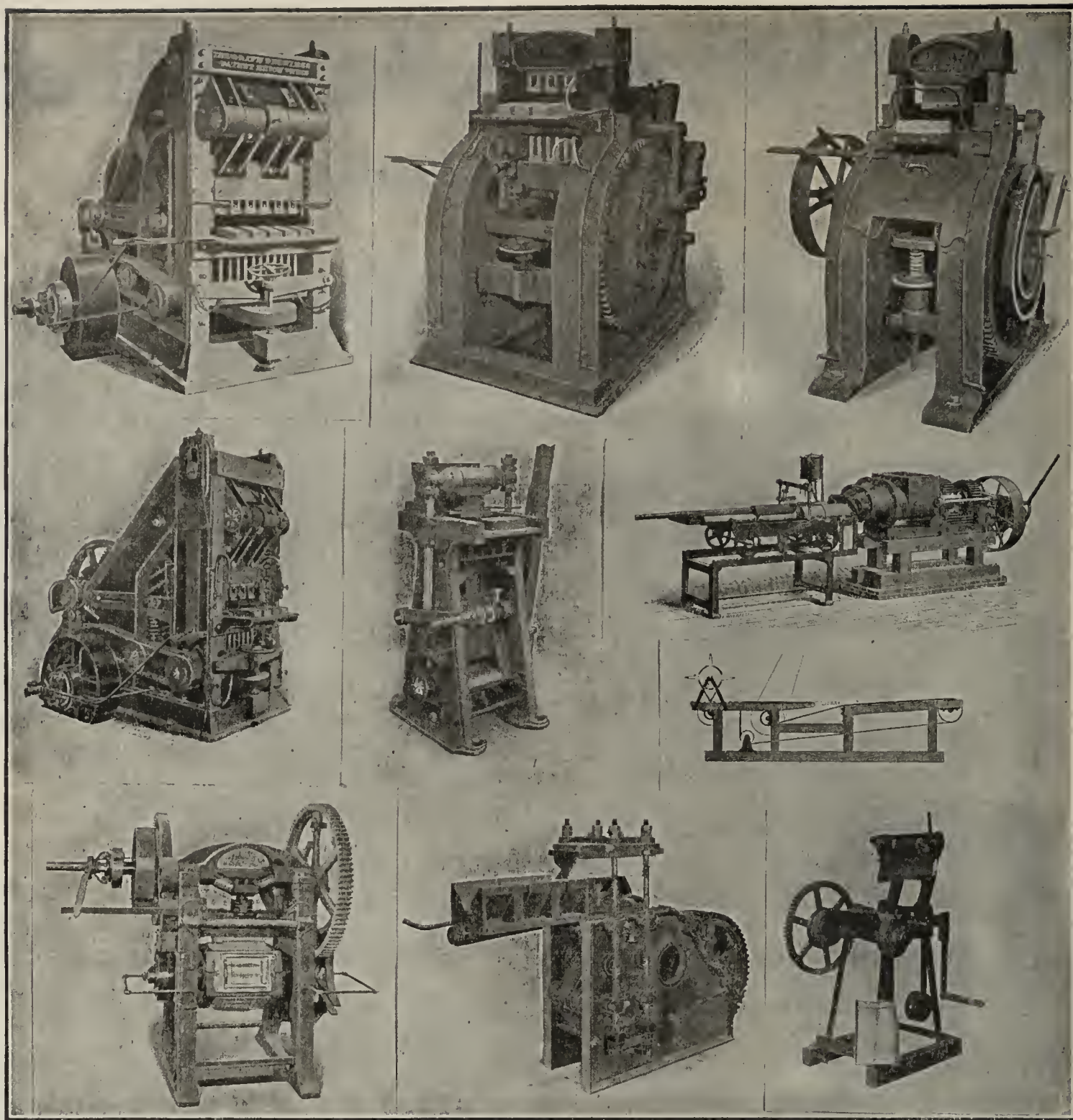
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

We Have the Best and Most Practical Brick
Presses and Roofing Tile Machinery.



OUR PRICES WILL SUIT YOU.

Press Brick and Roofing Tile Machinery. All Guaranteed
Against Breakage and to Give Satisfaction.

Get Our Prices Before You Buy.



Selling Agents for The

SCHURS PATENT PERFECT OIL BURNERS

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.
Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most Economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

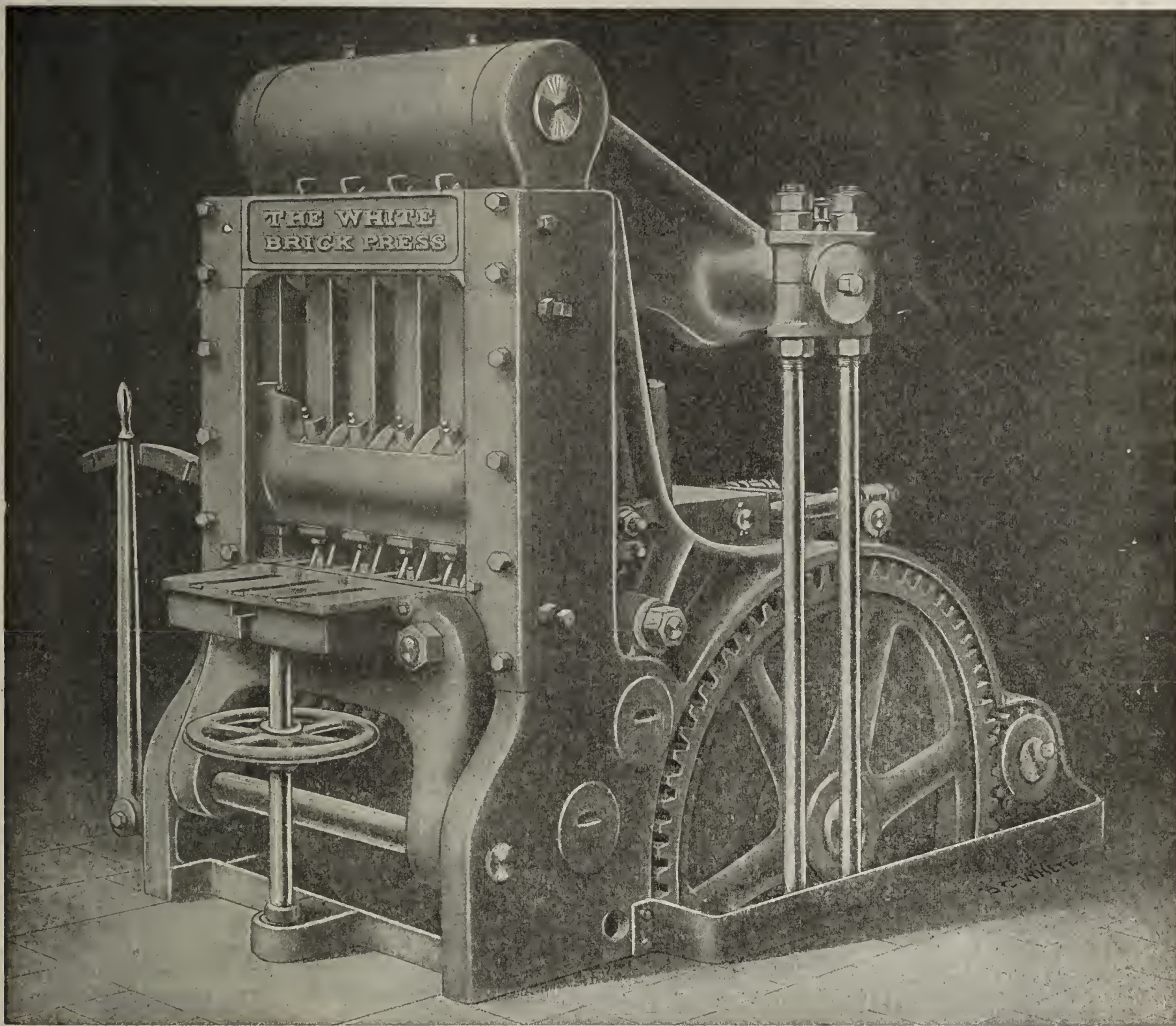
Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Long Distance
Phone
Bell, Main 235.

Mention The Clay-Worker.

**Always Worth More Than
You Pay For It**



THE WHITE BRICK PRESS.

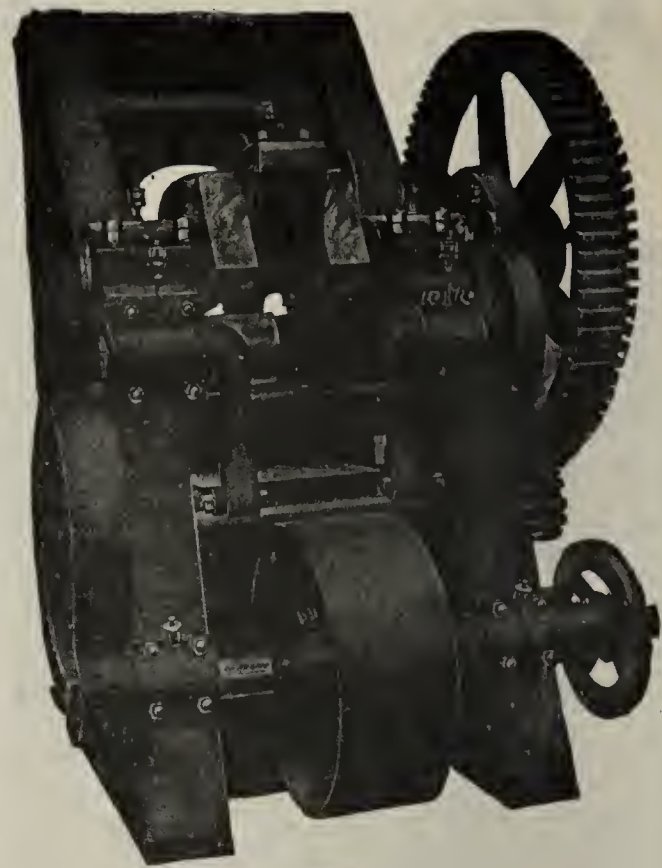
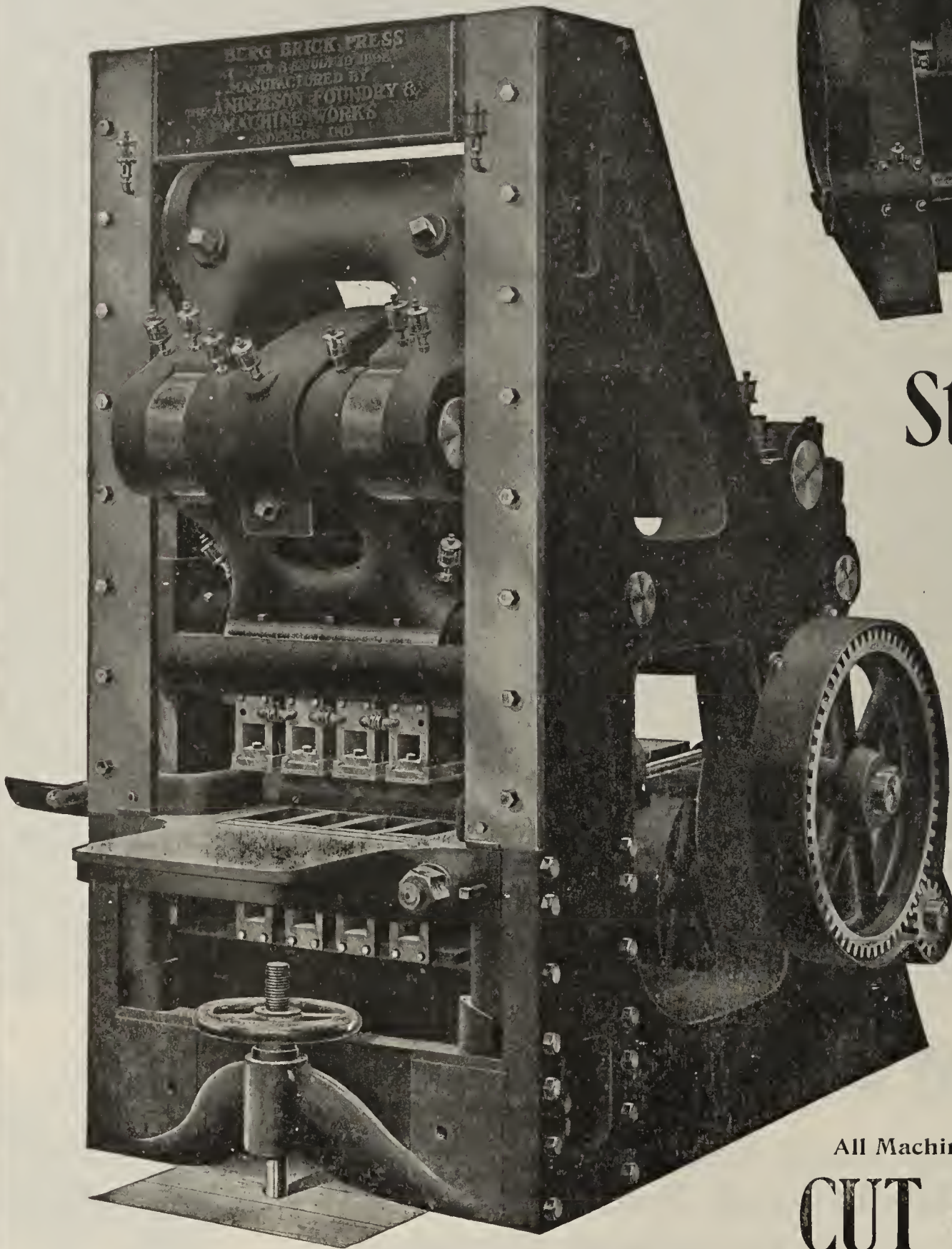
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention The Clay-Worker.

New Model Berg Brick Press



Back View.

Still in the Lead

and

One Step Further Forward.

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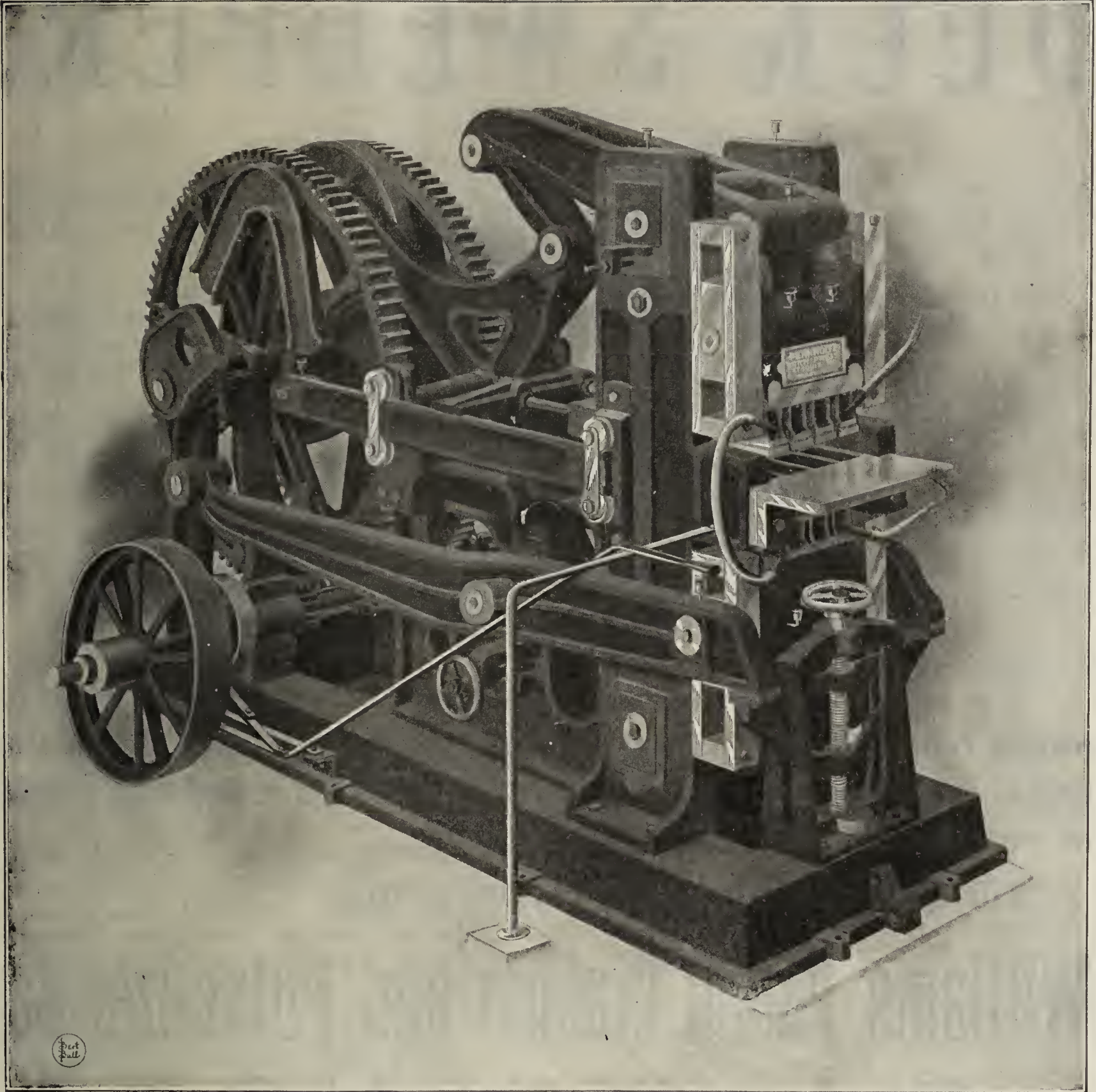
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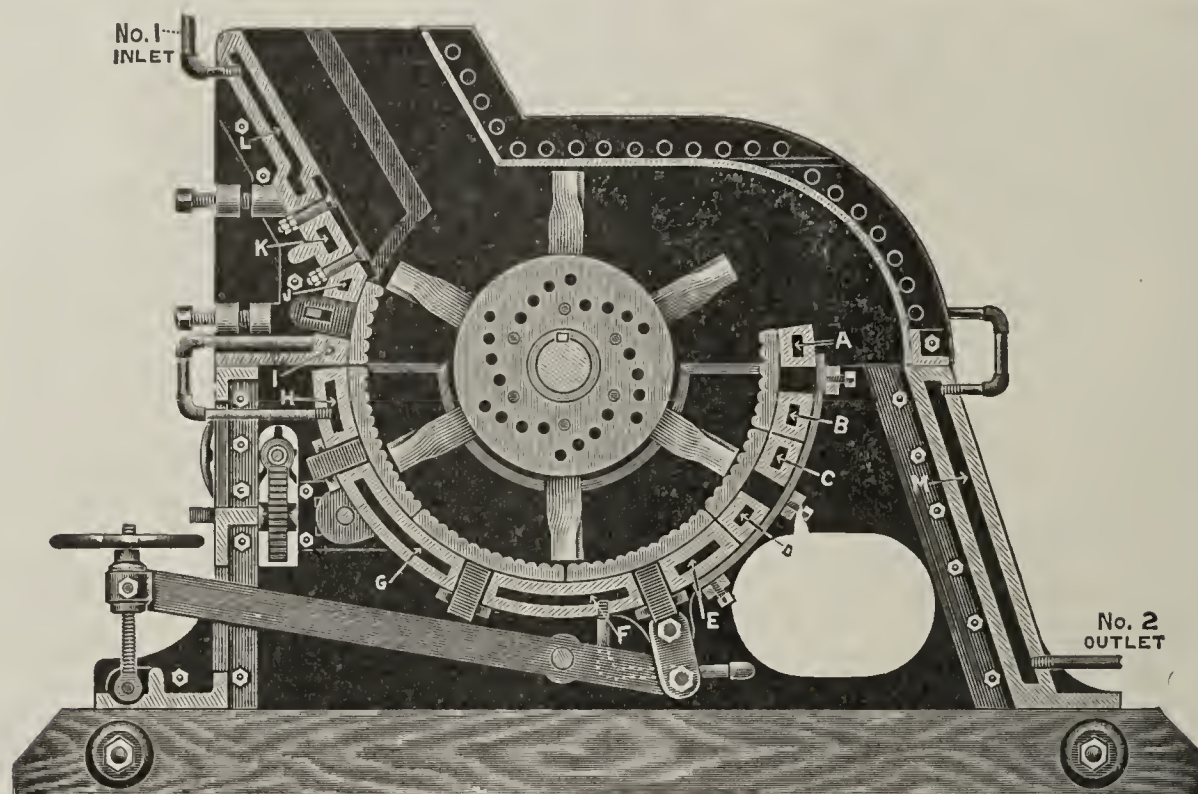


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Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

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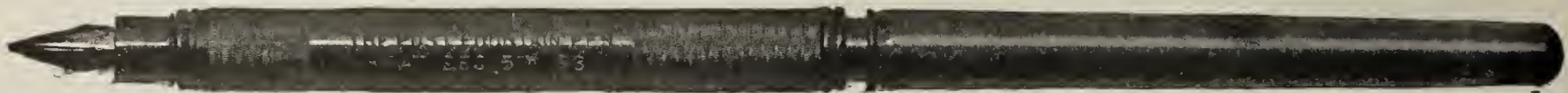
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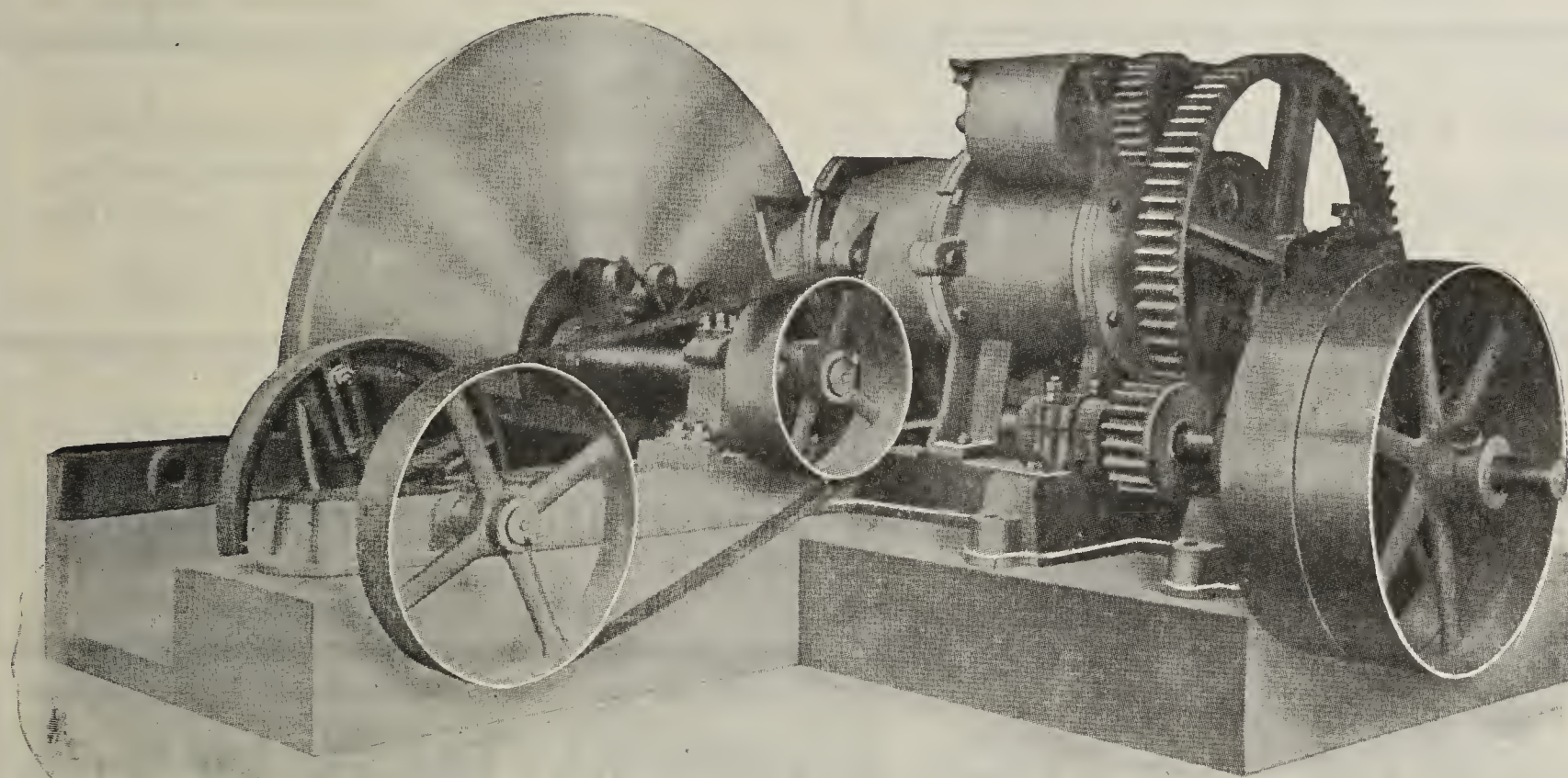
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LIMESTONES OR PYRITES?

Here's a machine that
takes them out

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THE DIESENER CLAY CLEANSER

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Takes the Dirt Out of the Clay.

The Diesener Clay Cleanser works upon plastic surface clay AS IT COMES FROM THE BANK, after this clay has been well tempered and pugged in a suitable pug mill. The process of cleaning is as follows:

An auger machine (as shown in the above halftone) pushes forth a solid bar of well pugged and watered clay in stiff mud condition. This bar slides down an inclined plane and is pushed against a rotary disc. The material of this disc is a special iron alloy, discovered after many costly experiments.

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We wish to emphasize this particular feature of the Diesener Clay Cleanser—that it does not crush or pulverize the pyrites or limestones and then mix the same into the clay. It takes them out without crushing or even without breaking.

Richard G. Hoffmann,

Sole Representative in the U. S. for Mr. H. Diesener,
Charlottenburg, Germany.

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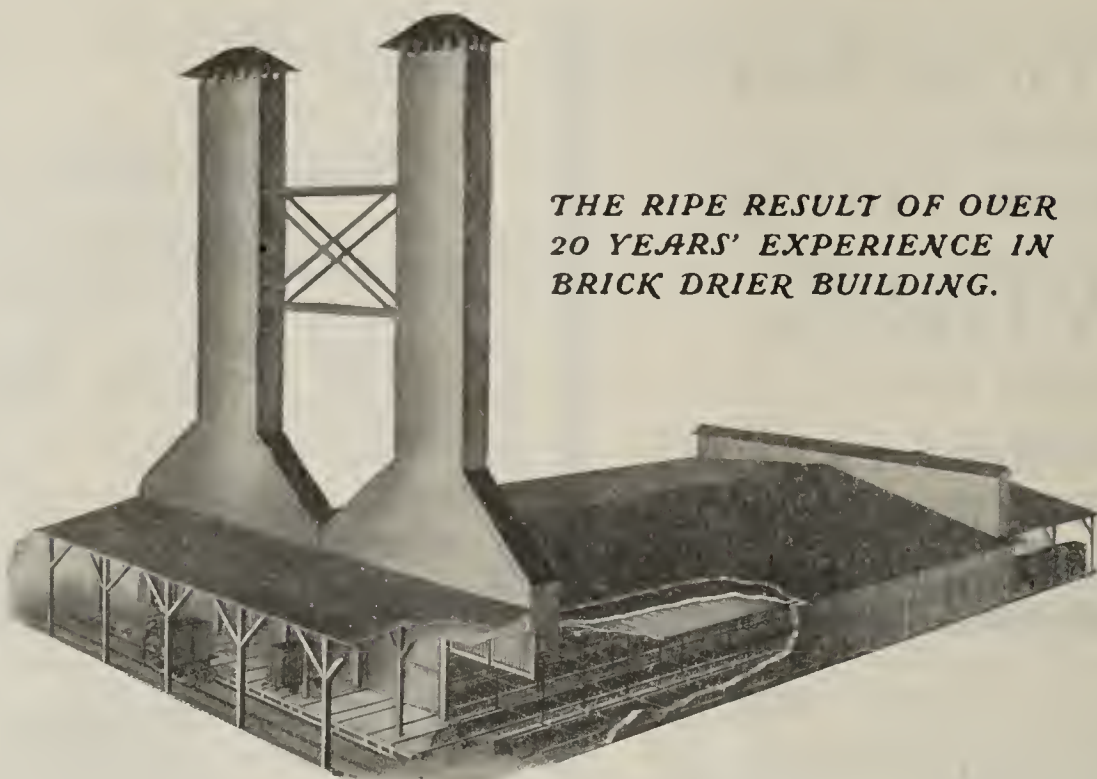
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HAS the largest and best equipped plant in the United States for the manufacture of Paving and Sidewalk Brick. The Galesburg Paving Brick have a reputation second to none, and this Company points with pride to its record for quality of material and its methods of conducting its business.

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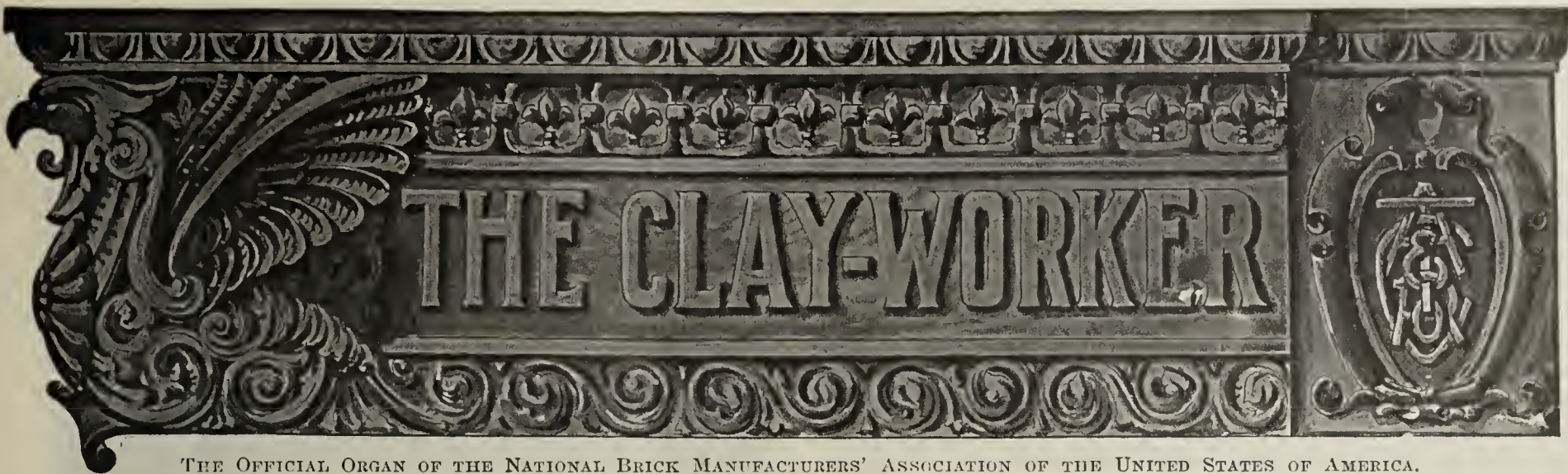
The product comes out of the Drier in such splendid condition, day after day, week in, week out—so thoroughly and so uniformly dried—that the brickmaker can devote all his worrying to other departments of his business.

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THE OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

VOL. LII.

INDIANAPOLIS, IND., OCTOBER, 1909.

No. 4.

Written for THE CLAY-WORKER.

GLORY IN BRICK.

THE BLACKSTONE HOTEL BUILDING ONE OF COMBINED BEAUTY IN BRICK AND TERRA COTTA.

ONE OF THE new glories of the new Chicago which is crowding out year by year the city of the early days—one of the very newest glories, architecturally speaking—is the stunning new Blackstone hotel, which raises its proud young head at the northwest corner of Michigan avenue boulevard and Hubbard court, the gallant southernmost outpost of the downtown host of skyscrapers.

In elegance of appointment and splendor of interior finish and decoration, it will vie with the Congress hotel and annex, two blocks to the north, and with the most luxurious of all Chicago hotels, the LaSalle, at the northwest corner of Madison and LaSalle streets, which has just been thrown open to the public, and which is one of the famous "beauty spots" of this great city, sought out by all visitors who would fain take a look, even if they have not the price of a beer at the bar. It yields to both of these hostelries in point of area covered and number of rooms, but in exterior appearance it is probably the most striking structure of the kind, or of any kind, which has been erected in this vicinity.

Marshall & Fox are the architects and the George A. Fuller Company has had complete charge of the work of construction, in conjunction with the architects, and the result is such that it will probably make both well-known and honored figures in the history of the city's building. It is enough to hang a lifetime reputation upon, to say nothing of adding luster to reputations already made.

As usual, the secret of success has been the ability to

take the best of clay products, high-grade front brick and the wonderful forms into which terra cotta is being molded in this "age of clay," and blend them into creations which outrun the imagination of men whose intelligence is far above the average, and whose esthetic sense is by no means undeveloped. The brick are the Cleveland, Ohio. product of the Hydraulic Pressed Brick Company, covering the walls with a mantle of rich red, and the terra cotta, which plays a far more important part in the artistic finish of the building than would be supposed, even after careful observation, from a distance, is supplied by the Northwestern Terra Cotta Company, of Chicago.

Approaching the downtown district from the Illinois Central station at Park Row, whirling along in an automobile along Michigan avenue boulevard, or speeding to the city on a South Side elevated train, one's attention is challenged by this magnificent building, the startling display of red and white in its lofty walls, and its graceful crown of green. It gives one an entirely new impression of downtown Chicago. Any skyscraper soberly considered is amazing. Many of Chicago's lofty structures convey a sense of grandeur. But this new hotel building, in addition to grandeur, possesses a distinct character of beauty, both of line and color, that is grateful and refreshing to the eyes. It gives a new introduction to the windy, smoky town on approach, and, plunging into the heart of the city, one carries it as a mighty pleasant memory. Going up in one of the tall buildings near the heart of the downtown district, one instinctively seeks a southward view for another look at the Blackstone.

It rises twenty stories from the street, having, like most modern buildings, two stories below street level, with possibilities of tunnel or subway connection. As has been said, it has not the ground and floor area of the LaSalle and the Congress, but very shortly



The Blackstone Hotel, Chicago.

it will spread along Hubbard court to the westward, with an annex which will include a notable theater, and for the present, a structure complete in itself, the very fact that it is not spread out over an entire block on either street serves only to lend grace of outline to the building.

Architecturally, the building is of the type of the French renaissance, although not so pure, that is, not followed so faithfully as in the case of the LaSalle hotel, which is considered pure French renaissance in type.

It is the variation, however, and the daring contrast in colors that marks the new hotel as unique. The stonework is in Balfour pink granite from North Carolina, and it harmonizes with the red of the stunning brick walls. This mantle of red is broken by the windows in their exterior framework of white terra cotta. The windows are frequent, breaking the wall at regular intervals with thrusts of glaring white.

Crowning all is the green mansard of the roof which sweeps down over the upper story. This green mansard has every appearance of being laid in tile, but, as a matter of fact, it is finished in terra cotta, thus giving the whole triumph of the decorative effects of the exterior at least to this product of the clay industries. A vast number of shapes and forms were necessary in this work, not only in the tiling, but in the trimmings for the windows, and especially in the



Detail of Ornamental Terra Cotta, Blackstone Hotel.

ornate crown pieces for the windows which pierce the green thatch of the sloping roof. It is one of the best ads for terra cotta to be found anywhere in the city, and probably none better is to found in the country.

The building stands on the site of the old Blackstone homestead, and is being put up for the Drakes at a cost of close to \$5,000,000. It is now under roof and the interior work is progressing rapidly. It is expected that it will be ready for occupancy early in the coming year.

AMERICA NOT A COUNTRY FOR TITLES.

Announcement has been made through the daily consular reports of a request by the department of state that all communications upon official matters forwarded to that department be addressed to "The Honorable Secretary of State, Washington, D. C." We are wondering just a little why they insist on the honorable, and if they insist upon it, why not go a step further and put a "u" in it. There must be some man in the state department with a fondness for titles that is not satisfied with those officially conferred by the government. There are some people plain enough in their habits and thoughts to likely express the idea that a man wanting more titles should go to a country where titles are a part of the game.

A CASE OF SYSTEM.

CAPT. BLANK was a man of very regular habits, and from having had military experience he was also naturally a great believer in discipline. He was, therefore, a ready and easy mark for the system fad in its worst form. When he began to read about system in business he realized at once that it was a good thing and sought for further information. The further into the subject he went the more system he found, and eventually he developed the system habit, or rather he got a very acute case of the system disease. He didn't, at first, take heed of that old adage, that



Terra Cotta Cornice on Blackstone Hotel Building.

enough is enough, even of a good thing, and that system in the business, like many other good things, can be overdone when one gets too enthusiastic about it. He inaugurated system, talked system, and he and all his help in the office got busy to create system. In fact, his creating and keeping in motion the amount of system ideas coming his way kept them all busier than usual. Some were inclined to grumble, but knowing the captain's rigid ideas of discipline, kept their peace and wondered when they would see the end of the complications in the system business.

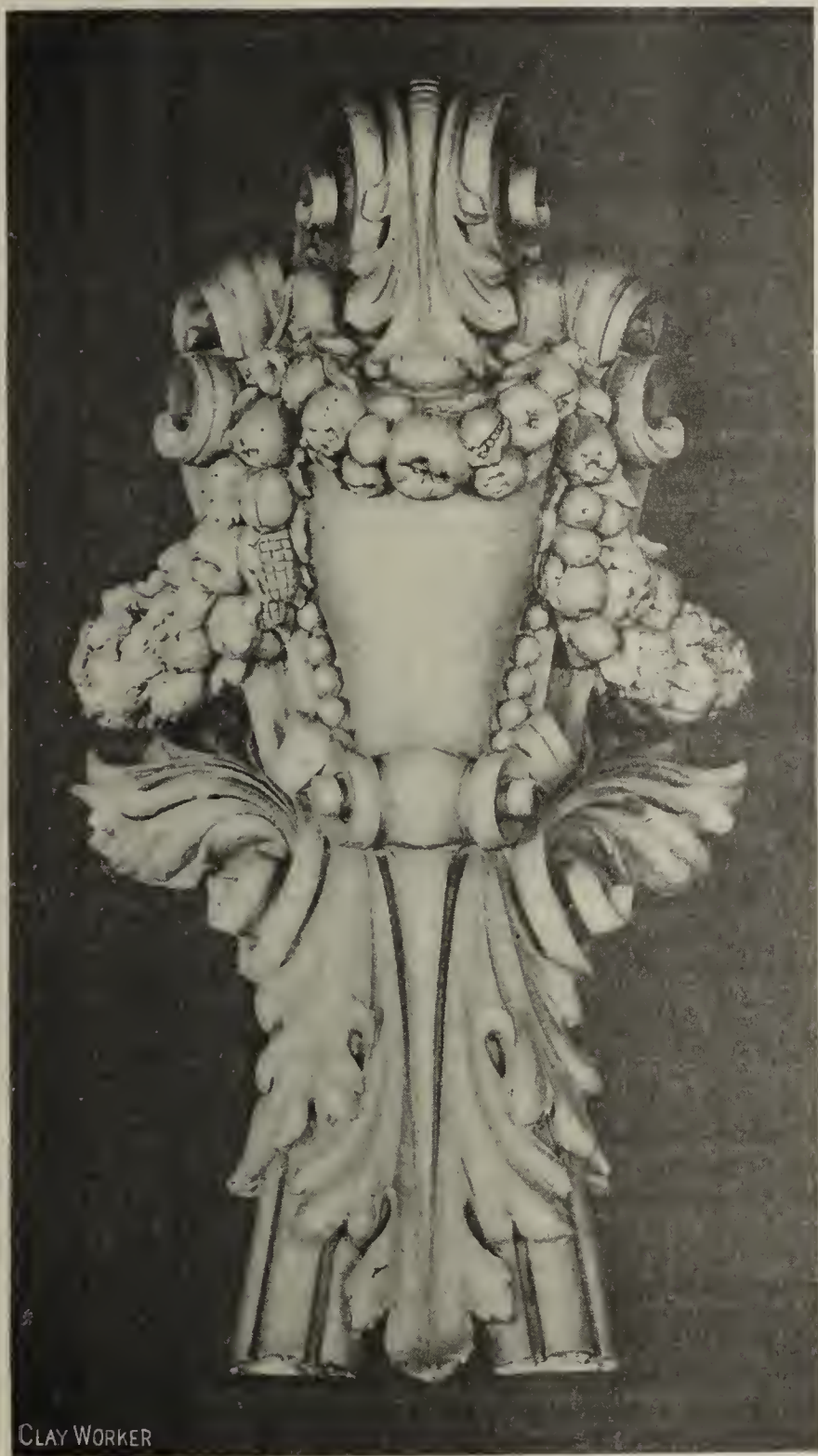
One day, having been kept unusually busy and rather late because, in addition to the regular work, there were

some new ideas about system to be inaugurated, the Captain started out in a rush to catch a car and at the same time mail a letter.

Now it happened that the Captain was a little absent minded at all times, and at this time he was unusually pre-occupied, so he rushed out toward the corner to catch the car which he heard coming. He felt in his vest pocket for car fare with one hand and held the letter he desired to mail in the other. With the car fare in one hand and the letter in the other he walked across the street and then absent mindedly dropped the nickel in the box instead of the letter and didn't realize what he had done until he

told him what had happened. "Now," he says to the newsboy, "You stand here selling your papers until the postman comes to collect his mail from this box. Then you tell him that Capt. Blank absent mindedly dropped a nickel in here and he should get the nickel out and give it to you."

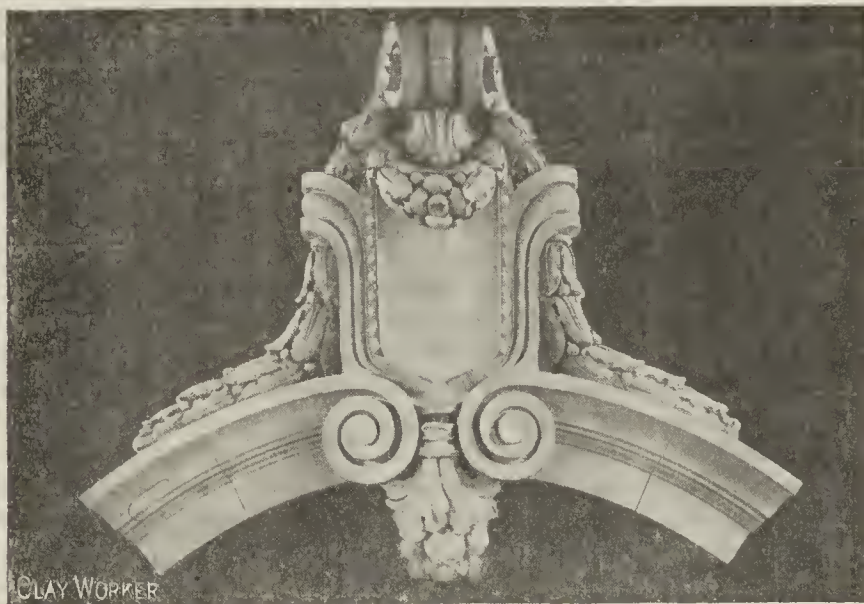
It goes without saying that the newsboy didn't lose sight of that letter box until the postman came along and that he was "Johnnie-on-the-spot," and explained eagerly to the postman about that nickel of Capt. Blank's which he was to fall heir to. Unfortunately, however, the postman was a rigid believer in following out orders and unwinding all the red tape connected with the post office department. So he told the newsboy that he couldn't give him the nickel, for his instructions were that he turn it into the post office. The boy argued and plead in vain, for the postoffice system required that all such things be turned in, so he was a disappointed boy. And then there was a nickel turned into the post office to be returned to its owner in a systematic manner. In the course of the next day or two Capt. Blank received official notice from the post office that 5 cents, collected from such and such box by such and such mail carrier, supposedly belonging to him, was held at that office and that he would be required to call for it personally or send a written order. It was some distance from Capt. Blank's to the post office, but he went and rescued that



An Ornamental Detail, Blackstone Hotel Building.

started to get on the car and noticed the letter which he held in his other hand.

The Captain stopped for a moment to get his mind together and to contemplate the foolish act he had done. The car went on and left him and then went back to the letter box on the corner and stood for about a minute looking where the nickel had gone. He didn't like to see it wasted; he was one of those fellows who believed in utilizing all the waste possible. He didn't see any way of getting it out of the letter box without losing more than several nickels' worth of time. Finally he observed a newsboy standing on the opposite corner, called him over, and



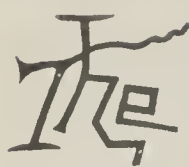
Artistic Decoration Executed by Northwestern Terra Cotta Company.

nickel, took still more time off from his duty, hunted up a certain newspaper boy and saw that he got the nickel and another one or two to make up for his disappointment, and then the Captain went back to his office and did some thinking about system. The more he thought about it in this new light the more he realized that it is easy to overdo the system habit and turn it into a perfect tangle of red tape that costs more than it is worth. And now there is a great rejoicing in the Captain's office because his system fever has abated and there is more leisure and more time for doing the regular work and less energy wasted on experimenting with new ideas of system.

Salt Glazing.—In order to obtain a good and even salt glazing, it is necessary to have a man who is familiar with the process. When the temperature is reached necessary to produce a good salt glazing, the salt is thrown into the kiln. The amount is judged according to the capacity of the kiln. The glazing is done either direct in the fireboxes, or otherwise through regular salt glazing holes. As a rule, the glazing is done from below, and done in three parts at intervening periods of five minutes each. The whole operation of salt glazing is learned speedily, and lasts only fifteen and possibly twenty minutes. Before salting the dampers are opened somewhat, and they are closed at once when salting is finished.—Tonind, Z., No. 72, 1909.

PYROMETRIC CONES.*

BY J. M. KNOTE.



CLAY INDUSTRY, more than any other, depends, for its success, on a careful control of temperature. Other industries demand temperature control, but only within comparatively broad limits. In our metallurgical processes, it is necessary to reach a certain minimum temperature, but if the heat is carried beyond that point little or no harm will result.

Those who are burning clay wares are very well aware that in their case a certain minimum of temperature must be reached if their ware is not to leave the kiln in a soft condition, but also a certain maximum must not be exceeded if the ware is not to lose the properties which give it its commercial value. In some branches of the industry these temperature points are very close together; in others there is a longer temperature range between them.

Until a few years ago an experienced burner was depended upon to judge by his eye as to what the temperatures were during the various stages of the burn, and to determine when a kiln was to be taken off. This simple and fairly reliable system has been found to have some very serious disadvantages. It has been found that even the most intelligent and experienced men make mistakes, as it is not possible to judge temperatures accurately day and night under all conditions. A reliable, intelligent burner is a valuable man to have around, but he should be assisted in his work by a system of burning which depends on simple, inexpensive devices which can be relied on in every burn, and which will indicate conditions and changes in the kiln which no man can determine by any of his senses.

Since it is desirable to use means of measuring temperature, we will consider briefly the instruments a manufacturer may employ for the purpose. All temperature measurement depends on observing some property of a substance which is changed by heat. In the list of substances which nature has provided us, all suffer changes of their physical properties under the influence of heat, and many undergo chemical changes. The effects which are of value to us for the measurement of temperature are expansion, contraction, fusion, electrical resistance, amount of heat absorbed by a substance, or specific heat, thermo-electricity, spectrophotometry, etc., etc. To illustrate: Under the head of expansion, we might mention the ordinary mercury thermometer where the column of metal rises and falls, due to its expansion and contraction under the influence of heat. The old Wedgewood pyrometer was designed to indicate temperature by the shrinkage or contraction of clay cylinders. Again, if a metal or cone is put into a kiln it fuses when the heat has affected it sufficiently, and thus tells us what the heat of the kiln is. It can readily be seen that any property which is to be of service to us for the purpose of temperature measurement must always be the same at any given degree of heat, the change produced by heat must be great enough to be readily observable, and the instrument, if to be used, must be inexpensive and one which can be manipulated readily by an inexperienced man. Many instruments invented are of no practical use at all, others give most excellent results in the hands of experts, while but few meet the requirements of clayworkers. Fortunately, however, there are instruments made which do meet all requirements for ceramic uses. For this purpose an instrument must be fairly accurate and so made that it will not readily get out of order, and cheap enough to allow its use in practically every plant.

The instruments which are of value to clayworkers are of two classes; first, those for low temperature work, used in the dryer and during the watersmoking period of burning, and second, those used during the last of the burn for the measurement of the higher temperatures.

The dryer is the first place during the process of manu-

facture in which clay ware encounters heat. As we all know, tender clays require carefully regulated conditions in the dryer if they are to come through in a sound condition and fit to go into the kilns. Others will stand almost any treatment during drying. However, it is to the interests of all manufacturers, whether they are handling a tender clay or not, to have their dryer conditions carefully regulated to insure that all ware going into the kilns has been thoroughly dried. Many plants which have an abundance of heat available for drying have wet brick going into the kilns, simply because no one seems to have the time to watch things closely enough. There can be no doubt when everything is considered that careful supervision of the dryer pays. The best way to do this is by use of a recording thermometer. This instrument is provided with a dial like the face of a clock, on which the hours of the day and degrees of temperature are marked. A pen point traces a line over the dial, showing exactly what the temperature has been for several hours back. This enables a superintendent to look over the dryer temperature for the day, and make inquiries if the temperature has not been kept as it should be.

Passing from the drying to the burning, we may say that, ordinarily, a kiln is put on fire and the heat raised to the finishing point without the progress of the temperature being watched in detail. It is impossible for even the most experienced burner to tell just what temperature he has in the kiln from the time the fires are lighted until it begins to show red. He knows that if he goes too fast he will ruin the ware, but if he does not go fast enough he loses time. The only way to know what temperature you have in the kiln during this period and when you have the best temperature is by use of a watersmoking thermometer. This instrument is a long-stemmed mercury thermometer, made of a special glass, and protected by a metal case. With such an instrument the best rate of heating up can be established, and the burns can be carried on as rapidly as possible without endangering the condition of the ware.

For tender clays or high-priced ware a recording thermometer similar to the one used in the dryer and reading to 500 degrees F. is coming into use. By means of these instruments all guess work is removed, and the heat is raised as gradually as is desired without losing any time.

After the kiln has gotten red we must discontinue the use of the instruments designed for low temperature work and employ the high temperature group. In general, we have a choice of two instruments for this purpose; namely, the pyrometer and the pyrometric cones. The pyrometer is constructed on the principle that when the junction of two dissimilar metals is heated an electric current is set up. The degree of heat determines the magnitude of the current, and this is indicated on a suitable dial.

The other important device for determining the finishing temperature is the Seger cone. In 1886, Hermann August Seger, of Berlin, Germany, published an article entitled, "Standard Cones for the Measurement of Temperatures in the Kilns of the Ceramic Industries." It would be of no interest to us to state just what the contents of that article were, but it will be sufficient to say that here we have the beginning of the pyrometric cone which has come to be so useful in many of our clayworking industries. Similar devices, such as Holdcroft & Co.'s patent thermoscopes, etc., have sprung up from time to time, but they are no improvement on the original idea. However, Seger's original series has been much extended and improved, especially here of late, so that now you can get cones which cover the range of temperature from a barely visible red heat up to a dazzling white heat, much above the melting point of the most refractory fire clay. Of course, no one firm would use all of these cones, but there is a demand for all of them.

The constituents of this long series of cones vary greatly, but we may consider that four materials are the basis of the cone industry, namely: clay, flint, feldspar and lime. The clay used must be the purest variety obtainable. In general, these will be the high-class washed kaolins, which come as near being pure clay as anything that can be gotten on a commercial scale.

The flint is prepared by several firms in this country, by grinding the flint rock to a very fine powder.

*Paper read before the Illinois Clay Manufacturers' Association's Convention, held at Champaign, Ill., Jan. 19, 20, 21.

Feldspar of the Orthoclase variety must be used, it being prepared in much the same way as flint.

The source of the lime is the English chalk. This is specially purified and made up into a fine white powder, ready for use when received.

These same materials are used by the white ware potters in making our tableware, fine china, etc.

Some of the cones may be regarded as white ware bodies, and some of the lower ones as glaze. The lower red cones, while not of the same color as the others, are, as a matter of fact, similar in composition.

One of the greatest troubles which the conemaker has is the fact that slight impurities in his materials will destroy the accuracy of his cones, and also it is almost impossible to buy raw material from any firm which does not vary somewhat in its physical and chemical properties.

The best materials obtainable are demanded by the potter, but even when he gets them he must be very careful or the variations which occur in natural materials will cause him many losses. While potters have trouble from this cause, they don't compare at all, either in number or magnitude, with those the conemaker must combat.

If all the clays, flints, feldspars, etc., in this country were uniformly pure, reliable formulæ could be given for cones, and a person using the formulæ could expect to get accurate results. As it is, each conemaker must work out formulæ which will give the results when he uses the materials he happens to have.

In a factory where reliable cones are made, materials are selected as follows: Small quantities are gotten from reliable dealers who are known to carry large amounts in stock, and cones are made up and tested against standards. The material is also carefully analyzed to detect impurities, which, if present, would cause trouble. If this small batch turns out satisfactorily, about a ton of the same stuff is ordered. This is carefully sampled and analyzed, and cones made and tested. If everything is satisfactory, a carload will be ordered. This will be sufficient to run for several years, and will insure that this substance will cause little trouble when used in making up the cones. It might be supposed that it would be easy to find just the right material for cone manufacture, but in reality it takes quite a bit of time and work, and the manufacturer must start his hunt while considerable of his old stock remains.

After the proper materials have been secured, it then takes careful work to prepare good cones out of them. A brief description of the manufacture may be of interest.

First, the constituents of the batch are carefully weighed out and placed in a large ball mill, which is a cylindrical drum fixed so as to rotate on a horizontal axis. This drum is about half filled with large flint pebbles. About 400 pounds of cone mix is put into the drum and the lid fastened on. When the machine is started the pebbles and cone material fall in a shower against the sides of the drum, and this keeps up as long as the machine is running, having the effect of grinding and mixing the charge. After this, the material now being sufficiently ground and mixed, a small batch is made into cones. These are put into a kiln and tested together with some stock cones, some standard cones and a pyrometer. If any irregularity is observed, the composition of the whole batch is corrected until it comes right.

The standard cones here referred to are cones which were made up with the greatest care. They were then standardized against the best German cones and a pyrometer. They were carefully boxed up and kept for reference, none being sold. These are used to determine whether the cones for sale are accurate. So all cones which go out must be tested against these standards.

After a batch of cone stock has been proven to be all right, it is mixed with a little dextrine to stick it together, and is then molded into cones by the use of iron molds.

When taken from the molds the cones are carefully dried, samples are taken and tested, and, if found all right, the cones are packed in sawdust in boxes of fifty, and are then ready for shipment.

When placed in a kiln, what is it that cones measure; is it temperature, heat work or what?

Burning clayware in a way is great deal like baking bread.

In case of the bread, a certain temperature is attained in the oven, and this held constant until the bread is done. The mere raising of the temperature to the desired point does not produce good bread, but you must leave it until the heat has gotten in its work. The temperature does not go a bit higher during the baking of the bread than it was at the start, yet a very great change is accomplished. However, we all know that bread won't bake unless the temperature is high enough. This gives us a pretty fair idea of the difference between temperature and heat work.

It is possible to raise ware to a certain temperature and have it come out in good condition. It is also possible to raise ware to the same temperature and overburn it by holding it long enough, and without raising the temperature a fraction of a degree further. Of course, the point at which this can be done varies with different clays, and the action takes place very much more readily with some than with others. Why is it that a change takes place while the temperature remains constant? Simply because the heat keeps on working, while the temperature may remain stationary or even falls slightly.

Seger cones are made of about the same constituents as our bodies or glazes, and, as a result, are subjected to the same chemical and physical changes under the influence of heat.

The reason cones are more valuable to the clayworker for some purposes than any pyrometer is then very evident, because they are measures of heat work, or the effect of heat work rather than temperature. It is rather easy to show this. Put a pyrometer in a kiln and bring the heat up until it is registered as a certain number of degrees on the pyrometer and a certain cone goes down, then hold this temperature for awhile. Finally, without the pyrometer changing at all, you will see the next higher cone going over, showing that the heat has affected it. Not only that, but it shows that the ware has been affected at the same time, since we are measuring like with like.

Also, by use of a test kiln, it can be shown that cones will go down at a lower temperature if the burn is a long one, say four or five days, than they will in a twenty-four-hour burn; in a long burn the heat gets more of a chance to work on both the cones and the ware, and so they mature at a lower temperature. Cones don't measure temperature, they measure heat work, and it has been remarked that it is a misfortune that they were ever given melting temperatures in degrees.

The pyrometer is a good instrument for getting the progress of the burn. It will give the rate at which the temperature increases or decreases, but it measures temperature only, and not heat work. The pyrometer and the cone each has its field and each gives more or less information which the other will not. The pyrometer is not to be used as a substitute for cones, but to supplement them.

For wares of thin cross-section, as pottery, etc., nearly everyone agrees that the cones are the most reliable means of determining the finishing point of a kiln. Where bricks are being burned, some manufacturers prefer to bring the kiln up to a certain temperature in a given period of time, and measure the temperature by means of a pyrometer. When the pyrometer shows the temperature to be high enough they hold the heat a certain length of time, which has been determined by trial. However, many think that the best results in brick burning, everything being taken into consideration, will be gotten by use of trials, measurement of settle, and the placing of cones in the bottom of the kiln, to enable the burner to know just how hot the bottom is.

Like everything else, cones must be used properly if they are to be of any service to the burner. For instance, they must not be put where the flame will strike them, or where cold air can get at them as in front of a peep hole, and they must not be pushed over with a rod or other implement.

Of course, no one should expect the cones to produce good burning by themselves; they are to be regarded as only an inexpensive help toward producing a good product.

Loving friends may advertise brick a little now and then, but the brickmakers themselves will have to do the main pushing, and really it's their push, anyway.

Written for THE CLAY-WORKER.

SPEEDWAY RAPIDLY NEARING COMPLETION.

Vitrified Brick Track Being Laid Under Supervision of Foremost Paving Brick Experts.

THESE ARE busy days at the Indianapolis Motor Speedway. The world's finest two and a half mile racing track is undergoing a wonderful change. By the middle of November the original "Taroid Macadam" track, which proved so unsatisfactory in the recent automobile races, will be entirely buried under Culver block, making the finest roadway and street pavement construction known today. In a few more weeks the brick-paved track will be completed and ready for the motor races which are to be held in November. The work is being advanced as rapidly as good, careful construction will allow, and an unusually large force of men is busily engaged, their work being unabated by cold weather.

In the September issue of THE CLAY-WORKER, we published an article on the Indianapolis Motor Speedway telling of the tests made on different roadway construction, the success of the trial brick pavement, and the final determination of the owners to let a contract calling for 3,100,000 paving blocks, to be of the finest quality and laid under the supervision of the best paving brick experts in the country. We are pleased to publish in this issue, illustrations showing the present condition of the track.

In comparing the present track with the original one of "Taroid Macadam," it is interesting to note the construction of the pavement that proved a failure, notwithstanding it was laid with great care. In making the "Taroid Macadam" track, the base fills were brought to grade rolled with a fifteen-ton steam roller, depressions were re-filled, and the entire surface rerolled repeatedly until firm and true. A two (2) inch layer of gravel was spread and rolled, and upon it was placed two (2) inches of broken limestone (2-inch size). Then the whole surface was treated with two gallons to the square yard of "Taroid H," followed with one-half inch in size of crushed limestone filling up to the voids of the coarser stone, the same being rolled with an eight-ton roller, treated again with eight-tenths (8-10) of a gallon of "Taroid L" to a square yard, all covered with one-half inch coat of crushed stone screenings which was thoroughly rolled. It was upon this track that the races of August 25, 26 and 27 took place, during which seven people were killed, owing, no doubt, to the fact that the macadam could not stand the severe test made upon it by the heavy machines traveling at times at the rate of seventy miles an hour.

The track as described in the fore-

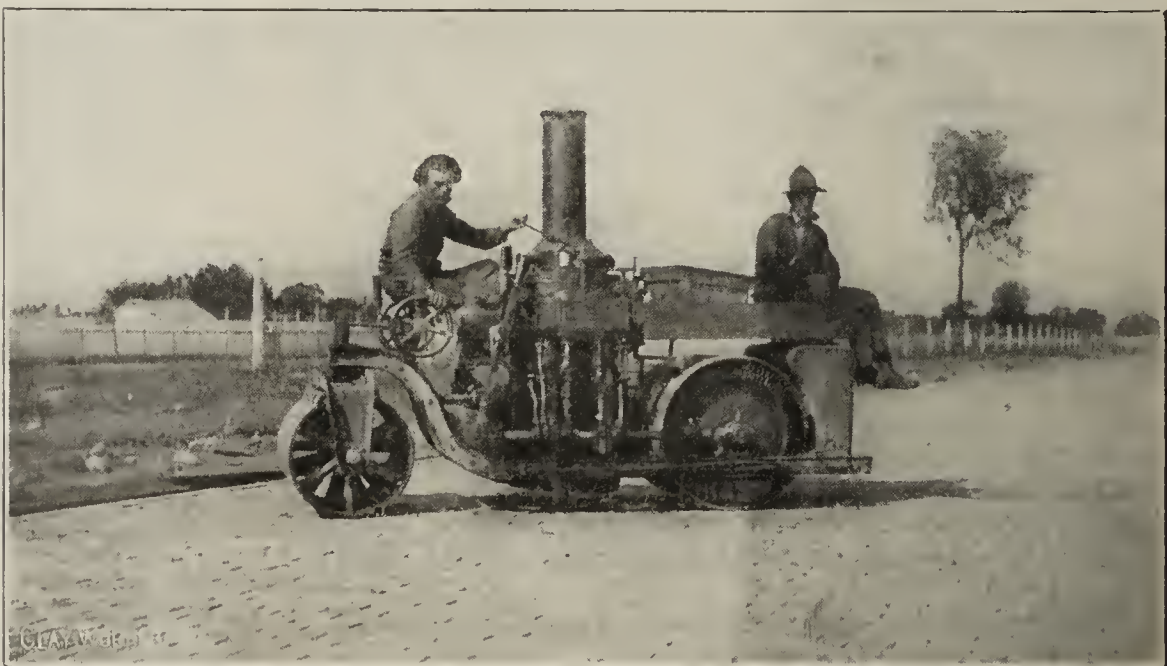
going was made ready as a foundation for the brick pavement, by adding sufficient crushed limestone to fill up all the ruts and depressions caused by its use during the races, and resurfacing with crushed limestone to the depth of one and one-half inches, thoroughly rolled to a uniform smooth surface, conforming to the grade of the finished track. While this foundation does not conform to the National Paving Brick Manufacturers' Association's specifications for the construction of vitrified brick pavements, in building upon it, the engineer, Mr. Andrew, is endeavoring to adhere strictly



Bricklayers at Work on the Indianapolis Motor Speedway.



Section of the Brick Track Ready for the First Coat of Filler.



Steam Roller Used for Ironing Out Slight Depressions.

to detailed directions which follow, and is being assisted by engineers from the association.

Upon the foundation thus prepared is placed a uniform 2-inch sand cushion, upon which the brick are laid. The purpose of this sand cushion being to afford a maximum relief from the vibration made by the impact, incident to its use by automobiles or whatever travel it may be subjected to, and still it is desirable that this provision for the relief shall be so slight that no weight that is likely to come upon the pavement will crush the bond of the cement filler with

which the interstices are to be completely filled.

The workmen spread this 2-inch sand cushion ahead of the bricklayers. The brick are then dropped into the track, face edge up, at right angles with the straight away track. The course continues at right angles until their line intersects a line marking 45 degrees of the curve, dropping off a half brick at a time as the point is reached. From this line the brick will be continued from a herring-bone joint for the remaining 45 degrees of the curve. At this point, then, the right angle courses are again taken up and continued along the straight away track.

After the brick are thoroughly inspected and those regarded as objectionable removed, they are thoroughly rolled, ironing out slight depressions, compacting them into, as well as compacting the sand cushion underneath, and insuring the perfect cushion effect above mentioned. This is done by rolling repeatedly, using a light steam roller not exceeding five tons in weight.

One of the illustrations shows the first section of this track made ready for the application of the cement filler, and no greater depressions can be found than one-quarter of an inch in the length of a 12-foot straight edge in whatever direction placed, thus affording a plane of the utmost satisfaction. A cross-section of the track in the straight away courses has a fall of 10 inches. It is 50 feet in width. Expansion is provided for by placing a 1-inch board parallel with and adjacent to the curb, which remains in place until the track is in all other respects finished. The board is withdrawn within twenty-four hours after the application of the cement filler, and then the crevice filled with a pitch filler.

The enforcement of the rigid rules of the National Association is undertaken, even to the use of their prescribed mixing box, so shaped as to insure uniform mixing of the cement filler in proper proportions of one to one sand and cement. One corner of the box being the lowest, the mixture is easily kept in agitation—sand and cement held in suspension—while the whole is quickly applied with a scoop to the pavement, and by the natural flow, aided by the sweepers, the filler is in place at its greatest strength. Two coats of cement filler are applied.

The track is two and one-half miles around, 50 feet wide on the stretches, and 60 feet wide at the turns. The 3,100,000 Culver blocks which were required for the work were transported from the Veedersburg plant in thirty solid trains, which, if coupled together, would make a continuous train nearly five miles long.

A gentleman of a mathematical turn of mind compiled the following interesting facts relative to the amount of Culver blocks purchased for this work: "If all the Culver blocks used in paving the speedway were laid 3 feet apart on the bed of the Atlantic Ocean, they



First Application of Cement Filler.



Workmen Applying Second Coat of Cement Filler.



View Showing Mixing Boxes Prescribed by National Association.

would make stepping stones from the mainland of North America to the coast of Ireland. Laid end to end, the 3,100,000 Culver blocks would cover a distance of 453 miles. Touching the State of Michigan and extending directly south through the city of Indianapolis, this solid line of paving blocks would extend on through the State of Indiana, across Kentucky and almost across the State of Tennessee, to within eleven miles of the Mississippi line. Piled flat, they would make a column 170 miles high. Loaded in wheelbarrows, fifty blocks to the barrow, as they are handled at the factory, it would require 62,000 men to push the wheelbarrows. Allowing 6 feet for each man and barrow, would make a procession of wheelbarrows over seventy miles long—the distance between Indianapolis and Terre Haute.

"Loaded in wagons, 350 blocks to the wagon, 8,857 wagons and teams would be required. Counting 30 feet for each wagon and team, the line would stretch over fifty miles.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE TWIN CITIES AND OF THE NORTHWEST.



THE PROSPECT for fall building in the northwest is the brightest that has been the case in a number of years, and the northwest has not been slow in building at that. But the crops have proved to be all that was reasonably expected of them, and there has been little or no disappointment felt in the yield, since the harvest and threshing reached the point where it was a matter of figures and not of impression as to how the yield was running. The outcome is that the producers of the northwest are having more real money this fall than they have had in many years. And much of the surplus will go into new buildings around the



Spreading the 2-Inch Sand Cushion and Laying Brick on the Indianapolis Motor Speedway.

Carried in hods, fifty pounds to the hod, 620,000 hod carriers would be required to move the Culver blocks used in the Indianapolis Motor Speedway. Allowing 3 feet for each man, walking single file, this procession of hod carriers would be over 352 miles long. Marching east from the speedway, the first hod carrier would be entering the suburbs of Pittsburg as the last one stepped over the corporate limits of Indianapolis. The Indianapolis Motor Speedway, paved with Culver blocks, is the largest single job of brick pavement ever done in the State of Indiana."

No matter how sluggish things may have been with various other industries, there is one institution which has had plenty to do this year, and that is the Interstate Commerce Commission. It looks, too, as though busy times are going to be continued indefinitely. But just what good the people are to get out of it remains to be seen.

farm, and ditching and tiling work. On the latter phase, there is a distinct change for the better in the volume of clay tile which is being sold. The cement craze was probably more vigorous in the northwest than elsewhere—at least it certainly seemed so—but the test of time and experience caused a cooling of the enthusiasm which often accompanies a new thing, when testing showed its weakness. And cement tile has shown its weakness in more ways than one in the northwest. The usual run of subjunctive possibilities attend the use of cement tile. If they are well and properly made, and if they are well and properly cured, and if they have a sufficient amount of cement and of a good quality, and if they are laid with care, and if the action of the water does not leech out the cement, they may prove serviceable. But clay tile has none of these possibilities which the tile user and buyer has to encounter in cement tile.

Farm building is progressing well, and the prospect is for

considerably greater building in the country and interior points during the fall and winter. The Twin Cities promise as good an increase in this direction as do the country points. Their totals for the present year are well ahead of last year, and show that there will be a heavy increase for the twelve months.

The Board of Charities and Corrections of Minneapolis has been wrestling with the problem of what to do with a lot of brick which have accumulated at the city workhouse, having been made by the workhouse prisoners. The lot amounted to over 2,000,000. The board had to provide some occupation for the prisoners, and the superintendent recommended a brick plant, there being suitable clay on the workhouse grounds. At the time that the proposition was pending, something over a year ago, brick manufacturers of Minneapolis and others interested, entered their protest, alleging that it was objectionable and of doubtful policy. But the plan was alluring. It was pointed out that the brick could be used in city sewer work and other city buildings, such as schoolhouses, and that it would afford a much-needed occupation for the prisoners, would tend to make the workhouse self-supporting, would keep the prisoners from devising mischief, and the brick would be used on city work, so that they would not enter the market as general competitors, and local dealers would not suffer, for much of the brick used is brought in from outside points. The argument prevailed and the machinery was installed. Several city schools were to be erected, and a tacit agreement with the lowest bidder was claimed, whereby he was to take these workhouse brick. He claimed that it was tentative, if he could use them. He stated that he was threatened with the refusal to supply him with brick by local manufacturers if he bought the workhouse brick, while the union teamsters would not haul the brick, and under the circumstances he did not want them. So the brick were on the market and no one wanted them, and finally the plant had to be shut down because there was no place to put more brick. It is about arranged to dispose of them for sewer work, but the situation is such that there is not likely to be much more interest in manufacturing workhouse brick in Minneapolis.

The Minneapolis Sewer Pipe Works has the faith of its convictions in the worth of its own material as a fireproof article. The new plant at Hopkins, nine miles west of Minneapolis, is of fireproof construction, and the company carries no insurance upon the works.

Jeff Schelde, a prominent general contractor of Litchfield, Minn., and Minneapolis, conducts a trade school for brickmasons and contractors at his home town of Litchfield each winter. The school is about to start up for the winter. This school has the name of producing good workmen, competent and able. Such schools are sadly needed, for young brickmasons are scarce and needed.

Mr. Harcourt, an experienced brick man from Mason City, Iowa, recently took charge of the plant of the Mayo Brick and Tile Company, near Walhalla, N. Dak.

The Coon Creek yards, at Coon Creek, between Minneapolis and Anoka, has been utilizing a locomotive for stripping the overburden of the clay banks.

The Minnesota State Fair, which held its fifteenth annual exhibit in September, had a number of displays of clay products, including clay tile, pottery, fancy building brick and others. The fair has a number of handsome buildings, and it is noticeable that the most attractive and impressive buildings all have brick walls. There are a few of the buildings in the desolate and dreary cement plaster effect, and many of the older buildings are of frame construction.

St. Paul's building permit totals are showing a gratifying gain over a year ago, showing to October 1 a gain of a million and a half, and every month but one running ahead of the same month last year. The total for September was \$1,036,716, against \$766,892 for September of 1908. The totals

for nine months are \$7,632,767, against \$5,116,769 for the same months of 1908.

The new building code of St. Paul, which is in process of formation, will provide for a number of changes in the direction of greater safety. The matter of small theaters is receiving attention, and they must have more exits, a fireproof proscenium wall, and other fire protections. There is to be a revision in the size of thickness of walls from the old ordinance, so that smaller buildings will not be held to so heavy walls. All buildings of seven stories or higher must be fireproof, regardless of what their use is to be.

A company is being formed in St. Louis to establish a barge line on the Mississippi river between the Twin Cities and the lower river, for the transportation of heavy freight. This project comes up every so often, but does not reach anything further than the elemental stage—at least it has not yet. The completion of the plan would interest the building trades, since brick, lime, plaster, cement, stone and other bulky materials could be shipped by river at a lesser rate than the railroads are willing to make. The utilization of river transportation would be of great benefit to shippers of freight, and it is to be hoped that the plan materializes.

The American Clay Products Manufacturing Company, of Minneapolis, is a recent incorporation, having a capital stock of \$100,000. The incorporators are: Louis F. Mettelman, Fred H. Schriber and Charles R. Parker, who are, respectively, president, vice-president and the secretary and treasurer. The company proposes to manufacture pottery and clay products generally.

Brick plants through the northwest are generally about closing down for the season, having had a moderately fair season, though not what the good times and the value of their product deserves. But the demand for brick is growing and some of the impulse toward concrete is receding, so that the coming season will probably be a better one for the brick plants.

The Range Brick Company, of Hibbing, Minn., on the Mesaba Iron Range, has filed articles of incorporation with a capital stock of \$100,000. The incorporators are: C. A. Remington, of Hibbing; H. S. Lord, of Carlton, Minn., and J. C. Kees and R. I. Hall, of Minneapolis.

Fireproof construction in Minneapolis for the season to October 1 shows nearly double that for all of last year, aggregating a total of \$2,550,000.

Where Bricks are Flying.

Peter J. Linhoff, the St. Paul architect, has prepared plans for a handsome brick apartment building for Henry F. Wessel, to be erected on West Fifth and West Seventh streets, at their junction, at a cost of \$35,000. It will be three stories, 105x80 feet, pressed brick, with cut stone trimmings.

The Bailey-Marsh Co., Metropolitan Life building, Minneapolis, received the general contract for the construction of the new technical high school building at Virginia, Minn., at their bid of \$105,091. The building will be of hard-burned Coon Creek brick and cut stone trimming, and fireproof construction throughout.

R. J. Cheney & Co., of Minneapolis, have the general contract to erect a brick schoolhouse in the Seven Oaks district of Minneapolis, at \$65,638.

Kinney & Halden, architects, Minneapolis, have plans for a city hall building for Coleraine, Minn., on the western end of the Mesaba Iron Range. It will be two stories, pressed brick, cut stone and terra cotta work, and 75x107 feet in size. Cost, \$40,000.

J. E. Pilgram, of Minneapolis, received the contract for a wing addition to the south high school in Minneapolis, for a manual training department, at \$65,993.

Bertrand & Chamberlin, architects, Minneapolis, have finished plans for a modern pressed brick hotel building to be

erected at Breckenridge, Minn., for the Improvement Association. Cost, \$50,000.

The Lowery Realty Company, of Minneapolis, will erect a modern pressed brick apartment building at 1308 Harmon place, to cost \$25,000.

The Salisbury & Satterlee Co., furniture manufacturers of Minneapolis, have let the contract for a six-story addition to their factory. Cost, \$50,000.

Nels Bruce, of Minneapolis, has the general contract for a handsome modern apartment building for Mrs. Nina Wells Tibbett, at 116-122 Oak Grove street, 51x152, to cost \$75,000. It will be three stories, pressed brick construction.

Bids are being taken for the erection of the new twelve-story store and office building to be erected for the Plymouth Clothing House in Minneapolis. It will be at Sixth street and Hennepin avenue, and will have white glazed brick exterior walls. Cost, about \$1,000,000. Long, Lamoreaux & Long, architects, Minneapolis.

The Hennepin Avenue M. E. Church, of Minneapolis, has commissioned Edwin H. Hewitt, architect, to prepare plans for a new church to cost about \$250,000. No details were decided.

T. WIN.

Written for THE CLAY-WORKER.

HANDY ROPE KNOTS FOR BRICKYARD MECHANICS.

BY THEO. RIZER.

PART I.



ROPES AND PULLEYS, commonly called block and tackle in the vernacular of the mechanical world, with a view perhaps to brevity, are indispensable for many purposes in and about a modernly-equipped brick plant, yet it is rarely that a regular employe of such an establishment is found competent to manage this sort of apparatus to any advantage. Whenever, therefore, any important occasion arises for its use, an outsider must be called in to supervise the work, or dependence must be placed on the unskilled help at hand. The latter alternative is really nothing more than a makeshift—a distinctly hazardous one. It is like entrusting the running of a new model automobile to an untamed cowboy. Progress will be erratic, inefficient and brim full of possibilities that the machine will emerge from the experience a wreck, and the cowboy promoted to another stage of existence.

The first step in acquiring skill in the management of block and tackle is to learn how to tie practical, scientific knots, and any mechanic will find that the time has been well spent which he utilizes in learning knots. A knowledge of only a few of these will enable him to acquit himself with credit in most rope handling affairs that may come his way, though, of course, he is yet far from being an expert rigger.

"Oh," interrupts someone, "I can tie knots." He can; anybody can. But whether the knots he and they can tie will be of a kind sanctioned by correct usage is another story. It depends on whether the knot-tyer has had proper education in the tying of knots. Education, as we all know, consists, when all is said and done, chiefly in being told; and the person who has never been told how to tie knots will find, if he cares to investigate, that his productions in that line are a botch, indeed. In reality, it is an art—this knot-tying business, second to none perhaps in its fundamental utility to the rise of man. Its principles may be stated thus:

1. The knot must not slip under any condition of loading.
2. The knot must not jam or wedge so as to make it difficult to untie when the load is removed.

Truly, a very modest array of principles to rule an art! But what they lack numerically is more than offset by their inflexibility. Every knot must measure strictly up to the re-

quirements or be banished to a place in the endless procession of the vanishing unfit.

The practical man is the judge. He weighs them in the storm and stress of adamant practice, and from his decision there is no appeal. This is true as well with all else in life. Over nations, religions, government, fashions, animals, plants, everything, he reigns the final arbiter. Genius, learning, riches may, for a time, prosper a business, a method, or a thing, but sooner or later their case is called before the court of usefulness to man, and their sentence to survive or to perish is pronounced by the practical man.

A curious and distinctive feature about the art of knot-tying is the utter absence of history relating to it. No other

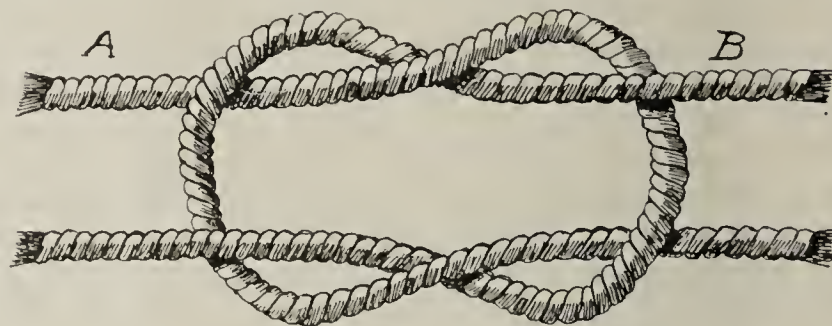


Fig. 1



Fig. 2



Fig. 3



Fig. 4

art in use today has been so strangely neglected. Its inception, growth and perfection lie veiled in the somber mists of the past, and not a ray of light has come down to us by which we might trace the invention of a single knot.

Is it the product, as all other arts are, of slow evolution through years and years and years, mind after mind contributing his mite? Or, is it the invention of some one mighty genius who lived and wrought thus prodigiously well for the race of man for all time, in those remote days before the dawn of history?

To these questions we have no answer. The dead centuries mock our wistful conjectures. Those who know lie silent, long-forgotten; some, huddled in the sands that blanket

the cradle of civilization; some, sprawled beneath the blue waves that toss above those older brethren of man from whom he parted on his upward journey, way back in the Caribbean Seas.

It is at sea that knot-tying is most abundantly useful, and it is here that we find the greatest skill in its application. Not a sailor was ever shipped before the mast, rated as a first-class seaman, unless he had so assimilated this art in all its details that it had become a part of his very nature. This requires days and months of arduous application and practice, but it is time well spent. For on many a savage sea the sailor in a deadly grapple with storm and wave has come forth triumphant only through his marvelous dexterity in the use of ropes.

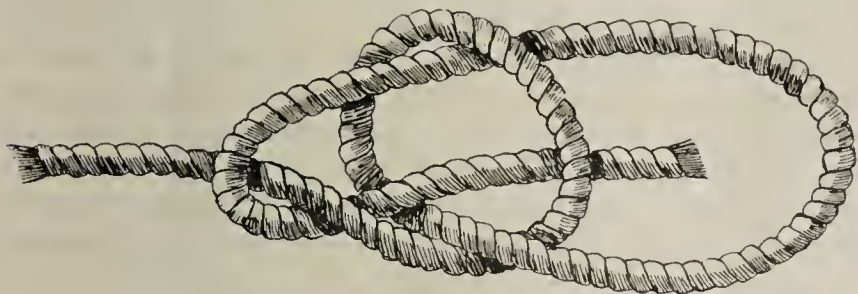


Fig. 5

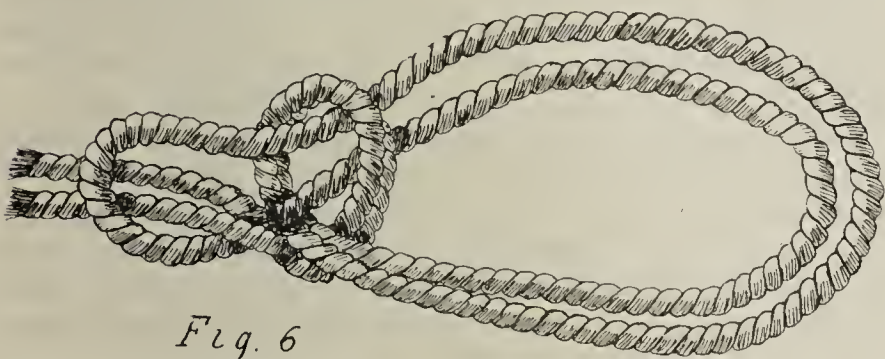


Fig. 6



Fig. 7.

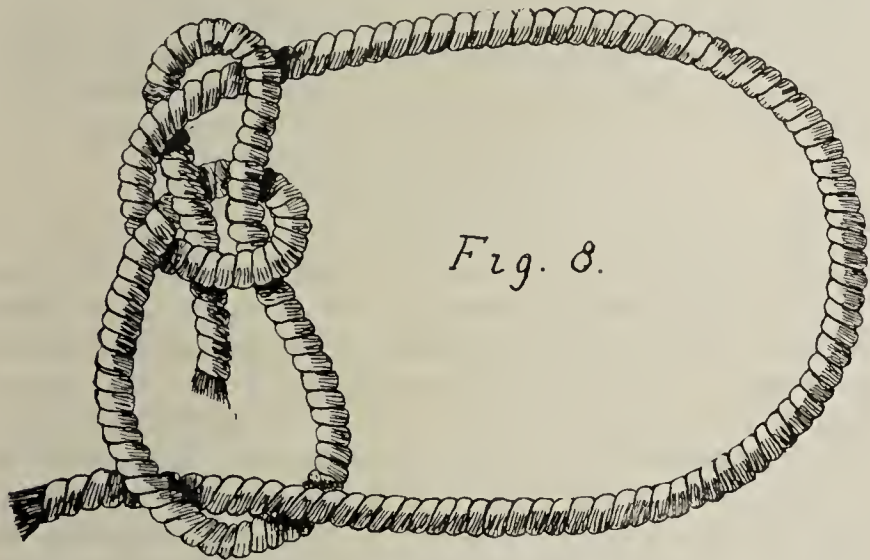


Fig. 8.

Ashore, life and death do not hinge so often as afloat on the tying of a knot. Landsmen, therefore, are not nearly so appreciative of the value of skill in the handling of ropes, and are notorious the world over for their ignorance and clumsiness in this line.

Ask a landsman to tie two rope ends together. It is a pretty safe gamble that nine times out of ten he will fashion you a knot like that shown in Fig. 1. In the phraseology of the sea, this production is dubbed a "granny." Just why is not clear. Perhaps because it is considered the only knot "grannies" know how to tie. Certainly not from any similitude in character between the two, for the knot is a most

inconstant, unprincipled thing. It violates one or the other of the basic rules of the art everytime it is required to sustain a stress. It either slips, letting the load fall at a critically perilous time, or it jams, a most abominable thing to do, since nothing short of herculean efforts is able in that event to undo it.

A better knot for this purpose—fastening two rope ends together—is illustrated by Fig. 2. This is termed a square or reef knot, from its being used largely at sea in fastening the reef points of a sail. An excellent knot, too, it is, neat in appearance, lying quite flat, and handy to tie and untie. One grievous fault it has, however. It is apt to jam when employed with the smaller rope sizes. From the illustration, it appears to be very much like the "granny," Fig. 1, but note the difference in the way the ends A and B are interlaced.

A knot of a strictly orthodox character is that shown in Fig. 3. The illustration should make plain how the knot is tied to anyone who will give it a little attention, as we tried it on one unlearned in the ways of knot-tying and it worked satisfactorily.

You can give to this knot your entire confidence. It isn't going to slip and imperil your head or a costly machine. Nor yet will it jam and require of you a week, more or less, of valuable time to get it untied when the load is safely landed. Where ropes of unequal sizes are to be tied together, no other knot is quite so satisfactory.

It goes by the names, in these later days, of sheet bend and weaver's knot, also a third which does not come to mind just now. In point of age it must be quite ancient, having been, no doubt, old, very old, when the Pyramids were young.

For tying very large ropes or cable ends together, the Carrick bend is particularly excellent. This knot is shown in Fig. 4. At first sight it appears quite a little complicated, but a little study of the illustration and a bit of experimenting with a couple of rope ends will qualify anyone to tie it with facility. A verbal description of how it is done would simply serve to confuse, so space will not be wasted in such an attempt.

For making loops on the end of a rope, there is the bowline, Fig. 5; the bowline on the bight, Fig. 6; the common slip noose, Fig. 7, and the running bowline, Fig. 8.

The bowline, Fig. 5, is a very handy device when a loop is wanted which will not diminish in size when stress is applied. Down on the farm it is often utilized for tying stock in lieu of halters. The loop is made around the animal's neck, and holds them very securely without hazard to their air supply.

When the rope is suspected of being too weak to bear the load, it may be doubled and the bowline adapted to the making of the loop, as shown in Fig. 6. It is then termed a bowline on the bight, and affords a very excellent support for the conveyance of a man up or down through a vertical distance, such as a tall chimney. If the loop is fitted with a seat-board, comfort will be prodigiously promoted.

When a running loop is required the common slip noose, Fig. 7, may be employed. It is, however, a very poor contrivance. Its security is uncertain, and if it doesn't let go it will jam if the load is at all weighty. Sailors condemn it, and will use no slip noose but the running bowline, Fig. 8. It is made, as the illustration shows, by making a bowline on the end of a rope and then putting the standing part of the rope through the bowline to form the running noose.

(To be concluded.)

Some idea of the magnitude of the American sweet tooth may be obtained from the fact that during the past seven months the biggest item of imports was sugar, valued at \$68,000,000, with the next highest being hides and skins, valued at \$53,800,000, followed by coffee to the value of \$44,900,000.

Written for THE CLAY-WORKER.

BRICK NEWS OF THE KENTUCKY METROPOLIS.



THE BRICK INDUSTRY here has shown a most pleasing increase in the demand during the past few weeks, and is at this time more fortunate in this respect than a large number of other industries. This is due in great part to the advance in building lines that this city and locality is enjoying, and there seems to be in prospect at least a continuation of this activity. Every brick concern here finds the demand to be steadily improving, and this is gratifying when the past has not been as vigorous as it might have been.

The building reports for the month of September show an increase of 75 per cent., as compared with the amount shown last September, the permits being less in number than last year, but the amount considerably in excess of that period. September, 1908, shows the permits to have been 282, with the amount \$255,315, as compared with 230 permits this year, representing \$446,444. This is due to a larger number of more important buildings being erected, and demonstrates that the growth of the city is very gratifying.

A number of the permits issued are for brick structures, because brick is one of the leading, and, it might be said, the standard building material in use in this locality. While there are no fancy brick made here, the quality of those manufactured is of the best, and the plants operate with this idea always in view. Considerable attention is given the matter of pressing and burning, and the brick are always of a good color and in other respects quite attractive.

Among the larger contracts to be let which call for brick are the Illinois Central depot, which will cost \$125,000, and will be a three-story structure of brick. Work has begun on this structure. St. George's Catholic Church is another building that will call for a large number of brick, this structure costing about \$25,000. Other large buildings are under way, and there is every promise of a nice fall demand for all kinds of clay commodities.

E. A. Quarles, secretary of the Builders' Exchange, has resigned from that organization and will engage in the brokerage business. The board of directors regretted to accept his resignation, as he has done efficient work in building up the organization during the past six years, in which time he has acted in the above capacity. No arrangements have been made as yet with regard to his successor, and he will act in the capacity of advisory committee until other arrangements can be made.

The Hydraulic Brick Company are now operating all their plants at full capacity and on full time. They have, in addition to the Avery order, a number of other contracts that is giving them ample to do. They are particularly well pleased with the situation, and feel that there will be as much in the way of business as they can handle until the time comes to close down for the winter months.

The Louisville Fire Brick Works, with plant and offices at Highland Park, Ky., note an increase in the general demand for fire clay commodities, and say that they are now operating more kilns than they have been, with prospects more pleasing. There has been no great increase in the business, but the fact that there is a steady increase is one of the best signs for a brighter future.

The Louisville Brick Company are about as active in the building brick line as they can be, and they find the demand for brick to be large. They are not operating on any large orders, preferring to go after the smaller ones and get a large number of these, as they find it is more profitable in a number of ways.

The Southern Brick and Tile Company are noting a very much better demand for brick, and the tile industry is im-

proving as the season advances for the use of this commodity. Brick is more active and the indications are sure to offer a pleasing fall demand. Mr. Bishop said that he was very much encouraged over the indications for a good demand for some time to come.

The Kentucky Vitified Brick Company have some orders, but the demand generally is not nearly as active as it should be. They are operating a portion of the time, and hope that the situation will soon offer a more pleasing aspect than it has in the past month or so.

The West Point Brick and Lumber Company are not able to keep up with the demand for brick at their plant at West Point, Ky. They say that the orders for brick are really in advance of their ability to supply them, and that there is every indication that this condition will obtain for some time as yet. When they close down they will make the improvements that have been contemplating for several months.

The Burrell & Walker Clay Manufacturing Co. are still counting on an increase in the demand that will show the situation to be much better. Mr. Frank R. Burrell said that while the demand for clay goods has shown some increase, that it was not yet what he had hoped it would be.

Thomas McCullom & Co. are operating at full capacity, and say that there has been an increase in the demand for building brick with them in the past month. They figure that there will still be a further increase from this time forward, and are very well pleased with the situation now.

The P. Bannon Sewer Pipe Company are quite active at their large plant, and are turning out a large amount of sewer pipe, and say that there is now a very promising condition to the trade in this line. They are operating on full time and have nothing to complain about, as they are sure that the situation will offer no less flattering aspects than it has in the past few weeks.

The Louisville Pottery Company are preparing for a nice jug demand. They have found the call for other kinds of earthenware to be very good in the past month, and now anticipate a big increase in the jug industry over last year's sales. They are at present reasonably busy.

The Kentucky Fire Brick Company, at Haldeman, Ky., find the demand to be very fair with them, and since the completion of their improvements are in a position to handle a larger output.

C. O. Smith says that there has been an increase in the general demand for brick all along, and that the aspect of the trade is strongly improved with him. He counts on a nice increase in business during the fall. COLONEL.

A WASTE PLACE.

In a speech at Tyrus, Ind., Dr. John Roe said: "On my farm near North Madison was a piece of wet land of about five acres which was surrounded by higher land. It was called 'Goose pond,' for nothing would grow on it but coarse grass in patches. I got it into my head that I would tile-drain it and named it to my neighbors, who laughed at the idea and said if I did drain it, it would produce nothing, as there was no soil there, nothing but white clay, and that, the year through, was mud and water, and only fit for geese and hogs to wallow in. But I told them I would make them laugh out of the 'other side of their mouth' some day. So in as dry a time as was common in the fall, I put hands to ditching and had tile put down 3 and 4 feet deep and about 30 feet apart for lateral drains, the depth depending on the lay of the land, and much deeper at the outlet. Well, this ground was dry early in the spring and I had it broken early and planted in corn. In the fall I gathered fifty bushels of corn per acre off of this same 'goose pond,' and I had it sown to wheat in the corn, and the following harvest I had a yield of thirty bushels of wheat to the acre, and the result was that I realized over and above a common crop enough to pay for the drainage, with the prospective future profits yet to be realized."



DRAINING PASTURE LAND.

VERY FEW persons have thought of the need of underdraining pasture lands, and that tame grass does not do well if the land is wet and cold. In company with a farmer in this state (Indiana), we rode over an extent of some 400 acres of blue grass pasture, and the farmer was quite proud of the extent of his grazing ground. The pasture was mostly woodland that had been cleaned of all fallen timber, brush and small bushes, together with the unprofitable timber, which left only the most desirable timber, letting the sunshine down on the grass. The pasture had, indeed, a fine appearance. Small herds of cattle were grazing here and there. The pasture land was level, with a cold clay soil, but on close examination it was plain to see that a very large per cent. of the grass was wild water grass—wire grass—the latter indicating a sour soil, other grasses indicating a cold wet soil, which together with stretches of blue grass on warmer soil. As a whole, the pastures looked well with the cleared woodland, but upon close examination at least 60 per cent. of the pasture area was set in blue grass, which was grazed close because it was sweeter and much more nutritious. The wild, or water grass, was much taller, apparently, more luxuriant, but the live stock preferred the shorter, sweet grass growing on the warmer soil.

Those who have had experience in the underdrainage of pasture lands, know quite well that stock will graze the grass that grows over or near the drains and avoid the grass growing midway between the drains; especially is this true if the drains are laid wide apart. Drainage will improve the character of the grass, even blue grass, and relieve the soil of water and sour soil grasses, and, as we believe, almost, if not quite, double the value of pasture lands for grazing purposes.

DRAINING A PLAGUE SPOT.

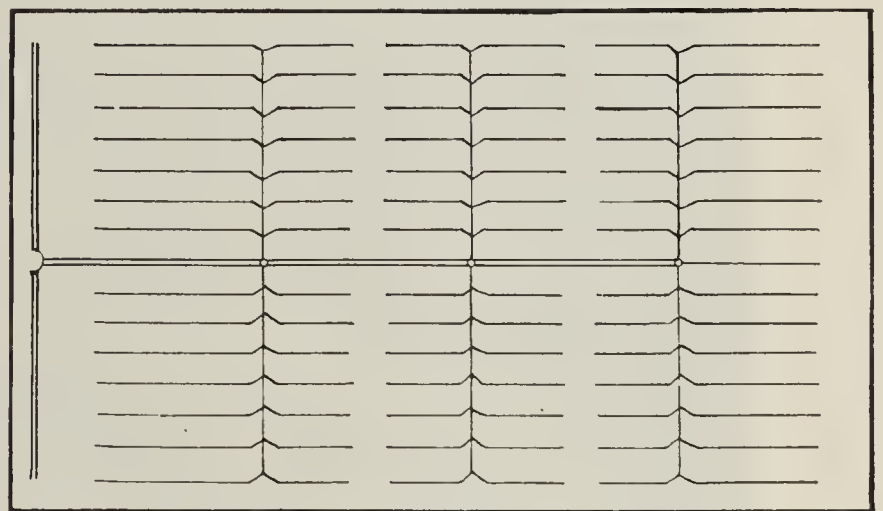
Here is a plague spot on this farm. There are about four acres in it—a low wet clay soil, grown over with brush, briars and weeds—a home for frogs, crawfish, flies, mosquitoes and other insects. I get no return from it and pay taxes on it every year. I determined to have it cleaned up, that it might grow grass, so, in the month of August I had it chopped off and grubbed as far as practical and sowed to timothy and herd top grass and then waited two years, but the grass did not grow well and the stock did not eat it with any relish. Then I asked myself the question: Will it pay to thoroughly underdrain it? And I figured the problem as follows: "If it is drained the coming summer or fall and planted to corn next year, I may safely expect sixty bushels per acre. The cost of raising a crop of corn is estimated at an average of \$10 per acre, allowing fair wages for all the work required. The cost of drainage per acre I figured at \$25 for thorough work, to get a sufficient outlet would be expensive. The return profit I figured as follows: Sixty bushels of corn at 50 cents a bushel, \$30; cost of raising, \$10; net, \$20. This for two years will make \$40, leaving at the end of two years a well-drained piece of good land and \$15 per acre above the cost of drainage and raising the crop."

The work was done and the result as figured more than realized, and the eyesore of the farm gone. A. FARMER.

H. 9. TOMPKINS' DRAINAGE SYSTEM FOR ORCHARD.

"My own main drains are, part of them, in on a dead level. I have only one outlet for forty acres of land, which is a 9-inch tile, and through this does every drop of the water of my drainage pass, both the surface and the underdrainage, as well as a good deal of water from adjoining lands and my house drainage. This 9-inch tile (inside diameter) is 600 feet long, 7 feet deep, and on a dead level; at the upper end is a well 3 feet across and 2 feet deeper than the tile; this well is bricked up. Branching out from this well, at right angles to the main drain, on each side, are 6-inch drains, 5 feet deep at the well and 3 feet deep at the outer ends (my land is a level plain, and the main drain runs lengthwise through the center of it); into these 6-inch sub-mains run the 3-inch laterals, which are 400 feet long and 2 feet deep at the upper ends, and run parallel with the main drain. From the well the main drain is continued for a distance of 800 feet, with 7½-inch tile, and has a rise of 1 foot in that distance, and at the upper end is another well, the same as the one before described, with 6-inch branch drains, into which 3-inch branch drains enter from both sides, as they do with the first ones.

"The main drain is further continued from the well another



Drainage System for Orchards.

800 feet to another well with 6-inch branch drains the same as before described. This section of the main drain has a grade of 1 foot also, and is made with two 6-inch tile, laid side by side through the whole length.

"From the third well the main drain is continued with 6-inch tile 800 feet further to the upper side of the farm, with a rise of 2 feet. After the first 400 feet is passed, which is as far as the parallel lateral drains extend, the laterals then come into the main drain, and extend at right angles thereto. My land is mostly set to apple trees, set 30 feet apart. The lateral drains are 30 feet apart, or just midway between the rows of trees. The wells enable me to see the condition of my main drains. I also lead the surface water from parts of my farm not yet tilled, and they are a help to the current of the main drain. For when there comes a rush of water it rises in the wells, and puts a head on the drain which is an equivalent to a grade in the drain equal to the height of the water in the well. My mains are not too large, nor have they ever been overtaxed, although the water rises 4 feet in the wells in a spring freshet, but it does not stay at that height for more than a few hours at a time."

If you have a good superintendent, give him plenty of rope, that he may work unhampered—and if you haven't a good one, it's about time to try a little "want" ad.

Written for THE CLAY-WORKER.

GOOD ROADS CONVENTION AT CLEVELAND.

National Paving Brick Manufacturers' Association Well Represented and Makes a Fine Showing.

THE SECOND Annual National Good Roads Convention was held in Cleveland, Ohio, September 21 to 23. A large number of paving brick manufacturers were present, including Mr. W. P. Blair and Edward Middleton, Indiana representatives; John W. Miller and James R. Griffis, Ohio representatives; A. A. Reilly, the representative of Michigan; R. T. Hutchins, of Pennsylvania; Charles G. Moore, of New York, and W. H. Bell, of Wisconsin and Minnesota. Besides these state representatives of the National Paving Brick Manufacturers' Association, a number of the members were present, among which were Charles N.

tion was given no place on the program, and while papers were read boosting almost all other paving materials, the enterprising members of that organization made up for this too apparent partiality by their splendid exhibits in the exhibition department. The association exploited two particular things in their exhibits, one of which was to demonstrate the ability of members of the National Paving Brick Manufacturers' Association to furnish unlimited quantities of first-class paving brick when called for, by the exhibition of samples sent by a large number of their membership, while the other was the proper construction of brick pavements. The latter was demonstrated by a model pavement.

The sample paving brick were exhibited on tables in Booth 55. The illustration appearing on this page shows the exhibit off to good advantage. On the wall back of the exhibit was a placard on which appeared the extraordinary statement that 125 cities in this country had laid from Janu-



Exhibition of Sample Vitrified Paving Brick by National Paving Brick Manufacturers' Association, at National Good Roads Convention. Held at Cleveland, Ohio, Sept. 21-23, 1909.

Crook, of Youngstown; H. H. Renkert, A. P. Maurer, J. G. Barber and Dr. White, Canton; C. J. Deckman, S. P. Duty and J. R. Zmunt, Cleveland; Henry Hasbrook, Olean, N. Y.; M. E. Gregory, Corning, N. Y., and C. H. Goodrich, Philadelphia, Pa.

The unanimous opinion of these delegates relative to the work of the convention was that the local committee failed utterly to give Cleveland the credit due for its wonderful advance in the building of their country highways. The omission on the part of those officially connected with the convention to say anything particularly expressive or at all commensurate with the extraordinary development of the brick-paved country roadways and brick streets, both as to quality and number of miles, made it painfully apparent that all such persons intended to step lightly, in deference to other paving materials.

While the National Paving Brick Manufacturers' Association

was given no place on the program, and while papers were read boosting almost all other paving materials, the enterprising members of that organization made up for this too apparent partiality by their splendid exhibits in the exhibition department. The association exploited two particular things in their exhibits, one of which was to demonstrate the ability of members of the National Paving Brick Manufacturers' Association to furnish unlimited quantities of first-class paving brick when called for, by the exhibition of samples sent by a large number of their membership, while the other was the proper construction of brick pavements. The latter was demonstrated by a model pavement.

Their most interesting exhibit, however, was their model sample, illustrating their

No. 1 Directions for the Construction of Brick Street Pavements.

This model was made up so as to fully demonstrate the chief points in their directions for the construction of brick street pavements, the use and compliance with which they are endeavoring to persuade municipalities to uniformly adopt throughout the country.

The first section showed the smooth concrete foundation, which is insisted upon for the reason that it is absolutely

necessary for best results that a uniform 2-inch sand cushion shall be spread upon this, upon which the brick shall be laid. From their demonstration it was clearly shown that it is possible to have the foundation smooth, at practically the same expense as to leave it rough, with stone or gravel protruding from the surface.

With the foundation made smooth it is possible to spread upon it an exactly uniform 2-inch sand cushion. The reason they assign for this necessity is that the cushion may be uniformly compacted, and, incidentally, the brick themselves compacted into the cushion, so that a maximum relief from the vibration made by the impact of the horses' hoofs shall obtain, and still be so slight that any likely weight coming upon the brick pavement will not crush the bond of the cement filler, with which the interstices are filled, so completely that the brick upon such a constructed pavement never chips or breaks, but all the wear that is made by the

four hours after the street had been otherwise finished. The box in which the cement filler is mixed and from which it is applied, is considered by the association as one of their most important suggestions. It stands on uneven legs, with the top of the lower corner of the box at about 16 inches above the surface of the pavement. It is from this corner of the box the liquid filler of the consistency of cream is dipped with a scoop shovel, while it is being agitated in the box with a hoe, operated by workmen standing at the high end, and thrown upon the street to be immediately swept in. By this method the cement and sand is held in suspension, in proportion of one to one in the mixture, and necessarily by this method can be swept into place in the interstices in such proportions, thereby affording a quality of cement filler that will withstand most effectively all the wear and tear likely to come upon streets and highways.

In connection with this brick pavement was exhibited three



The Necessary Steps in the Proper Construction of Vitrified Brick Street Pavements.

travel upon the street will be merely a friction wear, or a wear whereby the entire surface is affected alike, such as is afforded in the case of the wear upon a grinding stone.

Another feature was the spread of the sand upon the brick surface, as the same was filled with cement, in order that the cement setting should be slow and thereby of the best quality. The filling of these interstices with the sand and cement mixture, in proportion of one to one, was interesting, in that it fully showed how completely the interstices could be filled. The problem of filling the interstices being one that seems not to be fully appreciated, but the virtue of doing so was easily seen from the model exhibit.

Another feature of the exhibit was the opening parallel and next to the curb, into which the pitch for the expansion cushion was poured after the street was finished in all other respects. It was shown the board could be easily drawn without disturbing the brick, providing it was done within twenty-

brick, which were taken from under the wheel tracks of heavily used streets in the cities of Sandusky, Ohio, and Terre Haute, Ind., where they had been in use from fourteen to eighteen years, and as shown, the wear was so light as to be impossible of measurement. With No. 1 quality of paving brick, constructed in strict compliance with their directions, and as shown by the model exhibit, the association declares that remarkable durability will result, that pavements so constructed have, as yet, never been the subject of repair on account of wear and tear in this country.

This exhibit was also made to show how the wonderful results were accomplished, as seen in the many miles of both city streets and country highways in and about Cleveland, up to fourteen years in use, and upon which no repairs have been required or needed.

Every man is supposed to have his weakness, but he don't always know what it is.

Written for THE CLAY-WORKER.

NORTHWESTERN OHIO BRICK AND BUILDING NEWS.



BUILDING operations in Toledo are holding up in very good shape, despite the fact that things were a trifle quiet during the months of July and August, when the figures ran somewhat below even the marks made last year. September came to the front in good style, however, showing an increase over September, 1908. Permits were issued last month for new work amounting to \$340,927, as shown by the records at the office of the City Building Inspector, as compared with \$204,955 a year ago. The first nine months of the year have shown an increase of nearly a million dollars over 1908. During this period there were 1,054 permits issued for buildings estimated to cost \$2,592,220. During the same period last year, 815 permits were issued, representing an estimated valuation of \$1,594,083. It is noticeable that brick has cut a more than ordinary figure in this work this summer, as the new structures have been exceptionally high class. The improvement of September trade has instilled a little more optimism into the brick business, and dealers and manufacturers feel that the season will not be a bad one after all, especially if weather conditions should continue favorably for a while yet. A number of large contracts are now under way, which mean a market for large quantities of building brick, and as the supply is somewhat limited by the light operations of the local plants, prices are holding up well.

A number of Ohio people have been hard hit by the recent bankruptcy proceedings of the Chanute Cement and Clay Product Company, of Ft. Scott, Kan. The concern was organized at Akron, and John F. Townsend of that city received \$750,000 worth of the original \$2,000,000 bond issue of the company, in exchange for a lot of valuable property. It is said it will require \$200,000 more to finish the building of the plant, and this was the cause of the trouble which culminated in the bankruptcy court.

The Buckeye Clay Pot Manufacturing Company, recently incorporated under the laws of Ohio, has purchased an acre of land in North Toledo, and will soon begin the erection of a plant for the manufacturing of clay pots used in glassmaking machinery. The site selected lies within about a mile of the big Libbey glass factory, which concern is said to be interested in the new company. It will be the first plant of its kind in Toledo, and will employ at the start about fifty men. The concern has a capital stock of \$100,000, and recently organized by the selection of W. K. Brownlee, Toledo, president, and A. S. Zopfi, Findlay, Ohio, secretary and treasurer. It is said that the concern has a secret process for making the pots, by means of which they will possess much greater fire-resisting qualities than any heretofore manufactured.

A contract was recently awarded to Henry Sheehan by the Toledo Board of Public Service to pave Delance street. The price named is \$5,601.83, and the work will be done with Nelsonville vitrified brick, on broken stone foundation, with Berea curb and sand filler.

An explosion at the Cartwright pottery, at East Liverpool, Ohio, recently destroyed about \$1,500 worth of property, and badly injured John Frye and Edward Annan, employes.

The city of Bellefontaine, Ohio, will plan and construct a complete new sewer system in the near future. The City Council has passed an ordinance authorizing the issue of \$15,000 bonds to meet the expense of the preliminary work.

There is considerable talk in various sections of the state of adopting brick as a rural roadmaking material. There are many who argue that while it would cost some more to begin with, the lasting qualities would be well worth the cost. State Highway Commissioner Wonders has given it

as his opinion that unless some cheap material could be found which will resist modern traffic and withstand the wear and tear of automobiles, it will become absolutely necessary to turn to brick. Macadam roads, it appears, will not last at the outside more than ten years, and it seems certain that even though the cost of brick should be double that of macadam, brick roads will be much cheaper in the end. It is very possible that the experiment will be tried out in this state in the near future.

Christian Holt, a pioneer brick and tile manufacturer of Sandusky, died at his home near that city, after a brief illness of stomach trouble. He was eighty-six years old, and is survived by two daughters and three sons. T. O. D.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE OPERATIONS of the different brickyards are drawing to a close as far as delivery of large orders is concerned. While the building permits for nearly all Sound cities show quite a large increase, it is mostly in the residence sections that the gain has been made. Not very many large buildings have been put up, and the consequences are that nearly all yards have plenty of brick on hand at the present, where they were short early in the season.

The outlook for next season is very good, as several large buildings are contemplated, and in some instances the contracts have already been let. But none of these buildings will be finished before next summer. Common brick is now quoted at \$6.50 at the yards, and the competition is brisk among the different yards.

The Ballard Brick Company has finished burning several of their repressed brick kilns, and have sold all the brick they have made; they are contemplating large improvements this winter, and will possibly put up some more kilns.

The Builders' Brick Company has not many brick on hand, and has been doing a large business all through the year.

Both Spokane and Tacoma have let the contract for a skyscraper, and work will be started in the near future.

The Little Falls Fire Clay Company, of Tacoma, has decided to enter the paving brick field. This company operates an extensive sewer pipe plant at Little Falls, and has been in the clay business successfully for a number of years. The paving brick plant will be located near Palmer, on the Northern Pacific, and right in the coal belt region. The new plant will cost between \$100,000 and \$125,000. The shale to be used will come from the coal mines, and has been tested in eastern factories as to its quality.

F. Pollard, of Salem, Idaho, is experimenting with a white clay which has recently been discovered near that place. Should the test prove satisfactory, a yard will be located there.

Prof. Edward Orton, of Columbus, Ohio, visited Seattle and the fair. The local brick manufacturers are very much disappointed that the professor did not pay a visit to their plants, as they would like to have met him very much. The professor spent most of his time at the plants of the Denny-Renton Clay Co.

Randle & McKenzie, of Portland, Ore., sold out their plant at Portland to Spokane parties, and are now looking over the Puget Sound country for another location.

The Northern Clay Company, of Auburn, has secured several large contracts for their terra cotta. They will furnish the terra cotta for the sixteen-story National Realty building, in Tacoma, and also for the eight-story addition to the Northern Bank and Trust building in Seattle.

The Denny-Renton Clay Co. is still behind in their orders for paving brick. They are building another large kiln at their Renton plant, and have finished the addition to their dryer by putting another story on top of the old dryer, and operating the whole dryer on a double-deck system.

Seattle, Wash., Oct. 1, 1909.

SIWASH.



Clayworking School in Hungary.—The report of the Royal Clayworking School in Znaim for the year 1908-1909 states that the school had 209 students, of which 181 graduated this spring.—Tonind. Z., No. 86, 1909.

Report of the Ceramic School at Bunzlau.—Director Dr. W. Pukall has just made the annual report of the school year. There were thirty-eight day students and fifty-two night students. The faculty consisted of five teachers and three foremen. The advanced class took several trips to the different clayworking districts. From several districts clay was sent to test, and many reports have been made in this connection.—Sprechsaal, No. 23, 1909.

In Memoriam—Georges Vogt.—Mr. Georges Vogt, technical director of the National Porcelain Manufactory, of Sevres, France, died suddenly while on a vacation trip to Switzerland. Mr. Georges Vogt was a very prominent ceramic chemist. He discovered and put in actual manufacturing the new porcelain body which has been used at Sevres for the last twelve years. He adjusted the decorations of the Sevres ware, and made the product what it is today. He worked first under Theodore Deck, and after his death became the actual head of this world-known pottery.

Used Plaster Molds for Fertilizer.—Old plaster molds can be used for fertilizer if they are ground fine. The action of the ground plaster as a fertilizer is very thorough if the same is ground very fine. A machine should be able to first break the molds and pulverize the same, and grind them fine all in one operation. In grinding up the plaster molds at the clay works, it is necessary to keep this part strictly separate from the clay grinding machinery, as plaster will act as a very strong flux and may make trouble in clay mixtures.—Keramische Rundschau, No. 29, 1909.

Construction of a Small Double-Deck Kiln.—For a kiln with a diameter of 5 feet by a height of 6 feet, two fire boxes are sufficient. If the fire boxes are 32 inches long by a width of 15-18 inches, enough fire can be handled to burn the kiln proper. The flames from both fire boxes should be collected together in a small fire flue, and then distributed in the kiln proper to give a uniform distribution. With such an arrangement a temperature of Cone 9 can easily be obtained. Should a higher temperature of between Cones 14 to 16 be necessary, the fire boxes should be built somewhat smaller to have still better control of the fire.—Sprechsaal, No. 30, 1909.

German Brick Regulation.—The committee for the regulation test on brick made its report at the last annual meeting of the German Association of Clay, Cement and Lime Manufacturers. In presenting this report, the committee has found it advisable to include also the tests on common brick. The crushing test for vitrified paving brick should not fall below 5,000 pounds per square inch. For building brick, belonging to the first class, should be admitted all brick which stand a crushing test of 2,100 pounds to the square inch, and building brick of the second class should stand a test of 1,400 to 2,100 pounds to the square inch. All brick testing below

1,400 pounds should not be permitted in any building. After a very lengthy discussion, in which the question to put the lowest test down to 1,000 pounds was argued pro and con, the meeting adopted the committee report, and henceforth the German brick manufacturers will have defined rules and tests for standardizing the different grades of brick.—Tonind. Z., No. 87, 1909.

Chinese Government Brickyard at Canton.—The Chinese government has just built a brickyard at Canton, with a capacity of 20,000 brick per day. This yard will furnish all the brick which are to be used for the many government buildings, and especially for the Chinese State Bank building. The clay which is used comes from Whampon, which is twelve miles from Canton. It is furnished the government at the price of 80 cents per ton. The machinery for this brickyard was imported from Germany, and was furnished by the Bergerdorfer Maschinen Fabrik, of Hamburg.—Tonwaaren Fabrikant, No. 16, 1909.

[American clay machinery manufacturers should take note of the fact that China would be a good field for the introduction of American clay machinery. Evidently the German clay machinery manufacturers have been ahead of them.—Editor Foreign Scrapings.]

The Stoneware and Sewer Pipe Clays of Bunzlau.—The pottery industry in Bunzlau dates back several centuries, and its products are world-known. The clays found in this vicinity are of high-grade quality. The following table gives the analysis of the principal clays and their melting points. No. 1 is used for engobe clay mostly. It is usually washed before use, and has all appearance of a sandy kaolin. No. 2 is the clay which is mostly used for all pottery and sewer pipe ware. No. 3 is also used for commercial purpose. It is remarkable in that the iron is rather high, and still its melting point is high also:

CHEMICAL ANALYSIS.

	No. 1.	No. 2.	No. 3.
Silica	77.04	66.20	62.51
Alumina	16.79	26.59	23.79
Iron oxide	.59	1.46	4.46
Lime .....	.....	.48	.30
Magnesium	.31	.55	.88
Alkalies	.89	2.33	.62
Combined water	5.07	8.20	7.90

RATIONAL ANALYSIS.

	No. 1.	No. 2.	No. 3.
Clay substance	42.12	71.61	74.08
Feldspar	2.06	2.00	1.97
Quartz	55.82	26.39	23.95
	Cone.	Cone.	Cone.
Melting point	32	31	24

—Tonind. Z., No. 72, 1909.

A CAUSE FOR CUSSING.

Says a Louisville paper: "The wood block pavement which is soon to be laid in the streets adjacent to the City Hall and Courthouse will bring quiet to those venerated precincts, since such pavements are almost noiseless. Thus, if horses do cross them, there will be quiet, but teamsters who are wise will avoid them. Recently in New York City there has been a considerable stew over wood block pavements, and a citizen living along the line of one of them, after having spent considerable money on legal advice, made a bid for public opinion with the following sign, which he posted in front of his place of business:

"If I had my way about it, the men who persist in laying wooden pavements in the streets, knowing, as they do, the great danger to horses, would be in either heaven or hell in two days."

Well, now, if they kick up such a row about wood blocks, what would they say to an asphalt street covered with sleet, or even wet with a sprinkler?

[illegible]

REPAIRS

[illegible]

Written for THE CLAY-WORKER.

COST-KEEPING FOR CLAYWORKING PLANTS.

THE

ASCERTAINING of the cost of products in the clayworking industry in small plants and a few of larger capacity, is somewhat similar to what it was fifty years ago.

The owners of the plants usually just figure what labor amounts to, cost of his fuel, and then forms a basis of what he can sell his brick for. But today there is such a vast amount of difference in the machinery used, that the keeping of the labor cost in its separate department has become of great moment and thought in the plants of large capacities.

The old style of estimating the cost of manufactured products could no longer be relied on, and progressive manufacturers have had drafted several forms for itemizing the cost of production. Even some of their forms are not based upon a scientific knowledge of bookkeeping; they served their purpose, but this difference became apparent, and they are rapidly being superseded by improved forms.

Brick manufacturers who are handling millions of brick yearly, and who are directors of other large industries, have arranged for up-to-date cost systems to be put in their brick plants, as they realize of what value they are to the other

satisfactorily, for plants are arranged differently, and a study of all arrangements is absolutely necessary. Forms can be arranged for brick plants of all kinds, sewer pipe, terra cotta and pottery. There are five different forms, and consist of brick machine form, general time form, kiln record form, repairs and improvements forms. The time sheet form traces the process through the following: Shale pit, hoist and pans, setting, burning, drawing, shipping and power, the cost of labor and hours of working being clearly shown.

For expenses not provided under the above, a miscellaneous department is provided. An accurate accounting is made for each kiln on the plant, the date of setting, firing and drawing, the number of common shale brick set in kilns, and the number of brick set in kilns and the number of brick drawn, both firsts and seconds.

The repair form is tabulated to show repairs to the machinery, power, kilns and buildings, and the improvement forms clearly define the amount of money that has been spent on this account.

All these forms are carried out for one month, and can be easily written up in a single half-hour in a plant of 100,000 capacity. These forms clearly show what every man or gang has worked at during the day, the labor cost always being entered in the proper column.

The possession of these forms are of great service to the

KILN RECORD.

KIND	KILN No	No IN KILN	No DRAWN	No SHIPPED BY CAR	BY WAGON	STOCKED IN YARD	KILN No	FILLED TO-DAY
COMMON							" "	FIRE
							" "	FULL FIRE
							" "	FIRE OUT FUEL CONSUMED
FACE							GENERAL REMARKS ON DAY'S RUN	
SIDEWALK								
							SUPT.	DATE

industries with which they are connected. There are comparatively few of the smaller brick plants today operating who have a scientific system of bookkeeping which will enable them to determine the exact cost of every stage of the manufacturing process.

Their method of ascertaining the cost of brick is reduced to the following formula: Number of brick made, brick sold, amount of expenses, what receipts, and cost so much.

Having had fifteen years' experience in the clayworking industry, the writer has made a great study of this cost-keeping, and is the originator of a cost-keeping system which is confined to the clayworking industry alone.

This system is based on a scientific method of bookkeeping, the writer having previously passed examinations of Chartered Accountants. A cost-keeping system to be installed properly, especially in plants of large capacities, can only be founded after a study of the local conditions, by which means the designer of such system must pay a personal visit to the plant when the system is to be installed, and probably be there from one to three months, according to the size of the plant.

In that time the forms can be designed, same can be printed, and the system be in complete operation.

No one set of forms can be adopted by a number of plants

proprietor of any plant, for he can at a glance keep absolute tab on the detail of manufacturing cost, also the knowledge of such accounting being in operation has a great influence on the operators of the plant.

These forms can be arranged in loose leaf or bound system, and also may be arranged on the card system, which is most advantageous for larger plants.

On the opposite page is shown a form of cost-keeping for a plant of 20,000 brick per day.

A. C. CURATE.

WILL MAKE TILE IN VENEZUELA.

According to a report from Consul Isaac A. Manning from La Guaira, Venezuela, Miguel M. Herrera, of Valencia, has arranged with the Minister of Commerce there to establish within eighteen months one or more factories for the manufacture of porcelain and glazed ware, including floor tiles and fancy finishing tiling and practically everything in this class except ordinary earthenware, which is already being made in that country. It seems that they have the kaolin and other material necessary to do the work, and it is a part of the agreement that the material in that country must be used, and, in so far as possible, Venezuelan workmen shall be employed also. There does not seem to be any provisions or restrictions about the use of machinery and appliances required in the work.

Written for THE CLAY-WORKER.

THE CLEVELAND BUILDING SITUATION.



BUILDING STATISTICS for the first nine months of this year indicate that 1909 will come near breaking all construction records in this city, if the last three months of the year keep up the same high average. For the first nine months they exceeded a similar period for last year by \$2,663,486. There were 5,465 permits taken out for buildings valued at \$9,856,912. For the same period in 1908, 5,190 permits were secured for buildings valued at \$7,193,426. The showing for September of this year was not quite as good as for September of last year, as a permit was taken out in September, 1908, for the \$400,000 building for the Sterling-Welch Co., which raised that month's average.

The brick business still booms and gives every indication of participating in the general industrial revival which seems to have come to stay. There is a fine demand for building brick, while the call for sewer and paving brick has never been better. Strenuous efforts are being made to get many of the county brick roads completed this year, and it

structure on Scranton road. The entire group as planned by Architect Myron Vorce will cost \$1,500,000. Of this group only buildings costing about \$500,000 are to be built at first. The group when completed would care for about 1,800 patients. This, it is believed, would care for the city's needs for at least 150 years. All buildings would be two stories high, except a central administration building. There is plenty of land to accommodate them. They would have brick exteriors with fireproof interior construction. Plans are being made for a \$500,000 bond issue to start the buildings.

Another municipal project was completed during the past month, when the new city workhouse at Warrensville was opened. The group of buildings is not yet complete, but will be within a few months. About 100 trustees have been removed to the completed structures, which are of heavy brick walls plastered with stucco. Brickmaking is to become the chief industry at the big 2,000-acre farm. All the brick to be made will be used by the city. There are excellent shale beds there, as sewer, building and paving brick, as well as tile, are to be manufactured with prison labor. This industry will replace that of brushmaking, which has been followed in the cramped city quarters.

One of the best-equipped brick buildings in the city is nearing completion on the East boulevard, south of University Circle. It is called "Parkside Dwellings," and has been



Glimpse of the Stock Piles and Plant of the Weaver Clay and Coal Company, Brazil, Ind.

is believed the prices on paving brick will advance next year. As a result, scores of teams are busy hauling pavers to all parts of the county, for the paving operations are of a general character and are not confined to any one district.

Building projects are still bobbing up on all sides, and many smaller ones are being launched in the hope that they will be under roof before the snow flies. Many of the larger steel buildings for which foundations have been put in and steel frames erected are now having their facings of brick and terra cotta applied. This is true of the big Anisfield building, at East Ninth street and Huron road, where a chocolate brown brick is being employed, and the new Higbee store, on Euclid and East Thirteenth street, where snow white tile of attractive design is being utilized.

The Contractors' Supply Company has agreed to furnish the 200,000 shale brick to be used for the exterior of the new addition to the Willard school, and the Everhard pressed brick for the interior of the same building. The same firm will supply Wadsworth shale brick to the number of 25,000 for the new home being erected by J. H. Wade in Wade Park allotment.

One of the largest projects in brick buildings suggested for some time has been made public by the city. It is proposed to build a new hospital to replace the present antiquated

built by E. A. Cass, an architect. It is of a warm-colored red pressed brick, and contains many unique features. It is meant to serve as an apartment hotel, and will be elegantly finished throughout. It is strictly fireproof and contains the very latest ideas in plumbing, heating and general equipment.

Again brick and art have triumphed. The City Forester selected raw yellow-colored brick for the smokestack for the new greenhouse in Gordon Park. They shock the esthetic taste of Park Engineer Stinchcomb, who wanted warm red or brown-colored brick employed to correspond with the trees and the landscape. The matter was put up to the Board of Public Service, and it was agreed that the roughest brown and dark red bricks were to be employed in the building of the chimney. Even the City Forester himself is satisfied that the combination is a tasteful and proper one.

A great automobile race track is being planned for Cleveland by the Cleveland Speedway Company. The only particular interest it has to brickmakers is that while other material are to be employed in the building of the smaller buildings, brick is to be used as a material for paving the track, it having been demonstrated at the Indianapolis track that that was surfaced with cement that that material was unsatisfactory. The Cleveland promoters intend to profit by this mistake and begin their project right. It is intended

to erect grandstands seating fully 40,000 people. The big track will be used for many purposes, but it is aimed chiefly to use it for an automobile speedway.

Another fine factory building is to be erected for Warner & Swasey, on Carnegie avenue. It has been designed by the Osborn Engineering Company, and will be 100x200 feet in size. The general contract has been let to the Van Dorn Company. The walls will be of brick over a steel framework.

The Germania Turnverein Vorwaerts will erect a new \$15,000 two-story gymnasium on East Fifty-fifth street, with a frontage of 50 feet and a depth of 100 feet.

Work is progressing quite rapidly on the new block for Anthony Carlin. The building is to be five stories high, with a frontage of 95 feet and a depth of 115 feet. Brick is the material being used throughout for the walls.

The number of apartment houses being built in this city this year is unusually large. About ten permits a week are being issued for this kind of work. Cleveland has more apartments than any other city between New York and Chicago, and is constantly adding to them. Ninety-five per cent. of them are brick.

Plans are being made to receive bids for the roof of the new \$300,000 West Side market house. The roof is to be of tile construction. The superstructure, of brick and granite,

Written for THE CLAY-WORKER.

INTERESTING MANUFACTORY OF HOLLOW BUILDING BLOCKS.



MILE DISTANT from the center of the thriving city of Brazil, Ind., that veritable beehive of clay product manufactories, is located the well-known plant of the Weaver Clay and Coal Company. This modern and up-to-date plant gives special attention to the production of the celebrated Brazil fire clay hollow building blocks of various sizes and shapes in both the glazed and unglazed. These products have been on the market continually for the past eighteen years, and hold an enviable reputation in the list of building materials. At this plant is also manufactured a full line of the various sizes of drain tile in both the shale and vitrified salt-glazed, fire clay flue linings, fireproofing materials, stone pumps, etc.

The company was organized in 1872, and has experienced a steady increase in business yearly. The present owners came into possession of the plant in 1904, at which time the plant was enlarged in order to gain increased capacity. Since that year the plant has been remodeled three times; the



General View of the Weaver Clay and Coal Company's Plant, Brazil, Ind.

is nearly completed. The building, when finished, will be the finest thing of its kind in America. Bids for the roof are to be opened October 26.

The W. B. McAllister Company, one of the city's big building concerns, has been augmented by the joining with it of Frederick G. Bates, who has been associated with J. Milton Dyer, the architect, for some years. The firm will go in for contracting for big public buildings and other large projects. Mr. Bates was formerly in Chicago, but has lived in Cleveland for eight years, in which time he has become one of the city's leading architects. He became secretary and treasurer of the McAllister Company on October 1.

One of the interesting exhibits at the show of the Cleveland Architectural Club, held during the month, was that of Miss Anna Oviatt and Miss Alice Andrus. Their exhibit consisted of fine tiles representing complete landscapes in panels or frieze. The largest panel showed a group of trees overhanging a woodland stream with a view of the distant hills beyond. A number of small tiles of artistic proportions were also shown. The two young women have their kilns and studio on Shaker Heights, near the fields and woods from which they secure ideas for decoration. They graduated from the pottery of Charles Volkman, who is known as the "Father of American Pottery."

BUCKEYE.

last change was made during the first part of this year, at which time the factory building proper was torn down and an entirely new structure erected on its site. The present building is 300x250, four stories in height and built of glazed and unglazed hollow blocks, making it fireproof and unusually attractive. The present plant, with the exception of the kilns, is an entirely new one. Their present output exceeds the old nearly four to one.

In the manufacture of their ware the company uses raw materials mined a mile distant from the plant proper. A high quality of fire clay, surface clay and Brazil block coal is found on the company's clay lands, which comprise eighty acres. The fire clay appears in veins from 3 to 15 feet in thickness, superimposed by a vein of coal from 6 to 12 inches in thickness. The clay, shale and coal are all mined by contract, the company thus being freed from any worries on the mining question. Each car of clay shale or coal is weighed at the plant and proper credit given. The contracting company hires its own men, pays all the bills for the purchase of powder and supplies, the housing of the mules, and the expenses incurred for keeping up track, cars, etc. The company finds this a very convenient method;

there is never a shortage of clay, so that the work goes on without delay save for breakdowns in the plant, which seldom occur.

The loaded cars are hauled to the plant by mules. The purchase of a gasoline motorcar to be used in the hauling is now under consideration. At the plant proper the cars are hitched to a cable and taken up an incline to a point on the second floor above the storage bins, where they are run onto a tippie and dumped. At times the shale is dumped into chutes leading to the pans. The cars filled with coal required for steaming purposes are dumped directly in front of the battery of boilers. There are three boilers, two 150 h. p., the other 100 h. p.

From the two 9-foot pans, which are of the Bonnot make, the ground material is conveyed by cup elevators to the fifth floor, where it is dropped onto gravity screens of the company's own construction. From the screens the screened clay descends by gravity to the prepared clay storage bins. From here it is taken as needed to the two 12-foot Bonnot Company (Canton, Ohio) pug mills, situated on the second and fourth floors, the cup elevators here again proving most indispensable. After being thoroughly mixed and tempered, the clay is delivered to the machines or presses on the first and second floors. From the presses and machines the green



Where the Raw Material Is Mined.

ware is placed on trucks and taken on power elevators and delivered to the drying floor.

The machine and press equipment consists of one No. 2 Giant stiff mud machine made by the American Clay Machinery Company, Bucyrus, Ohio, one No. 5 Hoosier stiff mud machine made by Madden & Co., Rushville, Ind., one 40x52 improved one-rod sewer pipe press, a 16x24 clay conveyer made by the Stevenson Company, Wellsville, Ohio, and a machine for making stone pumps of the company's own make. There are in all five elevators which are used in transferring the green and dried ware, namely, three gravity elevators, made by the Crawford McCrinman Co., Brazil, Ind., and two Parkhurst power elevators.

The power for running this machinery is furnished by means of a 150 h. p. engine. The plant is equipped with electric lights, there being installed a 13 h. p. Chandler & Taylor engine which runs the dynamo.

There are in all sixteen dryer floors, four on each floor. The aggregate drying floor space is over 45,000 square feet. The dried ware is taken from the dryers to the first floor on gravity elevators and conveyed to the kilns. The ware is burned in ten kilns, six of which are 26 feet in diameter, two 28 feet and two 30 feet. All are round down-draft kilns,

iron banded. Depressed loading tracks extend past the kilns, offering splendid loading facilities. Brick runways connect the kilns with the stockyard.

The factory building is an imposing and attractive structure, constructed entirely of hollow building blocks of the company's own manufacture, and is an object lesson of the adaptability of this material for durability, fireproof construction work.

The officers of the company are John F. Brown, president and treasurer; Thomas H. McCrea, vice-president, and James S. Hayward, secretary and superintendent.

The company carries in stock a large line of their different products, so that they are in a position at all times to give their patrons the best of service in the way of prompt shipment of orders. Their products have gained an established reputation for being the standard of quality.

THE POTTERY INDUSTRY.

According to the report of Jefferson Middleton, of the United States Geological Survey, our potteries turned out during 1908 a product valued at \$25,135,555. This was a decrease of over \$5,000,000, and was the lowest value reported since 1902. It does not mean, however, that our pottery indus-



Cars of Clay on Way to Storage Bins.

try has been losing out to Germany and other old countries. It is simply a reflection of the dull times which reduced the consumption of these products. Indeed, there was a gain rather than a loss of value as compared to the import trade. for the home-made wares represents 72.54 per cent. of the entire consumption of the country, which is the highest proportion that has been reached since 1902.

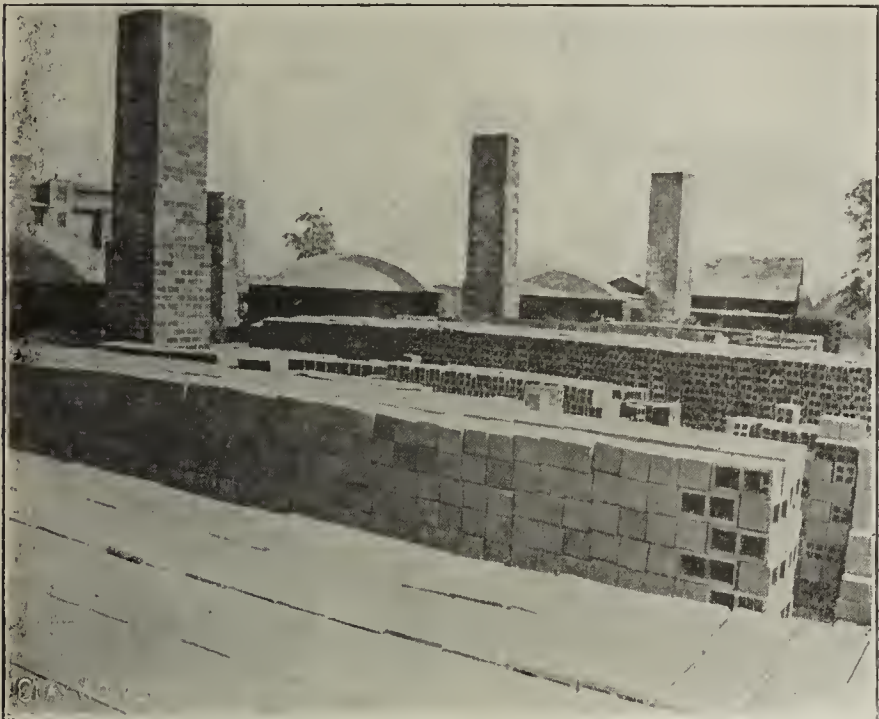
Under the head of "pottery" in this report is embraced not only dishes, but all kinds of ware turned on a wheel, including flowerpots, stoneware, yellow and Rockingham ware, and sanitary ware, bathtubs and porcelain and electrical hardware supplies. Some of these latter items are assuming more importance right along, especially the bathroom and the sanitary wares, and the electrical and hardware supplies. The bathroom is becoming a more important part of every home, growing in numbers wonderfully, and the electrical business is spreading such a network around us that it hardly needs comment to the effect that it is demanding a larger and larger bulk of supplies every year. There were thirty-seven states reporting hardware supplies, Ohio being in the lead with \$10,706,787 worth, or 42.6 per cent. of the total production in this class of material. New Jersey was in second place on these products, and West Virginia third.

Flowerpots, which make up the commonest grade of pot-

tery, were reported from thirty states. The total value was \$757,900, which doesn't sound very big as compared to the total value of all pottery for the year, but when we take into consideration the extremely low value of the flowerpot, it makes the thing assume great magnitude in the point of quantity. It would, indeed, be an imposing sight to see over three-quarters of a million dollars' worth of flowerpots put in one pile. It would make such a pile as delights the heart of the Statistical Sam sort of people. These flowerpots were made in thirty states, with Massachusetts leading.

The product that showed the greatest decrease during the year was the line of general whiteware, comprising table and toilet wares, including cream-colored ware and white granite, etc. This is the ware used by the general mass of people, and as they were the ones that let up mostly in buying the decrease in consumption piled up to large figures. The higher grade chinaware, including brown china and delft and belleek ware, showed quite a decrease, but as this is a minor item in total values, it was not so keenly felt by the trade at large. Only sixteen potteries made this class of ware, whereas there were sixty-eight making the general line of whiteware.

While pottery is made in the majority of states, there are two leading centers that produce the majority of the



Stock Piles of Excellent Hollow Block.

product, one in Trenton, N. J., and the other at East Liverpool, Ohio. The Trenton district produced last year pottery to the value of \$5,649,472, and the East Liverpool, Ohio, district \$4,050,384. The total of these two centers made up 38.59 per cent. of the countries' pottery for the year. Trenton reported nearly a fourth, 22.48 per cent.

The imported pottery during the same period decreased 22.54 per cent., and practically all of the loss in imports was in whiteware, the same class of goods that the domestic trade had the heaviest loss in. Something of this same matter was treated recently in these columns in connection with the pottery industry in Germany being in a depressed state because of the falling off of trade with America. It would seem, therefore, that the matter of competition with imported ware is not altogether one of price, but quite extensively a matter of choice on the part of purchasers. Were it not so, and the prices alone ruled with the importers able to furnish the best prices, the home trade would logically have done practically all of the suffering.

As some slight offset to the imported ware that comes in here in competition with domestic products, we are building up gradually an export trade of our own. The total exports for the year were \$983,760. Of this total the greater portion

was earthenware and stoneware, and less than 10 per cent. of it was high-grade ware. Some day we should build up a larger export trade on our high-grade ware as well as continue extending the business in stoneware, because when it comes to high-grade articles, some of our American manufacturers are prepared to offer an excellent line that should take well anywhere.

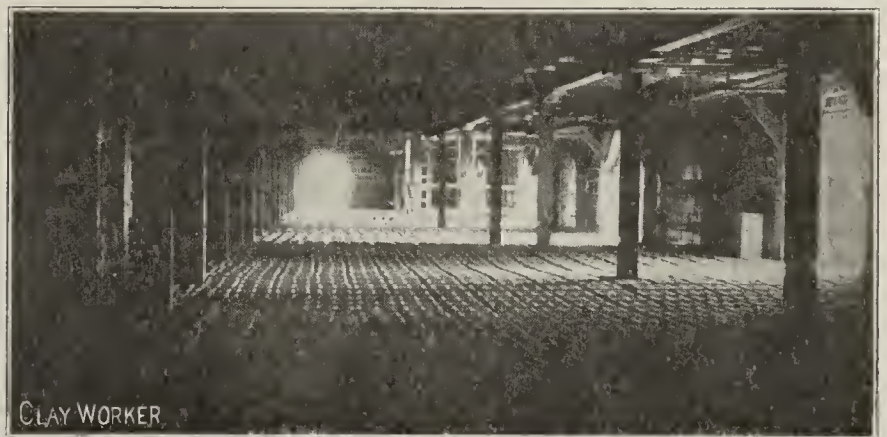
Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



A NEW RECORD for building in Chicago is not set by the year 1909, at least the record will come mighty near going to smash, and if all the sales of brick, terra cotta, fireproofing and roofing tile could be compiled, it is almost a safe bet that the record would be broken in that respect, anyway, for while concrete construction is making gains, the terra cotta products are going ahead by great leaps and bounds, and are more than holding their own.

The autumn continues to be one of great activity, the fine run of weather in September witnessing the starting of much new work. At the same time the fact that the tariff question is out the way, regardless of the kickers, has produced a confidence in a solid and lasting period of prosperity to come, which is encouraging investors and speculators alike to bring out their plans for early work next spring.



One of the Dryer Floors.

With one flat building estimated to cost a half a million and with another contemplated for the South Side to cost \$250,000, and with apartment buildings great and small going up everywhere, it is possible that the record of \$34,000,000 spent in flat buildings last year may be exceeded, and if it is, or even approached, all building records will go by the board.

Already another new skyscraper is projected—another twenty-two-story affair—to stand at the southwest corner of Dearborn and Harrison streets. The site, with 300 feet of frontage in Dearborn street and running back to Federal street, is owned or held under long-term lease by C. C. Heisen, it is said, and plans for the new office building are said to be well under way.

In addition, a hotel and theater building is being talked of for Clark street, between Washington and Madison streets, on the east side of Clark, which will be a marked addition to the street and enhance values considerably. The Chicago Sinai congregation, occupying the synagogue at Indiana avenue and Twenty-first street, in which the Rev. Emil G. Hirsch preaches, is to build a new temple at the southwest corner of Grand boulevard and Forty-sixth street, at a cost of \$350,000, and a building for social center work in connection therewith, which will cost in the neighborhood of \$100,000. Title to the property has already been secured.

Plans for the east section of the new Quarry street plant of the Commonwealth Edison Company have been completed

by Shepley, Rutan & Coolidge, the architects, and estimates for the work and materials are now being taken. The new building will cost about \$400,000, and will cover an area of approximately 200x220 feet. A feature of these plants is the interior finish, which in plants constructed thus far has been in white enamel brick or terra cotta.

The S. S. Kimbell Company has secured the brick contract for the mother house to be erected by the Lithuanian Sisters of St. Casimir, on a tract of five acres bounded by Sixty-seventh and Sixty-eighth streets and Rockwell street and Tallman avenue. Purington Continentals to the number of about 60,000 will be used, and laid in Flemish bond with purple stretchers and black headers. The cost of the home will be about \$120,000.

A building which is expected to add much to the attractiveness of the Lake Shore drive is the new home for the University School for Girls. It will occupy the center of the block between Elm and Cedar streets. There has been a little delay in progress with the Colonial type structure, but it is understood that it is to go ahead somewhat rapidly now, and it also is understood that the exterior finish is to be chiefly of the McArthur mission brick.

In material circles the McLaughlin Building Material Company has been cutting considerable figure recently in the way of getting its full share of goodly plums. From the Noel Construction Company it has secured the job of furnishing the white enamel brick for the court work on the new city hall. The new city hall and the county building are designed as twin structures, and the court walls are to match. It is estimated that 400,000 of these brick will be used on this job. In addition, this same company is to furnish 300,000 pearl gray brick for the courts of the new Sherman house, which is to be erected at the northwest corner of Clark and Randolph streets, on the site of the old hostelry, and, moreover, has the large job of furnishing brick for the Joseph E. Gary school, at Lawndale avenue and West Thirtieth streets, calling for 200,000 rustic buffs, 100,000 grays, and 50,000 special blocks. This company will furnish Saginaw pavers for the Wells-Fargo Express building, at Polk street and Fifth avenue. This will be a three-story building, but it is planned to erect a nine-story building beside it before long. The McLaughlin Company has the contract for furnishing 125,000 Webster (Ohio) brick for the Queen of the Angels Roman Catholic Church, at Western and Sunnyside avenues, and Blackford pressed brick for the new church which St. Angelin's parish is to erect at Sixty-first street and Michigan avenue. They also are credited with an important part in boosting brick as an invaluable paving material, and with swinging the contract, together with the Union Paving Company, for the largest piece of brick paving ever done in Chicago at one time, that along State street, between Thirtieth and Sixty-third streets. This contract was divided in three parts—the Purington paving blocks, the Athens, Ohio, pavers, and the Carlyle pavers, each being used for a third of the work. The number of brick used will be about 3,500,000.

Little surprise is felt at the activity and advance of the young material company by those who stop to recollect that John J. McLaughlin, one of the minority leaders in the Illinois House of Representatives, and former Representative Benjamin M. Mitchell, are now devoting the force and personality which has made them successful in politics to the sterner business of selling bricks. In fact, Mr. Benjamin Mitchell has announced his retirement from politics, and the brick world is vibrant with the energy which formerly made the wheels turn in the Twenty-first senatorial district. Joseph Mitchell, a brother of the solon, is general manager of the company, and possesses no less energy and sagacity in directing its affairs than does his brother in bringing in the business.

C. F. Wiehe, president of the Builders' Exchange here in

Chicago, went abroad this summer and innocently and inadvertently got into a bit of trouble the latter part of last month. September 26, according to dispatches, he and his family arrived in Berlin, having come from Wiesbaden in a rented automobile driven by a German chauffeur. Passing out from the Brandenburg, Thor, the chauffeur waxed careless and struck a cyclist, knocking him down, with the result that the cyclist was severely injured and his machine demolished. It was a season of much excitement for Mr. Wiehe.

Half a dozen of the Kaiser's bluecoats rushed to the scene and placed the party under temporary arrest. Mr. Wiehe, however, insisted on being permitted to go to his hotel. There the chauffeur was arrested again and taken to the police station to await a full investigation of the accident. Later in the evening Mr. Wiehe, accompanied by the manager of the hotel, went to the station and explained the circumstances, whereupon he was assured that he would be given no further trouble. The chauffeur was told that his fate was yet to be decided. It was a fortunate thing for Mr. Wiehe that he did not own the machine. Otherwise, he might have been held responsible for the act of the driver, and suffered even more delay and embarrassment.

More fortunate were a party of Chicago gentlemen well known in building circles who took an automobile outing the last week in September. The members of the Builders' Club, as the guests of L. D. Binyon, president of the club, were invited to take their cars, or their friends' cars, or any other cars that they could lay hold of, or that the genial president could lay hold of for them, and journey with him to his old home at Cedar Lake. Unfortunately, the weather had been bad for a few days before the run was scheduled, and many of the club members who would have gone otherwise feared bad roads and remained at home, and instead of a procession of thirty-five cars, such as made the trip last year, there were only six machines bearing the Builders' Club flag this year. Those who did make the run, however, bore testimony that it was very well worth the while, and that "a bully time was had."

Of considerable interest to men interested in the construction of tall structures in the central district of the city, is the decision of the United States Appellate Court last week, adverse to John M. Ewen, regarding a patent obtained by him in June, 1903, for a deep sub-basement construction. This is a process patent, and is said practically to cover the methods employed in the construction of the Tribune building, which was completed September 1, 1901. Mr. Ewen began suit against the owners of the Boston Store building, John Griffith, contractor, and Holabird & Roche, architects, in connection with the building of the structure, for the infringement of his patent. The suit lasted several years, and the defendants obtained a favorable decision from Judge Sanborne in the Federal Circuit Court about nine months ago. An appeal was taken and the higher court, to the joy of the defendants and other builders, has now affirmed the decision of the lower tribunal.

The S. S. Kimbell Company report a general demand for the Purington Continentals, which have been specified for the Finley Barrell residence in Lake Forest, of which Howard Shaw is the architect, the Chicago & Northwestern Railway station at Blair, Neb., for the new high school building at Elgin, designed by Postle & Mahler, and for a school building in Berwyn, of which G. W. Ashby is the architect.

Careful study of the building figures compiled by the Construction News indicates that Chicago is indeed on the crest of a great tidal wave of building activity. True, only seven more permits were taken out in Chicago during September, 1909, than were taken out during September, 1908, but the estimated cost stood \$7,720,500 for September, 1909, as against \$5,147,350 for September of last year, and moreover Chicago outranks New York, including Manhattan and the Bronx, but not including Brooklyn, and also outranks Brook-

lyn in cost, but not in number of permits. Gains are noted in all cities of size, and a general feeling of confidence and wave of prosperity seems to be sweeping the land from ocean to ocean. San Francisco alone shows a great falling off, but the other Pacific Coast cities show big gains.

SCRIP.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKMAKERS.



HAVING been asked a number of times recently in regard to the tall building under process of erection at the plant of the Conkling-Armstrong Terra Cotta Co., I decided to investigate, and on arrival at the plant, found the so-called tall building was a temporary model of a portion of the new Curtis Publishing Company's building, for which the Conkling-Armstrong people are furnishing the ornamental terra cotta. In the accompanying photograph may be seen a portion of the

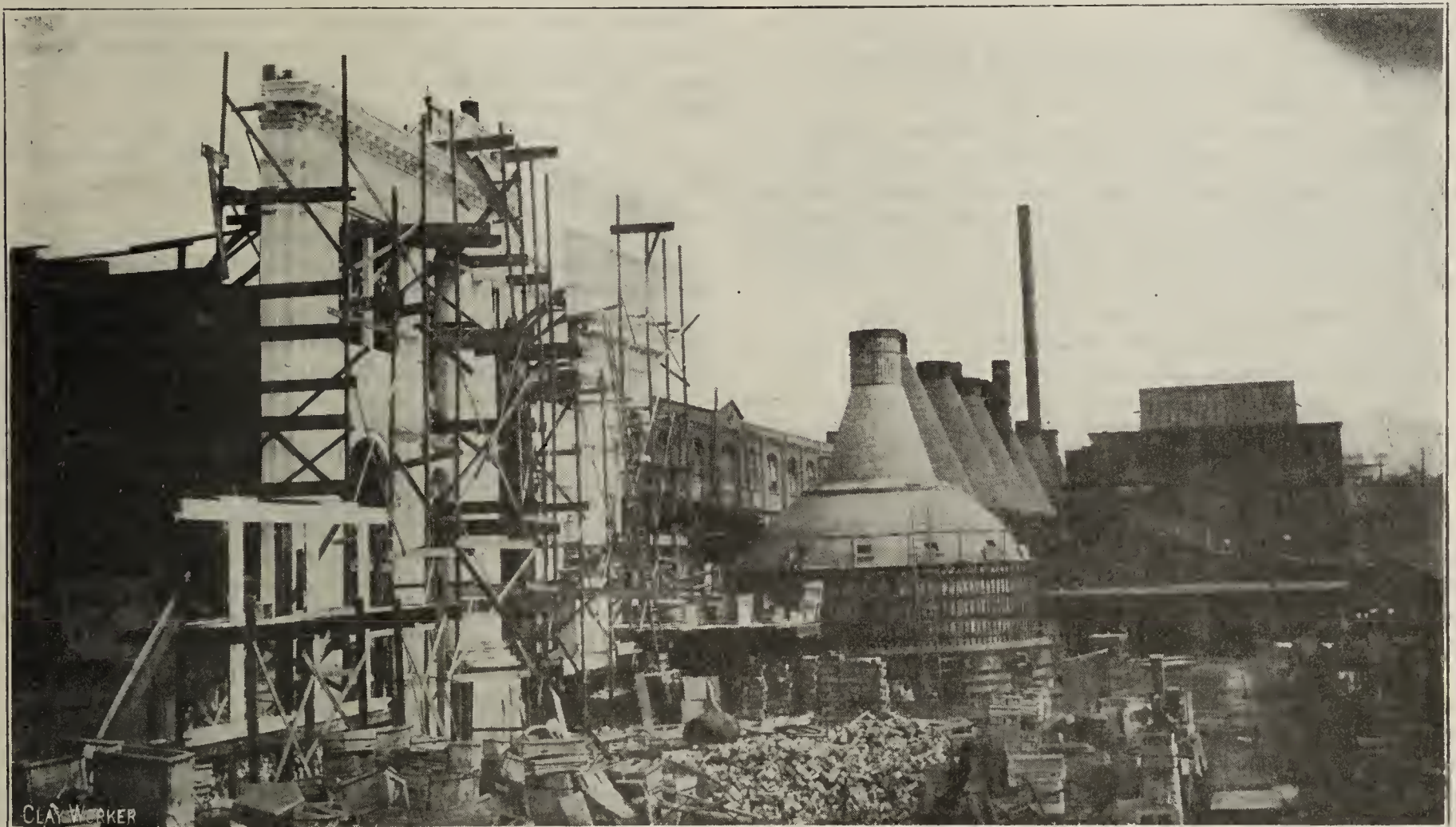
her full share, while Washington is obliged to lay over some contracts. Among recent orders booked by Chambers Brothers Company is a paving brick machine for the Barber Asphalt Company, Des Moines, Iowa, a complete plant of 100,000 daily capacity for Gamble & Stockton, Jacksonville, Fla., and additional machinery for the Standard Brick Company, Augusta, Ga. As the plant of the Rome Brick Company, Rome, Ga., which was burned recently, was equipped with Chambers machinery, they anticipate a "repeat" order from that firm. Mr. Howard Chambers, is one of Nature's optimists, and I have always noticed that optimists make good in all their undertakings.

T. B. McAvoy & Sons are very busy at present, and as soon as the Quaker City gets a little more money for the purpose of street improvements, expect some large paving contracts.

M. E. LOCKINGTON.

THE BRITISH POTTERY INDUSTRY.

Probably on the ground that misery in any form loves company, the domestic manufacturers of the pottery products



View of a Portion of the Conkling-Armstrong Terra Cotta Plant, Philadelphia, Pa.

plant, showing some of the kilns, and at the left are the models for the Curtis building, which, by the way, will be one of Philadelphia's finest and largest buildings, occupying an entire block.

The Conkling-Armstrong Co. is very busy, having contracts on hand sufficient to keep the plant running the balance of the season, with good prospects for next year. Among the many contracts are the following: Curtis Publishing Company building, Morris building, Union League building, Philadelphia, Pa.; Masonic Temple, Butler, Pa.; church at Hagerstown, Md.; city hall, Londonville, Ohio; hospital, Glens Falls, N. Y.; United Illuminating Company building, New Haven, Conn., and the union station at Worcester, Mass. Of these contracts, the Morris building, Philadelphia, and the Worcester station are the largest.

Chambers Brothers Company, manufacturers of brickmaking machinery, report business good, and prospects better. Their representatives find brick manufacturers busy wherever they go. Coming near home, they say Baltimore is getting

many find consolation in the fact that they are not the only ones that suffered last year. One of our recent consular reports from England tells of a review of the trade by one of the large clayworking concerns there making brick, pipings, bath and other sanitary supplies, from which review it was learned that during recent years there has been a gradual decline of the company's business. During the last twelve months, for example, business decreased \$973,300, as compared to their most prosperous year. Working expenses during the same period had been reduced some, but not in keeping with the loss of trade. The only branch, it is said, which showed satisfactory results was in furnace linings and similar fireproofing articles for the iron and steel trade. It seems, too, that their export trade has held up better than their domestic trade and the colonial markets. In other words, they have had as much depression in building trades, and it has been felt as strongly in the clayworking industries there as here. The general estimate is that no more than 50 per cent. of the clayworking industry of the country over there is employed at the present time.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Clay-Worker in the Lead.

FRIEND RANDALL:

Congratulations on your CLAY-WORKER. I enjoy it very much, although for ten years I have been out of the mud business, having sold my yards to the Trust Baltimore Brick Company. Of all the books that I read, THE CLAY-WORKER gives me the most pleasure.

Baltimore, Md.

Respectfully,

F. X. DONNELLY.

Nebraska Brickmakers Busy and Prosperous.

FRIEND RANDALL:

Enclosed please find draft for six dollars (\$6.00), for which please give us credit on CLAY-WORKER. Have neglected remitting through inadvertance. We are making brick yet, and will for two months. Have had a good season, and outlook good for next year. We have 750,000 to deliver yet, and that will complete our orders to date.

Kind regards to yourself and CLAY-WORKER firm.

Yours respectfully,

Kearney, Neb.

(Signed) RICHARD HIBBERD.

Insufficient Postage a Trial to Foreigners.

Editor THE CLAY-WORKER:

There is never a mail from your country that does not bring us a number of circulars and catalogues from manufacturers in various parts of America. Some of these are useful to us, and are much appreciated by us, but the greater number refer to matters that we are neither directly or indirectly interested in.

We have no objection to receiving such literature if sufficient postage were paid on it, but on the arrival of every mail we get a ticket from our postoffice advising us that there is "short postage" matter waiting for us, and sometimes we have to pay as much as a dollar by one mail for matter that we are not interested in.

The custom seems to be to stick on a 2-cent stamp, regardless of weight or bulk, and whatever short postage there is, we have to pay double the amount.

We are sure the attention of your advertisers has only to be drawn to this matter to have it rectified.

Thanking you in anticipation, we are, dear sirs,

Yours very truly,

THE CHRISTCHURCH BRICK CO., LTD.,

T. N. HORSLEY, Manager.

Christchurch, New Zealand.

Fire Destroys Eisenhart Plant at Horseheads.

DEAR RANDALL:

Sunday night at 11 o'clock fire started at a point between the kilns and the boiler house; no fire anywhere in that part of the works. I have no reason to think that it was fired purposely, but may have been done by intruders who are numerous at this season of the year, seeking shelter where it is warm enough to pass the night. While the night men on duty saw no one around, it is an easy matter for stragglers to get in and out without being noticed. Fifteen minutes after the fire was discovered the entire buildings

were a mass of flames. We have a splendid fire department, and notwithstanding that five streams were playing on the fire it was of no help. I have \$25,000 insurance and my loss will be fully that much.

I can not say at this time just what I will do. If I continue in the business, I shall certainly put up a modern plant, if not here, elsewhere. I suggest that you make the announcement that if any of my brickmaker friends are anxious for me to build in close proximity to their works, kindly request them to send in their application for my consideration.

You may further state that the fire was hot enough to destroy my works, but at no time was the temperature high enough to burn up my grit and energy.

Yours very truly,

Horseheads, N. Y.

R. G. EISENHART.

A New Paving Brick Plant at Albion, Ill.

Editor THE CLAY-WORKER:

We have purchased forty acres of the finest shale lands at this place, along side the Southern Railway tracks and opposite the depot. We have constructed a very large reservoir that will afford an abundant supply of pure water for a large plant. We have also graded our grounds for our plant, but shall not likely undertake active building operations before spring.

An ample sample of our shale is being tested at Canton, Ohio, Bessemer, Pa., and Jamestown, N. Y. The result of the tests will probably determine the kind of kiln to be used.

The preliminary capital stock will be \$20,000, to be increased immediately to \$150,000 or \$175,000. A plant will be constructed and equipped at the beginning for an output of not less than 60,000 blocks a day, and it is the desire to install every possible labor and fuel-saving device, to the end that there may be economy in both labor and fuel.

The Albion Vitriified Brick Company, also located here, has had a successful season's run. Within the last few weeks contracts have been closed by this company for paving blocks to be supplied for immediate shipment as follows: Lawrenceville, Ill., 1,500,000; Chicago, 800,000; Memphis, Tenn., 1,000,000, and Mt. Carmel, Ill., 200,000. Superintendent Carlyle reports an offer for next year's entire output at good figures.

Respectfully,

Albion, Ill.

WALTER COLYER.

Good Roads for Jersey.

Editor THE CLAY-WORKER:

State Road Commissioner Gilkyson, of New Jersey, is advertising for bids for the improvement of roads with state money. A good many thousand dollars have been expended upon New Jersey's state roads and a good many thousand dollars will be spent in the future, but they have not yet solved the problem of what they shall use for construction. The present macadam is insufficient. It can not stand the wear and tear of the heavy automobiles and autotrucks. They cut the roads all to pieces. And the state department is figuring upon other materials. But what? That question has not been satisfactorily settled, nor is it likely to be until some genius introduces a new method of construction as radical as some of those which have obtained in the past. It would seem as though brick might be utilized for these roads where the grinding of heavy automobiles speedily wears out macadam or Telford. If the brick proposition could be presented with sufficient force to attract attention, it might be accepted as an experiment, at least. But there is apparently no one to urge the attempt, and probably some other material will be used. That brick could be successfully used seems sure, though the objection urged is that in wet weather automobile wheels skid on brick quite as badly as they do on asphalt. This objection might be overcome. If it can be it is for brick men to rise and declare as vehemently as possible that brick need not be slippery, and that it can be safely used for the construction of roads over which automobiles will be driven at high speed.

NEW JERSEYITE.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

BUSINESS ALONG the Hackensack has not changed materially during the month since last reports. Most of the plants have continued in operation and at this writing are still making brick, though the quantity now being burned is small. The manufacturers, so far as can be learned, have had a good year, and are now in a position to say that prosperity has been theirs. Taking the season as a whole, it has been fully as satisfactory as any during the past few years. Perhaps it is too much to say that it is the best season for a decade, but there is little question about it being the best for three or five years. The building conditions have been so much better in New York and the large towns surrounding, that the sale of brick has steadily increased, until there has been little complaint among the makers in this vicinity. It is pointed out that a considerable proportion of the brick is under contract which will remain when the season ends, thus allowing most manufacturers to virtually clear up their holdings before the time for new brick comes next year. It is no longer a question of obtaining orders. On the contrary, it is a matter which often requires some searching to find the stock to fill them. It is, therefore, a gratifying condition which confronts makers and dealers at the close of the season. The market is good and it has been good enough to keep everything cleaned up through the summer.

The Foxhall Brick Company, located at Passaic, lost its plant by fire early in October. The loss was estimated at fully \$60,000. The plant was insured and will be rebuilt. The plant had not been in operation for a few days previous to the fire. Workmen were engaged in overhauling the machinery, and no one but the day watchman was on duty at the time the fire broke out. It was discovered near the boiler house, and the alarm was quickly given, but the flames spread so rapidly that before any material assistance could be given the whole plant was doomed. It was a sand-lime plant, and had a big business all the season. Some good orders are on its books to be filled now.

In the Perth Amboy district the manufacturers are getting ready to prepare for winter, and will not put up any more for burning this fall unless the weather proves to be unusually good through October. The sale of brick of all grades has been heavy all summer and in some instances the supplies which were relied upon to satisfy customers for the next few weeks, or until the close of the season, have been cleaned out, and scarcely anything is left for the opening of business in the spring. Other makers have a more liberal supply, and are in a position to furnish a fair quantity to those who may need them.

Peter Merhoff, aged seventy-six years, the oldest brick manufacturer along the Hackensack, died late in September. He came to this country fifty-six years ago, and has been making brick at Little Ferry for considerably more than half that time. He has always been successful and built up not only a profitable business, but amassed a considerable fortune in addition. He leaves sons and relatives, who are carrying on the business the same as has been done for a number of years.

The building records for September all over New Jersey, but particularly near New York, were exceptionally large. Perhaps they were the largest for a number of years. At least, they were the largest for the past two or three years. One operation relating to dwelling houses in the southern portion of Newark aggregated \$200,000. Further, there was an increase in tenement construction and a development in factory building which promises well for the future. Some of these permits will not be used until next season, but the fact that they are asked for now indicates something of what is in store for builders during the coming season. The building future of New Jersey, or that portion of it adjoining New York, is so brilliant and the possibilities are so much improved that the average builder sees only prosperity for the next year or two.

The Erie Railroad Company has officially announced that its new four-track cut will be ready for the operation of passenger trains not later than February, 1, 1910, and this

will greatly enhance the value of building property, and will increase the building operations along the Erie lines and their branches. New Jersey has more favorable sites for homes than almost any other state in the Union, and its proximity at both ends to a large city is sufficient to guarantee it a certain growth for the next few years.

There are \$500,000 worth of school buildings in process of erection in Bergen county, and almost that amount more projected. On October 20, Hackensack voted upon the proposition to bond the town for the erection of a high school to cost \$285,000. This is to be of light brick and terra cotta, with all that goes to make a modern high school in these times.

Not much more work will be done in the brickyards along the Hackensack this fall. The season is about over and some of them are shutting down. Before this is in type others will be virtually closed, with only the cleaning up process to be considered in its relation to the closing season.

A. L. B.

ARGUING FOR CONCRETE.

At the recent convention of tile manufacturers in Boston, J. H. G. Perry argued long in favor of reinforced concrete construction for textile mills. While he said nothing specifically against brick or any other form of construction, he undertook to emphasize what he was pleased to call the advantages of reinforced concrete, and it must be admitted that he made out as good a case as anyone could for a material which is questionable in its results. It may be that his statements are not entitled to serious consideration, when looked at in one way, but the fact remains that they were plausible, and will have weight among textile manufacturers who actually build mills.

He advocates the use of reinforced concrete because it is cheap and because the work of construction can be done for less money than by any other process, forgetting that in cheap materials and labor lurk a danger which has been paid for dearly at times. Cheapness is not the only consideration, and the manufacturer who expects to succeed by using cheap materials and employing cheap labor will ultimately be forcibly and expensively reminded of his mistake, either in a total collapse of the building or in costly repairs extending over a long series of years. The truth is that repairs to a concrete building are liable to cost more than the original construction, hence it is more or less problematical what will happen when once the building is up.

He talks glibly about vibration and declares that a reinforced concrete building vibrates less than one built of other material. This statement can scarcely be admitted without knowing all the facts in each particular case. If any building goes to bed rock in its foundations, the vibration will be less than one the foundations of which do not go so deep, and, in some instances, perhaps, rest on a porous or springy soil. Without knowing all the circumstances in individual cases, it is impossible to say what will occur. Nearly all buildings, no matter what structural material is used, will vibrate when machinery having reciprocal motion is in operation. Often buildings that are founded on bed rock will vibrate under such influences. It may be that textile mills, with their scores of looms operating reciprocally, will vibrate worse than some other shops or mills which contain machinery that does not operate reciprocally. Consequently, Mr. Perry's argument concerning vibration is weak. Without all the facts it is impossible to say whether a concrete mill is more stable than one built of brick or stone.

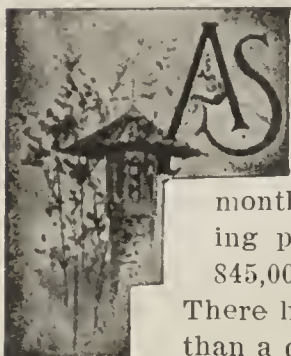
The plain facts are sufficient for the advocate of brick construction and the conditions which surround a building, no matter what its type, must be known in detail before it is safe to make a categorical assertion regarding vibration. It becomes, then, of importance to examine the question in all its relations before making a statement, and certainly reinforced concrete is not yet sufficiently established to determine without careful experiment and comparison the amount of vibration, and how it ranks with the vibration in buildings built of other materials. This can not be categorically stated—it must be worked out with attention and care.

Brick, for, example, has been tested by long years of con-

stant use under the most exacting conditions. There is no question about how a brick building will behave under any condition that may arise. It is a fact that brick have never failed when used in textile mill construction. It is questionable what may result from the employment of reinforced concrete for this purpose. Good talkers, like Mr. Perry, may make an impression, but if textile mill owners are wise and if they want to be certain that the factories they erect will stand, they should specify the materials which have been tested under every possible condition and have never failed.

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



SHOWN BY the building permits issued in San Francisco the past month, there has been something of a falling off in the amount of new work started as compared with the month preceding. The total value of the building permits issued during September was \$1,845,000, as compared with \$2,186,000 for August.

There has, however, been an improvement rather than a drop in the material lines, due, apparently, to the good progress being made on work already under way. The brick men report about a normal demand, with the situation in general not differing greatly from that of a month ago. It is expected that the movement to do away with the temporary wooden buildings that were erected shortly after the great fire will have a material influence on the brick trade, as the ground occupied by these unauthorized wooden buildings is far too valuable from a rental point of view to be permitted to lie idle after the temporary buildings are removed. The Board of Public Works has notified all owners of such buildings that the latter must be removed prior to May 10th, 1910, or have them removed by the board at the owners' expense. These buildings were erected within the fire limits without authority, but with the tacit understanding that they would be allowed to remain at least two years, something of the sort being an actual necessity at the time.

The report of the advisory committee appointed a year ago to suggest amendments to the building law of the city has made its report, and it is generally believed that it will be incorporated into the law very shortly. The present law is maintained to a very large extent, though a number of important amendments have been suggested, all of these changes being in line with a greater preference for brick and other forms of fireproof and semi-fireproof construction. All frame buildings are limited to a height of 40 feet, as compared with 45 feet in the present law. The regulations of the quality of concrete are also made more stringent.

The Pressed Brick and Supply Company, with works at Vallejo, Cal., has received a number of large orders during the last few weeks. One order from Oakland, Cal., calls for 250,000 vitrified face brick, and another order for 27,000 brick for San Francisco has just been filled.

Gladding, McBean & Co., of San Francisco, report that their plant at Lincoln, Cal., is now almost at its highest point in the way of production. At present the force employed is within four of the largest number ever on the company's books. A considerable number of expert artisans have been brought out from Perth Amboy, N. J., and given positions in the structural terra cotta departments of the works at Lincoln. Ground has been broken for a new dry room for the terra cotta department. Just now the works are busy on a large order for polycrome work for the new Columbia theater building in San Francisco.

The Pyrmont Brick Company, of Lincoln, Cal., has completed a spur track to the company's bunkers, and is now making considerable shipments of clay. The company has

been having some trouble with its Italian employes, but it is believed that this has been satisfactorily settled.

The Hyfire Brick Company's works, at Vallejo, Cal., are now busy making both common and vitrified brick on orders for San Francisco buildings.

The Los Angeles (Cal.) Pressed Brick Company has completed the filling of an order for 500 carloads of brick for the Hollywood tunnels of the Los Angeles-Pacific Electric Railway, the brick being supplied from the company's plant at Santa Monica.

The Simons Brick Company, of Los Angeles, Cal., now has its proposed plant at El Centro, in the Imperial valley, well under way, and expects to begin operations before the end of the year. The new plant will turn out hollow blocks, brick, tile and pipe for irrigation.

The report of the California State Mining Bureau for the year 1908, which has just been published, gives the total output of clay and clay products for the year as 340,914 tons, with a total value of \$3,831,642. The clay producing counties were Alameda, Amador, Calaveras, Los Angeles, Placer, Riverside, Contra Costa, Fresno, Orange, Santa Cruz, San Joaquin, Solano and Ventura.

M. A. Metzner, formerly connected with the brick and clayworking interests at New Rochelle, N. Y., and Perth Amboy, N. J., has bought an interest in the Western Tile Works at Tropico, near Los Angeles, Cal., and has removed with his family to that place.

The Raton Cement Block and Brick Manufacturing Company, of Raton, N. M., has invested \$50,000 in its plant, which will be completed shortly after the first of next January. C. W. Raymond machinery has been installed. The plant includes four permanent down-draft kilns with a capacity of 200,000 each. The management reports that quite a lot of brick has already been sold.

The brick and paving men of some of the residence towns of southern California are having a hard time with the town authorities, and with some of the owners of high-class residence property. At Pasadena the protests against the plant of the Fairchild-Gilmore-Wilton Paving Co. were so effective that the company has been ordered to move its plant within six weeks. Similar protests against the plant of the Simons Brick Company, in the same city, have not yet been acted on.

The Las Vegas Brick Company, of Las Vegas, N. M., reports a fine season in common brick. Aside from the home consumption, the company has shipped out upwards of 100,000 brick, and now has 500,000 on hand to meet local and shipping needs for the next few months.

The Pacific Manufacturing and Supply Company, of San Pedro, Cal., is now turning out 30,000 brick daily, the greater part of the output being for shipment to San Francisco and other northern points.

The Pioneer Brick Company, of Visalia, Cal., Heberling & Toothacre, proprietors, has manufactured over 4,000,000 brick so far this season, and anticipates bringing the total to 5,000,000 before the end of the season. The company has enlarged its plant till it now has a capacity of 45,000 daily.

The Vallejo Brick and Tile Company, of San Francisco, has levied an assessment of 5 cents per share on the capital stock of the company. The assessment will become delinquent on November 1st.

The Los Angeles Porcelain and China Company has been incorporated at Los Angeles, Cal., with a capital stock of \$100,000 by J. Krisle, L. D. Brode, C. M. Jay, J. Kirkham and J. H. McKnight.

C. F. Hoffman, a real estate man of Nephi, Utah, has organized a company to put in a brick plant at Salt Creek Canyon, near Nephi, at a cost of \$40,000. The same company also plans a 300-ton plaster mill at a cost of \$30,000.

A number of the new buildings now in plan or already under way in this city are to use a large amount of ornamental brick and terra cotta, the vogue for metal finishing

having apparently dropped off. The new addition to the Children's Hospital, on which contracts have already been let for work aggregating \$185,000, will use tapestry brick exclusively on the exterior, the brick work being carried out in geometrical designs near the cornices. The trimmings will be in polycrome terra cotta, the color scheme effect being taken from the Della Robia potteries of Florence, Italy. The new Ella F. Young building, on Kearney street, near Sutter, will call for a large amount of white matt glazed terra cotta. Two shades of pressed brick will be used in the large brick stables now being erected by the Adams estate at a cost of over \$25,000. These stables will be the largest in the city.

San Francisco, October 5.

SUNSET.

Written for THE CLAY-WORKER.

HEARD IN NEW ENGLAND.

AROUND BOSTON the season is closing quite satisfactorily. Toward the last the building operations have declined somewhat, but this is a natural consequence of the approach of cold weather. Through New England it is impossible to work on buildings with any assurance of safety during cold weather, and operations gradually decline as fall approaches until they cease entirely. The records for the year will be interesting and will show a development of the building industry well worth remembering. These operations mark very plainly the return of prosperity throughout the region about Boston. And, of course, the indications for the coming season are largely along the same lines. Apparently the activity of the season just closing will become a marked feature of the season to come, thus maintaining the good work already begun. It might be that the coming year will be even better than the one just closed, a condition which will be accepted with pleasure and thanks by everyone connected with the building trade. That it has begun auspiciously seems certain, and that it will continue seems equally certain.

Through New England the same general observations apply. Building development has been on a liberal scale, the most liberal for years. It is possible that the future will not be as active as this season, but that it will be fairly active is probable. The development of local industries and the increased building operations in the smaller manufacturing cities are responsible for this development of the clayworking industry. The situation is quite as promising as it ever has been, and manufacturers will end the season with a promising future and the expectation of developing their business beyond the usual profitable proportions the coming year.

In the northern states making has ceased. The cold weather is almost upon them and the outlook is not quite as good there as it is further south. It might be, however, that business will develop faster in the spring than seems probable now. It all depends upon local business conditions, and no one has the prescience to make accurate predictions regarding these.

HIRAM.

THEY NEVER FADE.

A well-colored mortar joint will make an otherwise dull and flat-looking piece of masonry appear fresh and pleasing. Like the punctuation, which adds life to the written page, or the skilful modulation of the voice, which gives power to speech, so a good mortar color emphasizes the voice of architecture. But to accomplish this, a good mortar color is absolutely necesary—a mineral color of the best and highest quality. For the past twenty years the Ricketson Mineral Paint Works Company has made a special study of mortar colors, and during the time have supplied the middle west's largest building industries. The Ricketson's colors are han-

dled in all the large cities of the country. The colors are made from the Lake Superior Bessemer ores, the finest and richest on earth. All impurities are removed, making the coloring matter absolutely pure. On account of their absolute purity and chemical stability, Ricketson's colors are lasting—they never fade. Their mills are at Bay View, Wis., but their office address is Milwaukee, Wis.

THE AMERICAN'S NEW CLAY SCREEN.

The American Clay Machinery Company, of Bucyrus, Ohio, is constantly putting on the market some new, up-to-date machine or apparatus for the clayworking world, so it is not surprising to learn that they are manufacturing a new clay screen, one entirely different from the ordinary screens, and of such make and design that there is little doubt of its high qualities and usefulness in its department. It is a radi-



The American Centrifugal Clay Screen.

cal departure in clay screens. The motion is centrifugal instead of vibratory, thus lengthening the life of the machine and increasing the capacity.

A glance at the accompany illustration will show the reader the great difference between this and the ordinary gravity or shaking screens. The machine is made up of two hoppers, substantially mounted on a steel frame. The screen plate is circular with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft, which is connected to the driving shaft by a pair of bevel gears.

There is a complete description of this screen in their ad on page 435 of this issue. We advise all those interested in the problem of screening to read same carefully, and write the American Clay Machinery Company at Bucyrus, Ohio, for full particulars.

Written for THE CLAY-WORKER.

ABOUT THOSE REMINDERS.



RICK MANUFACTURERS, like many other business people with lots of customers, have quite a habit of once a year expending a certain amount of what might be termed the advertising fund for calendars and souvenirs of various kinds, calculated to act as reminders to the recipients of where to go when in need of certain products. Some confine their efforts almost entirely to the catalog class of reminders, but others' fancies turn to various things.

Incidentally, too, there will be lots of gaudy printing and good money wasted in this class of advertising which might be invested in something else. To get a good viewpoint from which to decide what you may get out yourself to your patrons, make a study of what you are receiving and the use you make of it, and the influence it has in shaping your trade with those from whom you buy. A part of it, of course, will be catalogues and if you are a close student of everything in your line you will carefully preserve and file these catalogues and be glad to see them as near uniform in size as possible, and to have them all bound like sensible books and not come in the form of folders and leaflets and posters and various other things that are difficult to keep for future reference. You will probably appreciate a calendar or two of sensible size and design to hang in your office, though, whether or not you will find it influences you in favor of the man sending it when you go to place orders is another question.

There is before the writer at the present time a letter from a valued correspondent on the subject of souvenirs and calendars, a part of which may be quoted here. The correspondent says he has found them of slight value from an advertising standpoint:

"Can you, for example," he says, "without looking, say whose calendar is the one on your desk? There are seven or eight on the walls of this office, but I would not undertake to name the donors of three of them. I have on my desk a pin cushion; it has an ad on it somewhere, but I don't remember whose it is. I have two pocketbooks in my pockets, both donated by some kind friends, with their ads attached. I don't know whose ad is on either. Had each of these advertisers, instead of giving me a calendar, pin cushion or pocket-book, sent me an announcement concerning his goods, I would have remembered it longer and he would probably have made sales."

Of course, there are two ways of looking at the matter. It may be that the manufacturer himself receives so many souvenirs of one kind and another by mail and from people attending conventions in midwinter season that he doesn't attach the same importance to them that his customer would. Some customers appreciate certain souvenirs, and there is no doubt but what some of them have influence in keeping a manufacturer or dealer before his customers. It is a matter of study and trying to get that which will do the most permanent good. It were better, probably, to concentrate on some one or two things that are worth while than to waste money indiscriminately on a lot of gaudy calendars of one kind and another.

One of the best ways to spend money, of course, is for literature put up in splendid shape that will help generate a desire to build or use building material in some form or other. If it is desired to add to this or branch out with a special souvenir of some kind, go into it right and give something that is worth while and will be appreciated by every member of the trade. It were better to write a nice letter the first of the year, a nicely-gotten up, sensible personal letter, than to send some cheap poster. And whatever you give, give in a hearty, whole-souled manner or not at

all. And, of course, what you will do after studying out all these things, if you haven't already made up your mind, is to make up your mind to suit yourself and give just what you feel inclined—and that is probably the best way, too.

ONE WAY TO HELP WORKMEN DO MORE WORK.

The ordinary shovel is such a common, everyday utensil that it may seem strange and unreasonable to declare that any one make of shovel is more efficient than another, but the accompanying illustrations prove pretty clearly that a given load can be handled more easily with the famous Mikkola patent shovel than with one of the ordinary sort. As may be seen at a glance, the Mikkola shovel lifts a load of $9\frac{1}{2}$ pounds with a strain of but $17\frac{3}{4}$ pounds on the forearm, as against a strain of $20\frac{1}{4}$ pounds on the forearm of a workman handling the same weight with an ordinary shovel. It will take but little calculation to prove to anyone who will give this fact even a passing thought that the



Seventeen and Three-fourths Pounds Weight on Forearm

Mikkola shovel is really a labor saver, hence it is a money-making investment for contractors or clayworkers who are handling clay or other materials by hand. The Mikkola shovel is manufactured by the Conneaut Shovel Company, Conneaut, Ohio, who will be pleased to send an illustrated circular setting forth in detail the facts and figures which demonstrate clearly the truth of the above assertions. They solicit correspondence.

A REFERENCE BOOK FOR CLAYWORKERS.

The second edition of the Van Nostrand Chemical Annual, by John C. Olsen, A. M., Ph. D., has just appeared, published by D. Van Ostrand Company, 23 Murray street and 27 Warren street, New York City. As an up-to-date handy reference book on chemical and physical data, it has no equal in the English language, and a copy should be on the desk of every busy man who is interested in any branch of manufacturing, or any chemical lines.

Copies can be obtained from T. A. Randall & Co. at \$2.50 per volume.

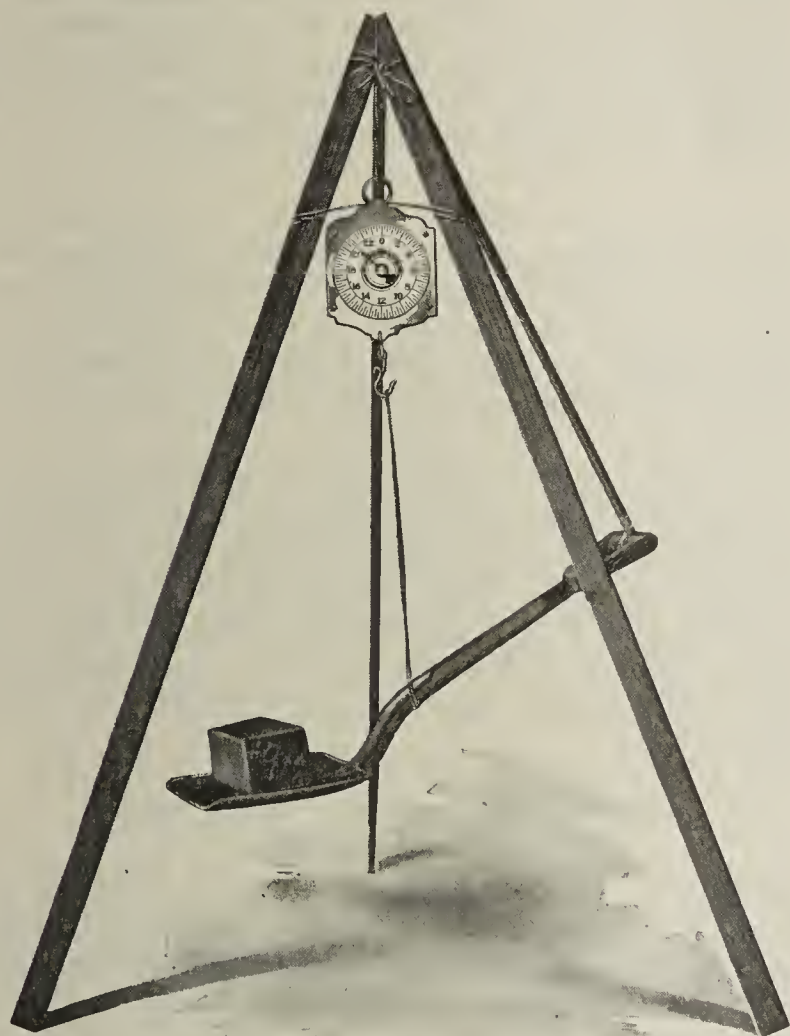
Written for THE CLAY-WORKER.

JERSEY CITY KERAMIC SOCIETY.

THE FIRST fall meeting of the Ceramic Society, of Jersey City, N. J., was held early in October. Members spent an hour or more talking over their vacation experience and the work they had planned or had done during the summer. All members seemed ready to take up again the work of the society, even more enthusiastically than before they stopped for the vacation period.

Miss Caroline Hoffman, of New York, was the speaker and critic for the evening, and her counsels were of the kind calculated to impress upon the workers the necessity for following art deals, and making their work as artistic as possible.

She showed by reproduction of celebrated paintings how all planning for art expression must show a feeling of unity in the design, a fineness and completion of line relation, beautiful spacing, and concentration of interest on the important



Twenty and Three-fourths Pounds Weight on Forearm.

part of the subject, though it may not be the central object, so far as measurement is concerned. Indeed, it should not be so.

By means of drawings and the finished work of china, she explained the fundamental principles as they should be followed in doing and testing individual work, and pointed out the great field existing for such work and urged members to do something original, something different from what others have done, and the reward would be commensurate with the effort exerted.

HOLLOW TILE IN POLITICS.

The real situation in the New York building code controversy is shown in the political turn which is given to it by the organization of an anti-hollow tile club, comprising the membership of twelve labor organizations. Headquarters have been opened in a Fifth avenue building, and the slogan will resound more or less vigorously during the campaign. The membership of the organizations represented aggregates 35,000, it is said, and the horrible things they are going to

do to the hollow tile people would scarcely be reassuring to those gentlemen if put in print.

Perhaps this move makes clear the opposition the fireproofing people will encounter in their attempt to enter New York in competition with cinder fireproofers and cheap concrete men. It also shows where the difficulty was originally and why Mayor McClellan appeared so suddenly when the code was up for passage, took it out of Acting Mayor McGowan's hands, and postponed the whole thing pending further investigation and tests. The ramification of Tammany politics are so extensive and so subtle that they affect even the clay deposits of distant states. The manufacturer of honest fireproofing must suffer because Tammany adherents own stock in cinder concrete and pseudo-fireproofing companies. The New York field will be difficult in the future, and the large companies do well to prepare for the contest.

THE C. W. RAYMOND COMPANY ABSORBS THE HORTON MANUFACTURING COMPANY.

As ever alive to the best interests of the clayworkers, the C. W. Raymond Company, of Dayton, Ohio, has added to its extensive line of clayworking machinery the soft mud machinery previously manufactured by the Horton Manufacturing Company, Painesville, Ohio. All of the patents, business and good will of the latter company have been acquired, and all of the Horton machinery will hereafter be manufactured at the famous Dayton shops. This is the fourth concern Messrs. Raymond & Co. have absorbed or acquired by purchase during recent years, the first one being that of the Woolley Foundry and Machine Works, of Anderson, Ind., then the Youngren patent continuous kiln, next the United States roofing tile press, and now the Horton line is added to their list, and they are prepared to quote prices on all manner of brickmaking equipment, whether dry press, stiff clay or soft mud. Repairs or new parts for Horton machines will be shipped promptly. They will be pleased to receive inquiries in regard to same or any matter pertaining to the brick business. See ads on pages 465, 466, 467 and 468.

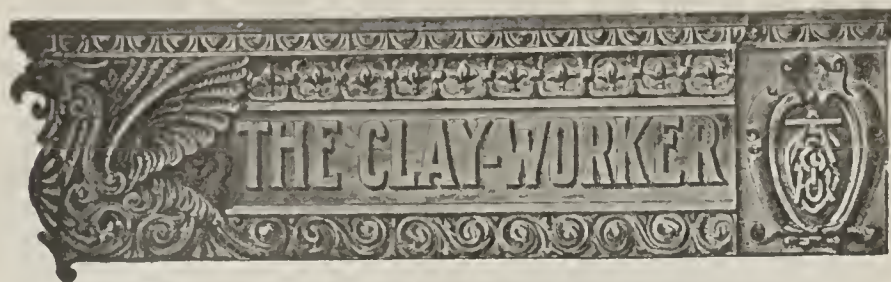
CLAUSE IN YOUR FIRE INSURANCE POLICY PROVIDING THAT POLICY IS VOID IF YOU TAKE OUT OTHER INSURANCE IS VALID.

Scan your fire insurance policies carefully, as it is possible that they will do you little good in case of a fire, if you have failed to live up to their provisions. In the case of the Northwestern National Insurance Company of Milwaukee vs. Avant, just decided by the Court of Appeals in Kentucky, the court held that the following clause in the policy was valid: "This entire policy unless otherwise provided by agreement, and endorsed thereon, or added thereto, shall be void if the insured now has or shall hereafter make and procure any other contract of insurance, whether valid or not, on property covered in whole or in part by this policy."

The court says that "provisions of the character of the one quoted are familiar and wise regulations of the business of fire insurance, and tend to prevent overinsurance, which might tempt the insured to burn the property or to be less vigilant in protecting it against fire."

The court also holds, however, that if the insured and the agent of the insurance company make an agreement that other insurance may be written upon the property, then the above-quoted clause against other insurance is eliminated. This agreement does not need to be in writing, but may be verbal, as it was in the case on trial, for the insurance company can not compel an agreement to be in writing which the law does not provide shall be in writing, and this is not a case that calls for a written agreement under the law.

The importance of watching insurance policies is emphasized by this case, for the insurance company which asks the court to cancel this insurance policy, under the above-named clause, on account of another policy being taken out on the same property, was itself the writer of the second policy. When insurance companies take such action as this, it is time for the insured to look out for their rights.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION.

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LII.

OCTOBER, 1909.

No. 4.

CURRENT COMMENT.

Prosperity has followed the brick manufacturer in most sections of the country this year.

* * *

The basic principle of the art of making friends is to have a friendly feeling toward other people yourself.

* * *

Extensive advertising may arouse interest, but it takes persistent cultivation to build up a permanent business.

* * *

Almost any man can make a fool of himself, but it sometimes takes a shrewd man and some good advertising to make fools of others.

* * *

There is to be seen here and there evidence of more diversity in color and a better tone generally in front brick. It is a good thing; keep pushing it along.

* * *

It is better to have a little too much modesty than not enough, but a man can be overburdened until he is pushed aside and left behind in the race of life.

* * *

The magnitude of a man's business is not always a gauge to his honesty, but it gives a pretty good idea of the amount of business capacity existing in his immediate locality.

* * *

As retail lumber dealers throughout the country throw aside disappointing cement block machinery, they will feel better inclined toward giving more attention to brick as a building material.

* * *

Before we can enter into that real millennium that is to come at some day in the future, we will need a grand jubilee year in which all the tangled masses of laws and regulations can be wiped out and a few plain and just ones,

easy to understand and comprehensive to the average man, enacted in their place.

* * *

There is many a man looking forward to a reward in the hereafter, and, incidentally, trying to get it here, too.

* * *

It looks like the only time it is a disgrace to be a political boodler is when you get caught at it by somebody that is mean enough to go and tell.

* * *

Trouble is a great bluffer, but sometimes it makes its bluff good, and we never know until the smoke is cleared away whether it's merely a case of bluff or a genuine trouble bird.

* * *

During the winter months is a good time to work out and develop new ideas in terra cotta for landscape architecture, so as to be ready to push them when the busy spring season opens.

* * *

If they would just eliminate the modern society flavor and put in more of the really everyday incidents of modern fiction involving flying machines, it would carry some of us back in memory to the days of Frank Reed, Jr., and his various inventions, one of which was a flying machine.

* * *

According to the Geological Survey figures, there is coal enough left in Illinois to last 3,300 years, at the present rate of mining, so it is rather early yet to worry about when it will be all gone, but it is not too early to plan and experiment for ways and means to get the most results out of a ton, for a ton of coal means money, and generally more of it each year.

* * *

If we must have more of the reform business, why not let us direct the next national effort in this line toward so reforming the methods of legal procedure that the questions of prominence which come before courts may be settled promptly and with justice, and not require a lifetime and a fortune in money, and so there will be more assurance of absolute justice where there is plenty of financial backing on each side.

OPPORTUNITIES FOR BRICK MEN.

Perhaps no greater opportunities were ever offered brick men than are presented now in the development of structural work of various kinds throughout the country, varying from the small dwelling house for one family to the great public works requiring millions of brick. The high price of other building materials exerts a powerful influence in determining builders to use brick, and this, in addition to the natural advantages of brick itself, so apparent that even the least observing can see them, is influencing their use more extensively every day.

But even though this is true, the fact remains that brick are not nearly so liberally used as they should be. A good many structural operations in which they might be more freely utilized are carried out with something else. Operations have no brick or clay work specified when they might be built wholly of brick or clay, with no loss of attractiveness or dignity, improvement in safety and reduction of cost. The situation has changed so much in the past few years and the rapid extension of all sorts of structural work has developed such unexpected and altogether unprecedented demands for some safe, permanent and relatively low-priced material, that clay products are more generally sought and are more often specified than ever before.

Manufacturers and dealers could increase this demand by a more vigorous campaign in favor of this product. They could more forcibly present the superiority of brick over all other structural materials, and they could offer their

materials more frequently than they do for all structural purposes.

If they did this, their business would largely increase and they would shortly discover fresh opportunities to introduce their products wherever any sort of building is projected or in progress.

ECONOMIES IN BRICK YARD CONSTRUCTION AND OPERATION.

Every clay-worker is interested more or less in all subjects tending towards economy. The progressives are striving at all times to make the best product with the least possible expense. That is only human nature, and should be the goal of all manufacturers, no matter what field they may be interested in. The high quality of the manufactured product should always be maintained, but in keeping up the high standard there are many things to economize, both in the yard construction and operation. One of the most interesting and valuable articles written upon this subject will be published in serial form in the Clay-Worker. The first installment is to appear in the November issue, and will prove of inestimable value to many of our readers. The author of the series is none other than Mr. Ellis Lovejoy, E. M., one of the best versed men in this country on brick-yard construction and operation.

THE BATHROOM AND CLAY PRODUCTS.

In considering the field of clay products, with a view to further extension here and there where the best opportunities present themselves, we are impressed with the idea that the bathroom presents an excellent lot of opportunities for those making the line of products used or that may be used in this work. This includes not only the bath tub and sanitary ware, but also tiling for walls and for the floors. The ideal bathroom is one which may be made up almost exclusively of clay products, with the bare exception of the piping and metal work. It has been thoroughly demonstrated that, from a sanitary standpoint, nothing equals the enameled clay ware, and gradually a discriminating public is taking notice of this fact and is showing a favorable disposition to use it almost exclusively. Now, aside from the technical matters involved, one important point the trade should take into consideration is this: We are coming to the day when practically everything in the form of a home built in or near cities is to have a bathroom, and the more pretentious home, instead of having just one commodious one, is moving toward the idea of one to almost every sleeping room. Moreover, it will extend further and builders of modest homes in the country will include a bathroom as a part of their house. Some of the cities have already taken quite a strong stand in this matter, and are insisting that when new homes are built that they are properly equipped with bathrooms.

By and by we may see the day when there will be included in almost every city ordinance a requirement for bathrooms. With things tending this way one hardly needs a pencil and pad of paper to figure out what it means in the way of increased requirements for bathroom material. Moreover, it would be almost impossible to figure it out specifically, but we can easily picture the needs multiplied almost a hundred times, and, therefore, this branch of the trade should present openings for further developments that will not only keep the present industries manufacturing such products hustling, but will make room for a number of new ones without in any way endangering the market. It would seem to be partly a matter for general distribution of industries, provided the material for the work can be had, that is, proper clay, for frequently freight is quite an impor-

tant item in such things, and besides there is nothing like an industry in a territory producing such ware to stimulate its use. The subject is recommended not only for study, but for active development on the part of the producers of clay tiling and bathroom appliances.

TRADE LITERATURE.

THE DAVENPORT LOCOMOTIVE WORKS, Davenport, Iowa, have recently mailed to the trade an interesting wall map, showing to good advantage a sectional view of their well-known industrial locomotive. Anyone considering the purchase of a locomotive for the hauling of the clay from bank to plant, should write the Davenport Locomotive Works for full particulars relative to its merits and the economy in its usage.

"OLD METHODS DISCARDED" is the slogan of a cute little brochure being sent out by the C. W. Raymond Company, Dayton, Ohio. The oddity of the cover illustration alone makes it attractive, while within the covers is an excellent cut of the Raymond semi-automatic cutting table and a terse statement of its mission, which is to enable brick manufacturers to make "better brick at a better price." Write for a copy, mentioning THE CLAY-WORKER.

"THE BUHRER KILNS" is the title of the latest catalogue issued by Jacob Buhner, of Constance, Germany. It contains twenty pages of interesting information and illustrations setting forth the Buhner continuous kilns and dryers. Mr. Buhner is a kiln specialist of high reputation, and has invented a number of kilns which are proving entirely satisfactory. The catalogue describes his several kilns and dryers in an interesting manner. The testimonials in the book show how invaluable the users of his kilns consider them. Mr. Buhner will gladly send his catalogue and complete information to anyone writing him, Constance, Germany.

"CHEER UP" is the title of an eight-page pamphlet recently received from The Bonnot Company, Canton, Ohio, which is printed in two colors and contains miniature views—"little cuts of big machines"—of their line of wire-cut machines, represses, pug mills, dry pans, cutting tables, etc. The title page is illustrated with an immense red automobile which is evidently exceeding the speed limit. The driver is disguised by goggles, but we judge he is no less a person than Mr. Oldham. Under the above caption is the announcement: "Business has arrived; are you ready for it?" Plainly, the answer is, whether you are or are not, get in communication with The Bonnot Company.

"A DIRECTORY OF BRICKMAKERS." The eighteenth annual edition of Hendricks's Directory of those engaged in the brickmaking business and kindred lines throughout the United States, is just out. The book contains over 350,000 names and addresses of American manufacturers, classified under 35,774 classifications, representing nearly every machine, material, apparatus or specialty required in the architectural, engineering, mechanical, electrical, manufacturing, railroad, mine, quarrying and kindred industries, embracing everything for building and construction work of all sorts. To those wishing to circularize any of the building trades, this work is well-nigh invaluable. It is substantially bound in cloth covers, and will be sent carriage prepaid to any point in the United States for \$10. Send orders to T. A. Randall & Co., Indianapolis.

"TAPESTRY BRICK WORK" is the title of a very beautiful booklet issued by Fiske & Co., Flatiron building, New York, a glimpse of which will gladden the heart of all who are interested in either the manufacture or use of building brick. It tells of the modern use of building brick in an artistic way. It is profusely illustrated with views of both ancient and modern brick architecture, among which are a number of very pretty pictures in colors, reproducing in a

remarkably realistic way the exact color effect of the dark red rough surface brick which Messrs. Fiske & Co. have introduced under the name of Tapestry brick. We presume brick contractors and those contemplating the erection of brick buildings can obtain a copy of the book free on application to the above firm.

THE H. BREWER & CO., Tecumseh, Mich., recently published a catalogue, which is, without doubt, one of the finest ever issued to the clay trade. It is excellently and attractively printed, its whole makeup being worthy of the highest praise. The catalogue is 9x12 in size, bound in a brown light-weight cardboard adjustable patent cover. The front cover page is simply and attractively decorated with the words "Clayworking Machines," under which appears the Brewer trademark and company's name and address printed in two shades of blue. The body of the catalogue is printed on white enamel paper, consisting of sixty-four well-printed pages, illustrating the complete lines of this long, well-established company.

THE AMERICAN BLOWER COMPANY'S latest catalogue, known as No. 259E, is an attractive pamphlet published by that company for general illustration and description of their products for foreign circulation. This pamphlet is being reproduced in Spanish and Portuguese. The A. B. C. products are not only well-known in this country, but have a high reputation in foreign countries. In this attractive pamphlet a partial list of foreign users are given, which, incomplete as it is, shows the wide range of territory this company's business covers. The pamphlet is characteristic of all the American Blower Company's publications, being attractive, interesting and invaluable to the trade. Anyone desiring a copy can obtain same by addressing the American Blower Company, Detroit, Mich.

"BUCKET ELEVATORS FOR CLAY" is a pamphlet full of descriptive matter and illustrations on the Ceramic Supply and Construction Company's latest elevator designs. The title page states that the pamphlet was compiled by "one who has been through the mill." The mission of the booklet is to point the way for relief from elevator troubles, and to thereby add to the profits of the reader as well as the publishers. The introduction consists of an article showing the development of the elevating and conveying machinery. The body of the catalogue illustrates and describes their various elevator boots, buckets, bolts, pulleys, chains, sprocket wheels, gears, etc., and gives their price lists. Every clayworker should have a copy in his file. Same can be obtained by writing the Ceramic Supply and Construction Company, Columbus, Ohio.

TAPLIN-RICE-CLERKIN CO. WORKING NIGHTS.

The immense shops of the above company at Akron, Ohio, are not only running full-handed, but are working nights to fill orders placed with them for their various products, including sewer pipe presses, dry pans, etc. They write that they have recently booked a number of good-sized orders, including one from the Pomona Terra Cotta Company, Pomona, N. C., another from the Streater Manufacturing Company, Streater, Ill., and still another from the Washington Brick, Lime and Sewer Pipe Company, Spokane, Wash.

The products of this firm have carried the fame of Akron to every section of the country, and to foreign points as well. Their sewer pipe dies are extolled by many manufacturers, both at home and abroad; they are equally efficient whether turning out small pipe or large, and insure a maximum output of perfect ware. Their catalogue setting forth the superior merits of their presses, feeding tables, clay crushers, etc., etc., will be mailed to any of our readers desiring same.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
Engineering Company.**

[See page 456.]

WANTED, FOR SALE, ETC.

WANTED—Sand mold brick machine, 35,000 to 40,000 capacity, sander and sand dryers. C. H. BEUMER, 91 c St. Cloud, Minn.

FOR SALE—One J. D. Fate double-shaft pugmill and auger machine, one hand-cutting table and one Quincy clay gatherer. All in first-class condition. ST. AUGUSTA BRICK CO., 911 p St. Cloud, Minn.

FOR SALE—A stiff mud brick plant in Minneapolis, Minn. Will sell the yard as it stands in running order at present time. Good clay and enough of it. Write for further information. Address "ANTHONY," 91 d Care Clay-Worker.

For Sale, Wanted, Etc., Ads Continued on
Pages 447-449.

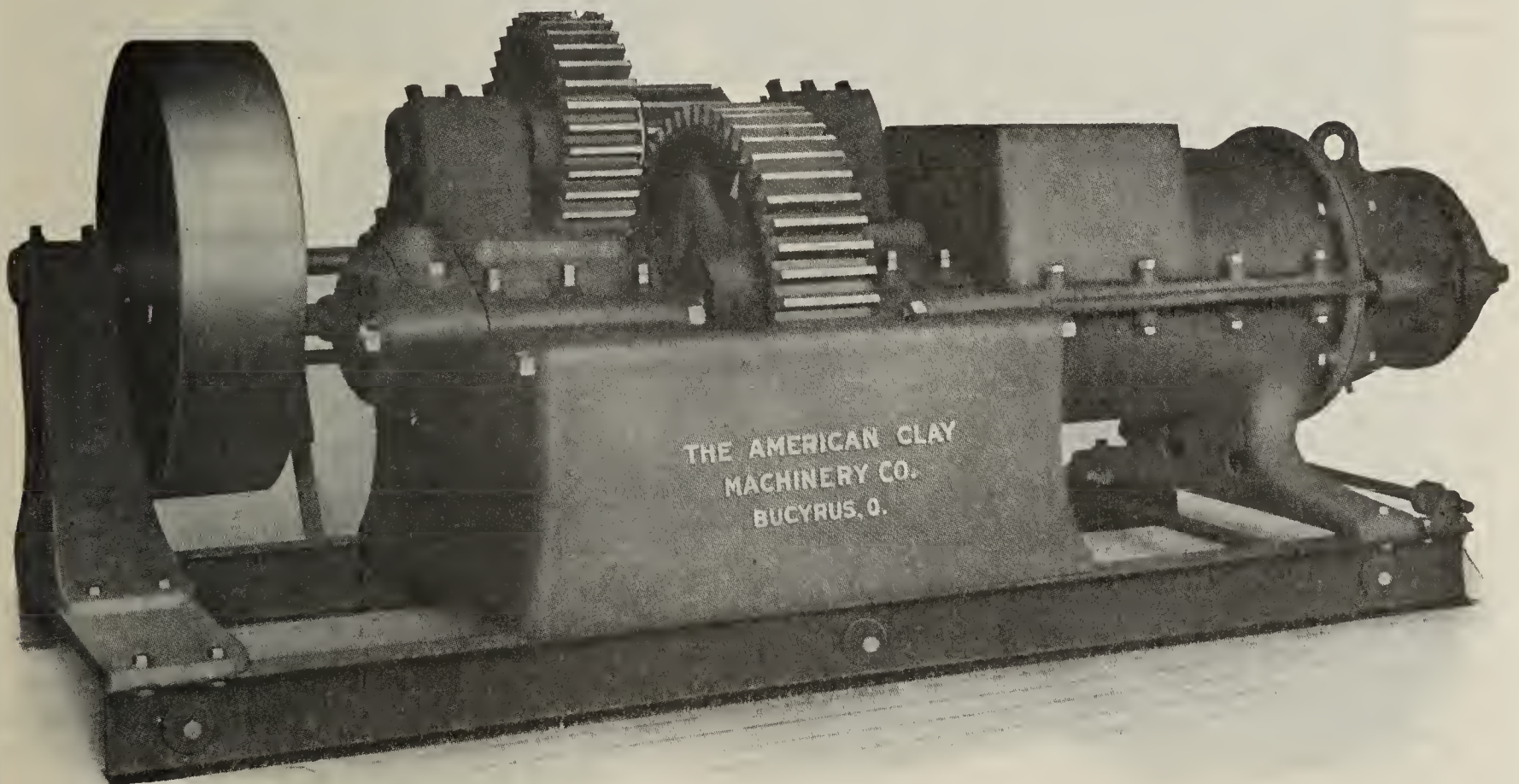
Fills Every Promise.

When we designed and built the first No. 65 Auger Brick Machine, a little over a year ago, we felt confident it would be a most dependable machine; one with a capacity beyond anything else, and a quality able to back up such a capacity. The experience of all the users of the No. 65 amply proves that our expectations were well founded and our confidence not misplaced. It is a machine you can depend upon, as proof of which we quote from several users:

The Denny Renton Clay and Coal Co., Seattle, says: "We are very much pleased with the No. 65. The machine made 108,000 brick per day almost from the start, that being the limit of our represses. When we have our additional repress installed we will make 144,000 brick per day."

The Coffeyville Shale Brick Co., Coffeyville, Kans., says: "The No. 65 Auger Machine has made 16,408,000 brick in 174 working days, and we are sure it is capable of turning out 125,000 brick each day of ten hours. It is very light running, requiring less power than any machine we know. We are more than pleased with the No. 65."

The Marion Brick Works, Montezuma, Ind., says: "The No. 65 Auger Machine has done more than you claim for it. It turns out building brick at the rate of 250,000 per day of nine hours."



What this machine is doing for others ought to be an indication of what it will do for you. We will refer you to other users of the No. 65 upon request.

We build every machine and appliance for the manufacture of every class of clay products by every process. Being the largest manufacturers of clayworking machinery in the world, we can offer the buyer advantages worth consideration.

The American Clay Machinery Co.,

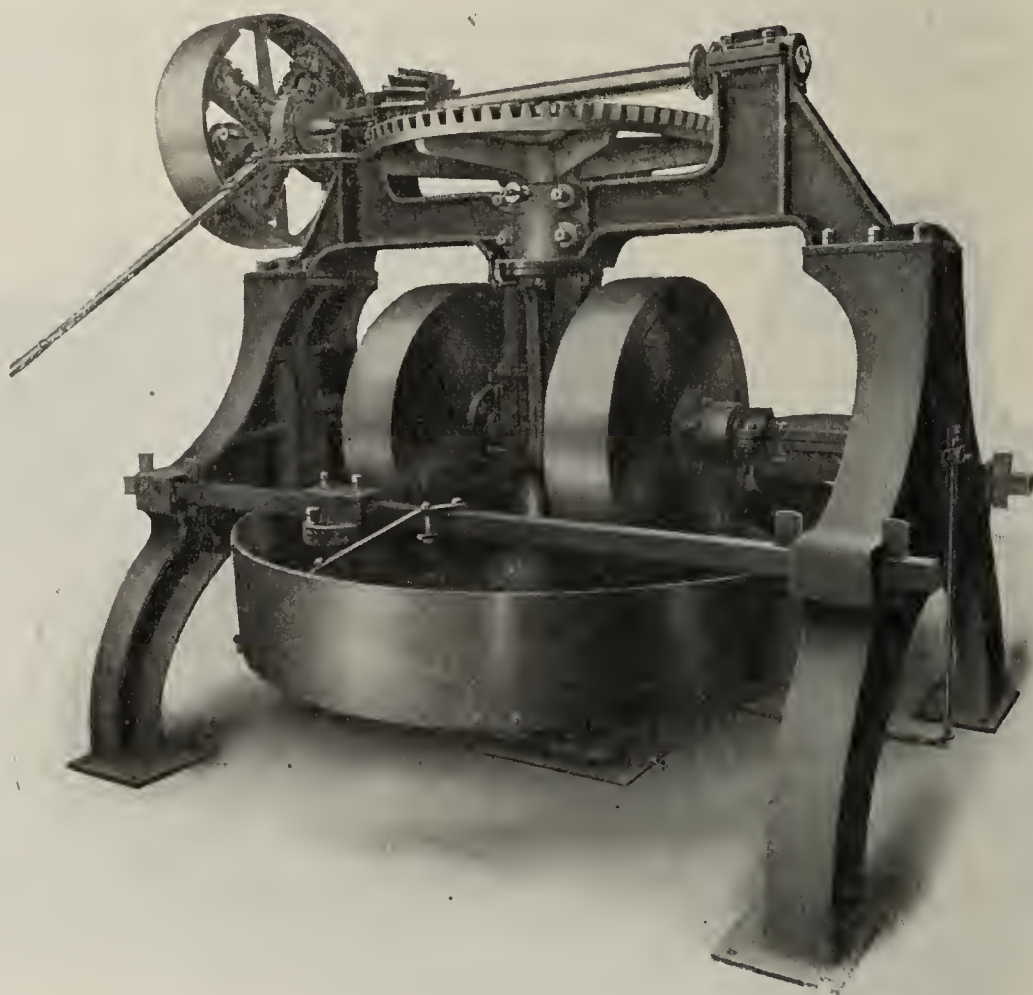
Bucyrus, Ohio, U. S. A.



Wet and Dry Pans.

To the exacting buyers of Dry and Wet Pans our line appeals strongly because of the superiority of design and excellence of material and workmanship, all of which are features which are of the greatest importance in the permanent satisfactory operation of pans. The capacity of a pan depends largely upon its design and construction, and the distinctive features embodied in our line of pans have given them a greater capacity than others and have insured more working hours per pan with fewer delays and repairs than can be had from other styles of pans. We have been generous in the design of each pan, our line being the heaviest on the market. This feature should be given special consideration, as a lighter weight pan is necessarily much cheaper and should not be compared with our heavy, durable and efficient machines.

The heavy side frames are substantially tied together at the top by the cross beam, in the center by tie bars and also on the floor line. The shafting is large and of steel. The gears are of special design and excellent quality. The bearings are long and well babbitted. The mullers are heavy, adjustable and removable. The screen plates are made of special iron. The step is of our approved type and the complete pan is one that can be depended upon under more than ordinary circumstances. All joints are carefully machined and fitted and bolts are made secure by lock-nuts. The vertical shaft and muller shafts are secured by large removable bearings, which make it possible to remove any of these shafts or the mullers without disturbing the balance of the pan. The gearing is kept to its full efficiency by our device for taking up any possible wear, which insures a perfect mesh of teeth at all times.



For preparing successfully many kinds of fire clay, shale and slate used for paving brick, and for grinding burnt brick or pipe for grout, etc., dry or wet pans are a necessity. The wet pans are particularly adapted for handling material in moist condition, while for use in dry pans it should be practically dry, so that when ground it will readily pass through the screen plate without clogging.

Write for particulars on our "Divided Screen Plate," which will make a big saving of screen plates. There is no machine required for the manufacture of any clay product which we do not build. Each machine is superior in its class and of our standard quality.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

The World's Best Clay Screen.

Greater Capacity.

Less Wear and Tear.

Improved Output.

Here is a radical departure in Clay Screens. The motion is centrifugal instead of vibratory. The life of the machine is thus lengthened and the capacity increased.

As the accompanying cut shows, the screen is made up of two hoppers substantially mounted on a steel frame. The screen plate is circular with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft which is connected to the driving shaft by a pair of bevel gears.

Just beneath the screen plate is a steam coil heater arranged to heat the screen plate to prevent damp clay from clogging the perforations in the plate.

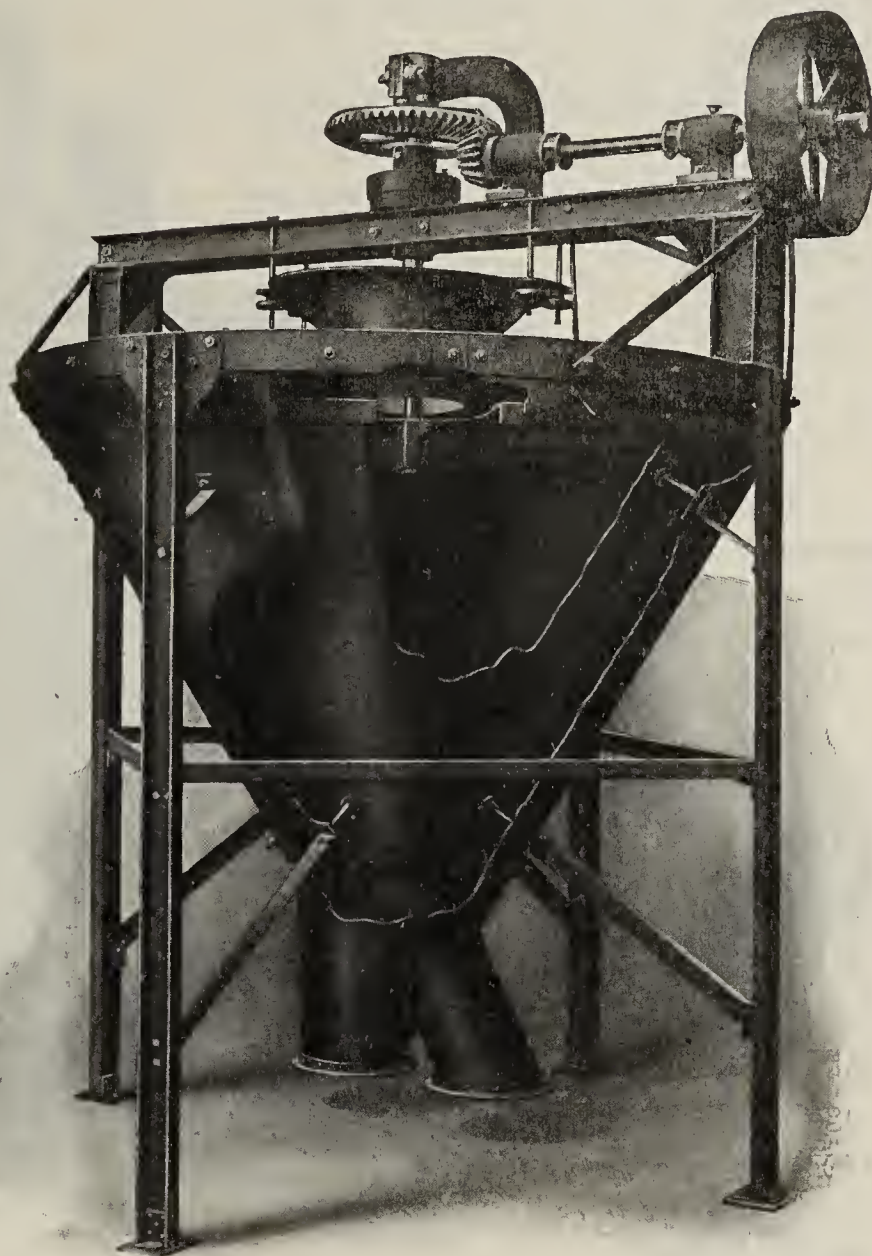
Surrounding the vertical shaft is a cast iron hopper or spout through which the clay is fed to the screen plate. This hopper can be raised or lowered to regulate the flow of clay on the screen. The hopper being always full of clay keeps an even flow to the screen. The screen as it revolves throws the clay from the center to the outside of the screen plate, the flow being even and regular. The larger particles of clay, too large to pass through the perforations, pass over the screen plate to the outside and fall through the outer housing to a spout conveying them to the grinding pan for regrinding. The fine particles of clay sift through the screen plate into the inner housing or hopper and pass to a conveyor and into the clay bin.

The whole operation is rapid and thorough and the principle insures great capacity and freedom from trouble. Many of these screens have been installed and are giving universal satisfaction.

In actual operation the No. 147 Screen, which has a screen plate six feet in diameter, is screening equal to the capacity of two nine foot dry pans. We also build this screen with a four foot screen which will handle clay to the capacity of one pan.

Full particulars as to the construction and operation of this screen will be sent upon request.

We build every machine and appliance required for the manufacture of every class of clay products by all processes. We are much the largest manufacturers of Clayworking Machinery in the world. Manufacturing as we do every machine and appliance right in our own factories, we are better prepared to serve you at a saving in time and money than others.



CENTRIFUGAL CLAY SCREEN.

Patented and Patents Pending.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



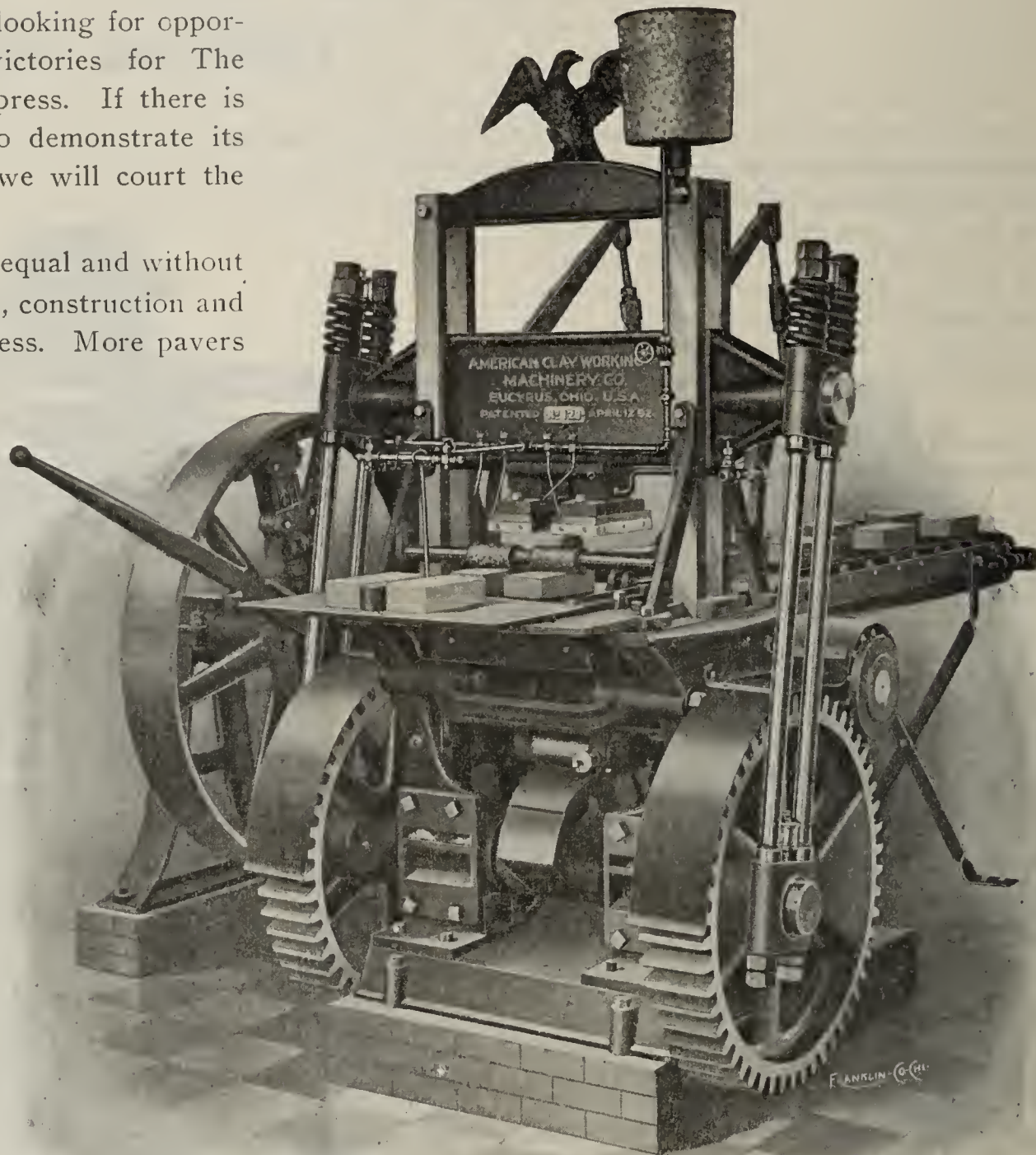
The American Eagle

The Nation's Pride.

We are always looking for opportunities for new victories for The American Eagle Repress. If there is any chance at all to demonstrate its superiority to you, we will court the opportunity.

It is without an equal and without a flaw. In its design, construction and operation it is faultless. More pavers are made on the Eagle press than on all other presses combined.

"There's a Reason" and that reason is that the Eagle is far and away the best press built. It is a money maker and is a repair saver. Let us tell you in detail the superiority of the Eagle and refer you to users of it. Twenty Eagles in operation in one plant alone.



We build every machine and every appliance used in clay plants of all kinds. We are the only concern building a full line, and are much the largest manufacturers of clayworking machinery in the world.

Correspondence solicited. Our big 500-page catalogue is yours for the asking.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

Dry Enough to Burn.

The best Dryer for your plant depends entirely upon the conditions which surround you. The nature of your clay may be a large factor and the layout of your plant may be almost as important. There are so many points which are vital in the installation of a really successful and economical dryer that we long ago put the dryer problems into the hands of a special dryer department. Only in this way can there be perfect assurance that the dryer will be all that we want it to be and what you have a right to expect it to be.

For this same reason we build every kind of dryer, so that the special conditions and requirements of every plant may be met to the full satisfaction of ourselves and our customers. Under these conditions we are able to supply the dryer best adapted to the conditions. There is no need of a prejudiced opinion toward one system just because we want to sell it. We build all systems and can recommend the one which is best, and there can be only one best for each plant.

Our Waste Heat Dryers are giving the best of satisfaction. They are designed and laid out by competent experts and the equipment is all that quality of material and workmanship can insure.

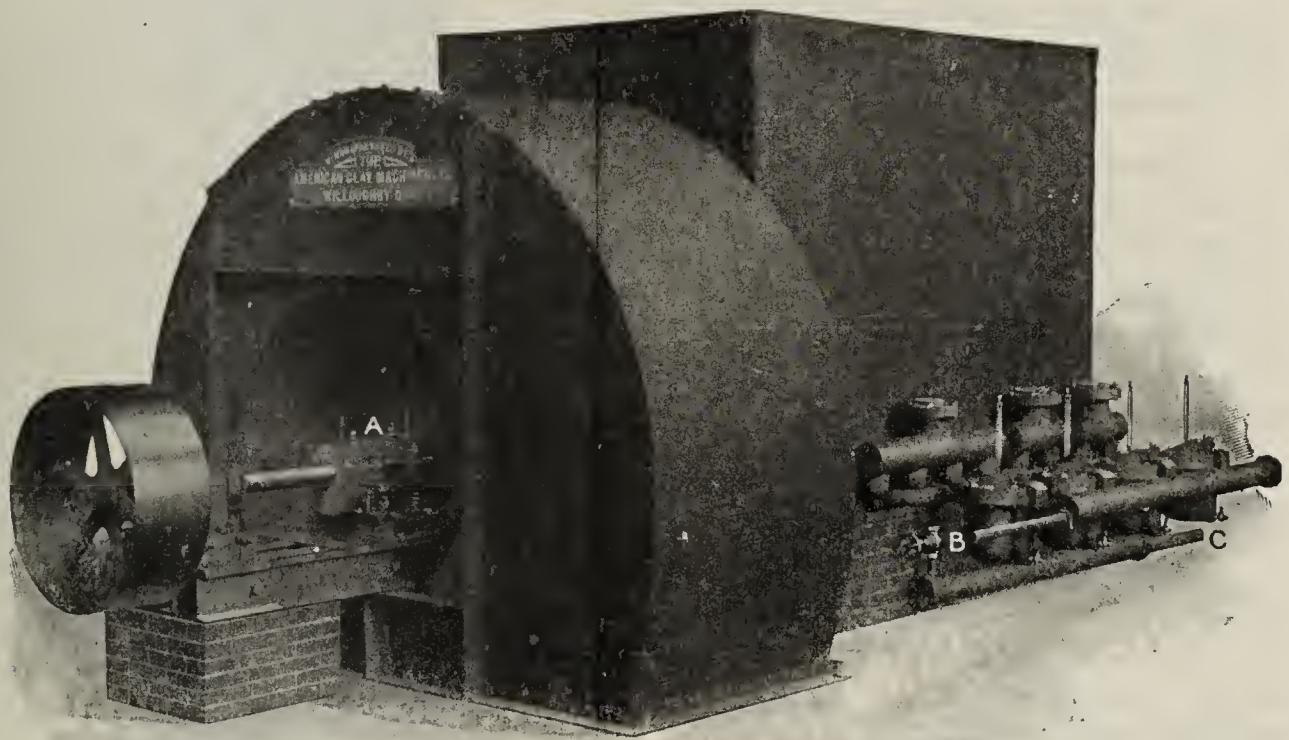
Our Steam Pipe Rack Dryer is giving the best of satisfaction and is most highly recommended where its use is found advisable.

Our Steam Tunnel Dryers have an enviable reputation and are giving excellent results wherever used.

Our Hot Air or Furnace Dryers are making good everywhere they are used, and we also build and equip dryers to be operated by the carless system.

If you are at all interested in economical drying we will be pleased to take the matter up with you and suggest a dryer plant that will give you the highest possible efficiency with the least possible cost for installation and maintenance.

We are the only concern building all classes of dryers and the only one building our dryer equipment in our own factories. We are much the largest manufacturers of clayworking machinery in the world, and can give you the benefit of our fifty years' experience and extensive equipment and organization. We build every machine and every appliance required for the manufacture of every class of clay products by every process. Correspondence solicited.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Quality Points in Dry Presses.



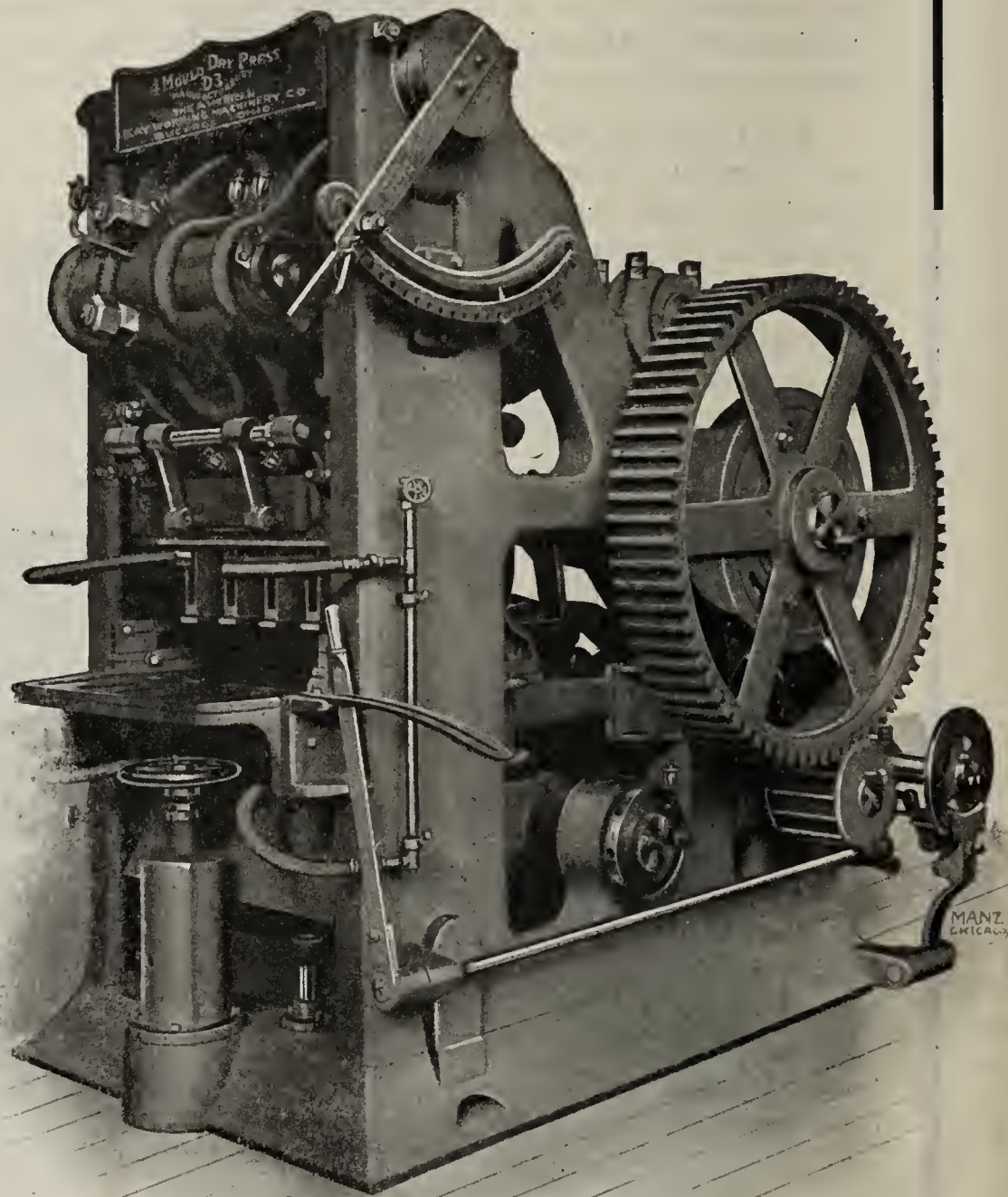
The construction of the machine is high class throughout, the best quality of material is used, and the most skilled workmen are employed. The frame is cast solid between the bearings where the heaviest strain is applied. All the principal working parts are of steel castings or steel forgings, and are designed with a view to obtaining the greatest strength with the least possible weight of materials. The main crank shaft and crank pins are 6 inches in diameter. They are made of forged steel. The center toggle pin is bushed with a steel bushing. All the bearings for the shafts on the frame are well babbitted with the best grade of babbitt metal. The cam and rocker beam rollers are bushed with bronze. All the gearing is heavy and the pinions are shrouded, giving additional strength. The crossheads are steel. The guides on the upper steel crosshead are 11 inches long, and are fitted with adjustable iron gibs. The guides on the lower steel crosshead are 9 inches long, and are also fitted with adjustable cast iron gibs. The adjustments on both are conveniently accessible, and the plungers and molds can always be kept in perfect alignment.

The charger has an extra long throw, and is as easily adapted for the Roman size brick as for the standard size brick. The cam track which regulates the movements of the charger is attached to the inside of the master gear. The cam is adjustable and the charger is also adjustable on the connecting rod. The hopper is provided with double screw adjustments and relief springs.

The mold box is six inches in depth. The mold frame is secured by steel wedges slotted and held in place by cap screws. The loosening of two cap screws releases the wedges and the mold can then be removed. This style of construction is designed for convenience and accessibility.

Three distinct pressures are applied in making the brick and they are moved in the mold box under pressure. The thickness of the brick can be instantly changed.

Write for complete description of Dry Press Brick Machinery. We build every machine required for making Clay Products by all processes.



Four-Mold Dry Press.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.



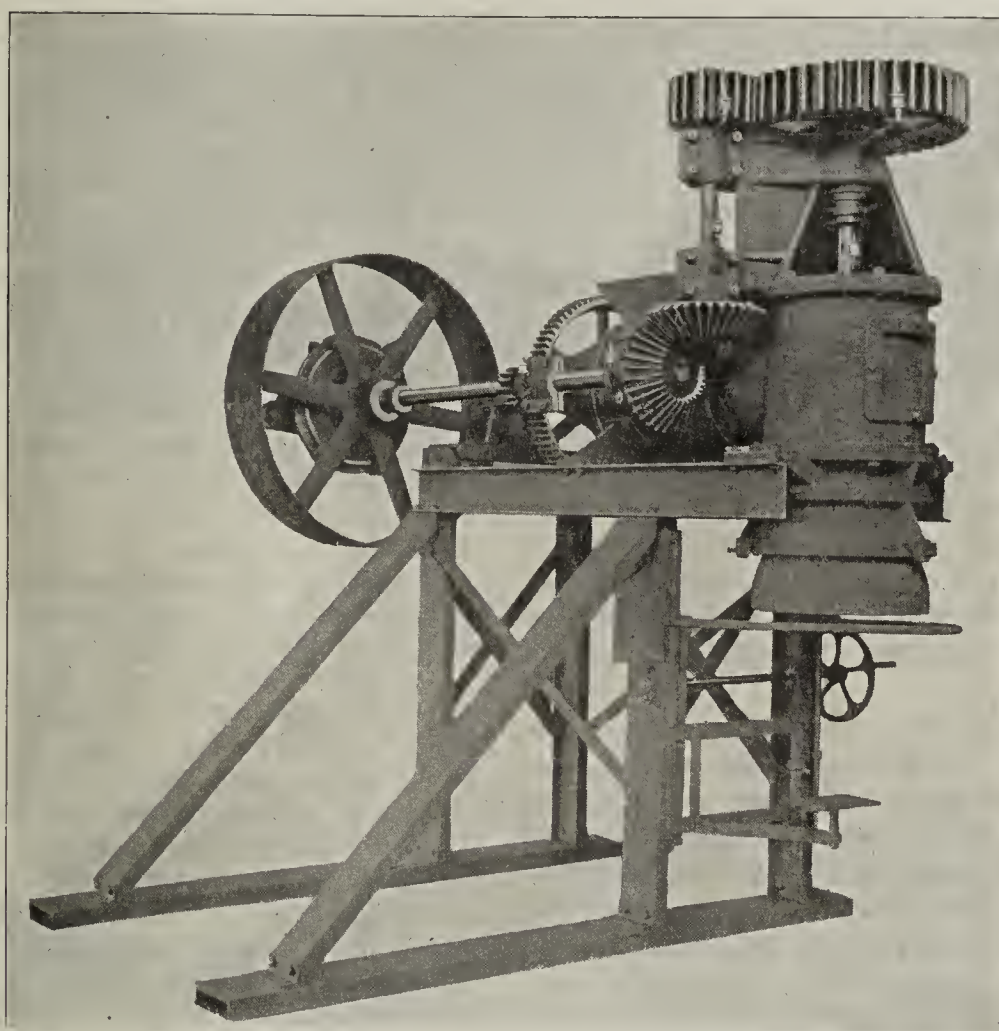
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Good News for Tile Men.

The Big Profits Are in the Big Tile.



ANDERSON VERTICAL MILL

is the machine you need to keep you in the race.

Tile from 8 inches to 30 inches Diameter, with dies for the different sizes readily and quickly interchangeable.

Weight of Mill, 8,000 lbs.

Can be furnished without supporting structure for mounting on wooden framework or second-story floor, or will be provided with structural steel supports, easily erected.

ANDERSON FOUNDRY & MACHINE WORKS,
ANDERSON, IND.

practically indestructible. By means of the drive pulley, which is of the latest improved friction-clutch pattern, the machine can be started and stopped at will without shutting off any other part of the equipment in the factory. The cutting table is of the most convenient type, simple in construction and easily operated by one man.

Any number and size of dies are furnished with the machine, as required, and the dies are easily and quickly interchangeable, all parts of the machine being very accessible. This machine can be erected on either a wooden structure, or will be furnished with complete structural steelwork, making it practically self-contained.

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.

BRICK PRICES are holding steady in this market, and the demand almost takes up the supply. There is a slight increase in the stocks of gas-burned brick down in the Kansas yards just at this time, but there is no tendency to either cut the asking price or make any reduction in price to get future orders, for the reason that it is expected that several of the big producing plants will be forced to shut down when winter weather comes, owing to a shortage of gas, and then the supply will be less than the demand, and it is expected that there may be quite a little advance, as there was the latter part of last winter. Dealers in this city, however, point to the fact that gas can be piped out of Oklahoma now, and the supply will be great enough so the Kansas plants will have plenty at command, and they feel that there will be a drop in prices as soon as next year comes around, and the consequent dropping off in building operations makes its appearance.

The local brick manufacturers are getting their yards pretty well filled with brick, the demand being slower than was expected. They are demanding the same price as the Kansas gas-burned brick commands here, and architects are generally specifying the gas-burned brick, as they feel that it is a stronger and better brick than the local yards can produce. This has the effect of making a brisk demand for the gas-burned product; at the same time it makes the local product a little too draggy.

Indications continue to be good for a fine winter building season. It is stated that work will begin on the new Union depot the first part of December, if everything goes right, and a great deal of building is mapped out for this neighborhood during the next couple of years. Contractors are pretty well contracted ahead, and labor is well employed. The team situation has modified, owing to the cool weather, making it possible for each team to do more in a day, but all teams are very busy yet, and have all they can do to take care of the hauling offered.

The building permits for the month just closed showed a total valuation of \$1,021,345, and of this amount the brick buildings, thirty-eight in number, were valued at \$462,200. This is a good building record for so late in the season, and indicates that this year is going to make a fine showing when compared with last year.

Cement seems to be trying to hold the center of the stage of public attention of late in this section of the country. First, all the plants engaged in a fight which forced all of them to lose a little money, and some of them a good deal. Then the price was advanced the early part of September to \$1.08 delivered here, which leaves a fair living profit in the business, and it is hardly expected that the price will be further advanced, for the plants already operating in this section of the country would rather run on a reasonable profit than to get a fancy profit and encourage others to engage in the business in competition with them, and they are right. There is already more cement plants built than are needed to supply the demand. The next thing heard from the cement stage was the trouble of the Bonner Portland Cement Company, which resulted in a division of forces, the

buying out of the one side by the other, and finally the appointment of a receiver, who has opened up the plant again, and may eventually get things straightened out for those who have their money bound up in the business. Then came the news of the appointment of a receiver for the property of the Chanute Cement and Clay Products Company, of Chanute, Kans. This company has been in course of promotion for several years, and not only includes the Chanute property, but also has a Michigan wing, which seems to have been something of a crippled wing, after all. There are all kinds of charges being made against the management of this concern, which has never been able to get its plant in operation, in spite of the fact that money enough was collected to do so. It is now expected that some arrangement will be made by which the stockholders can buy in the property and complete it. It is evident that even cement, with all its profit, can not overcome the amount of water forced into the average stock proposition to pay for promotion purposes, and that it takes the skilled management of such a plant to make it a success.

There is a vast area of land lying south of this city, in the Marias Des Cygnes valley, which overflows every year, sometimes oftener than others, but the yearly overflow always comes. It would be of much interest to parties who are figuring on doing away with this flood to know what effect tiling will have on the crops which are flooded. Does it damage crops as badly when they are flooded, if tiled, as though not tiled? Does the fact that the water immediately sinks down in the ground and runs away cause less damage from the flood? It is hoped that someone with experience in this direction will inform our readers as to what tiling will do in this direction.

Robert Nesch, president of the Pittsburg Brick Company, is expected home from Europe the latter part of this month or first of November.

An effort is being made by business men of Independence, Kans., to induce the Pittsburg Brick Company to remove its plant from Sycamore, Kans., to that point. A bonus is now being raised with which to tempt Mr. Nesch to make the change as soon as he returns from his trip abroad.

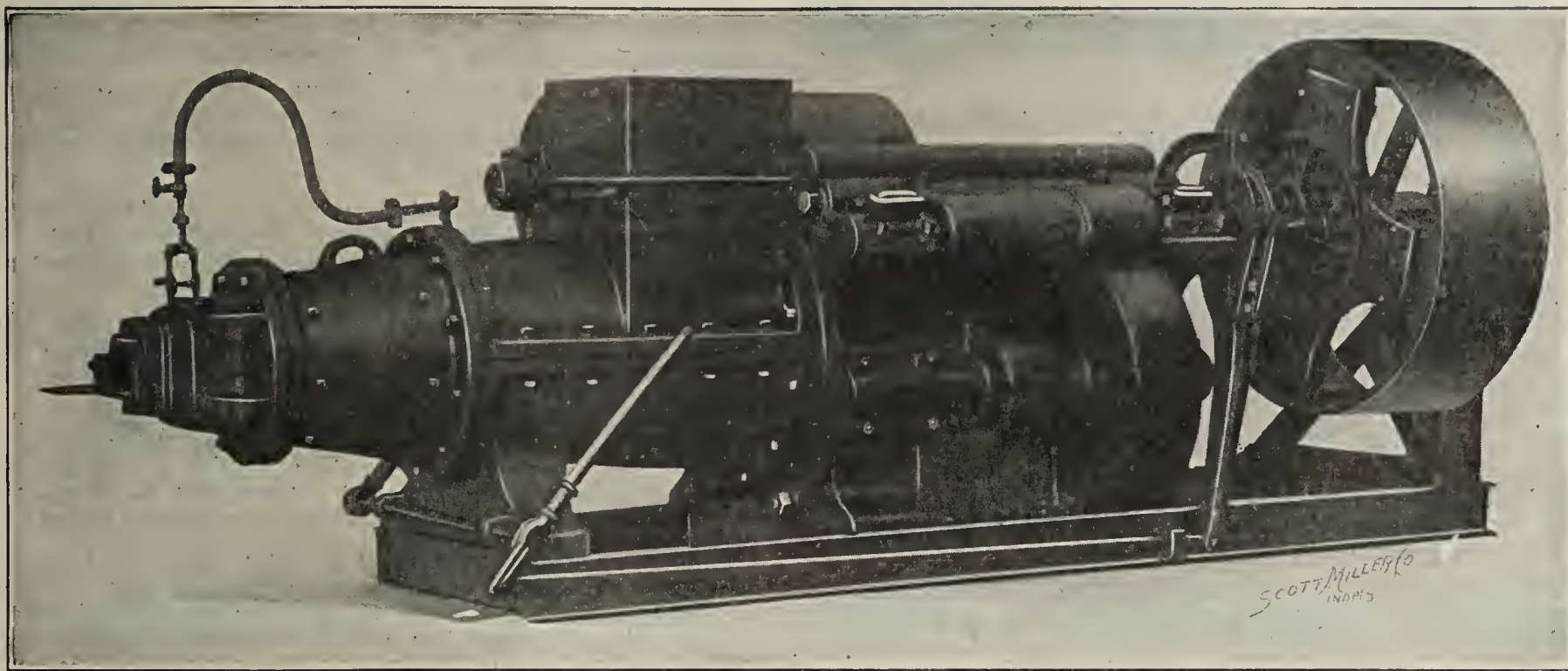
A brick man who has just returned from a trip through Oklahoma, says that in most of that territory the cities are going right ahead with their building and everything looks good, but in some sections of the state, where the drouth hit the hardest, there is very little going on in the building direction.

The Kansas City Southern is soon to begin the construction of its new freight depot and the paving of the yards around same. Pittsburg brick is to be used, the contract calling for 630,000 of their blocks. K. A. W.

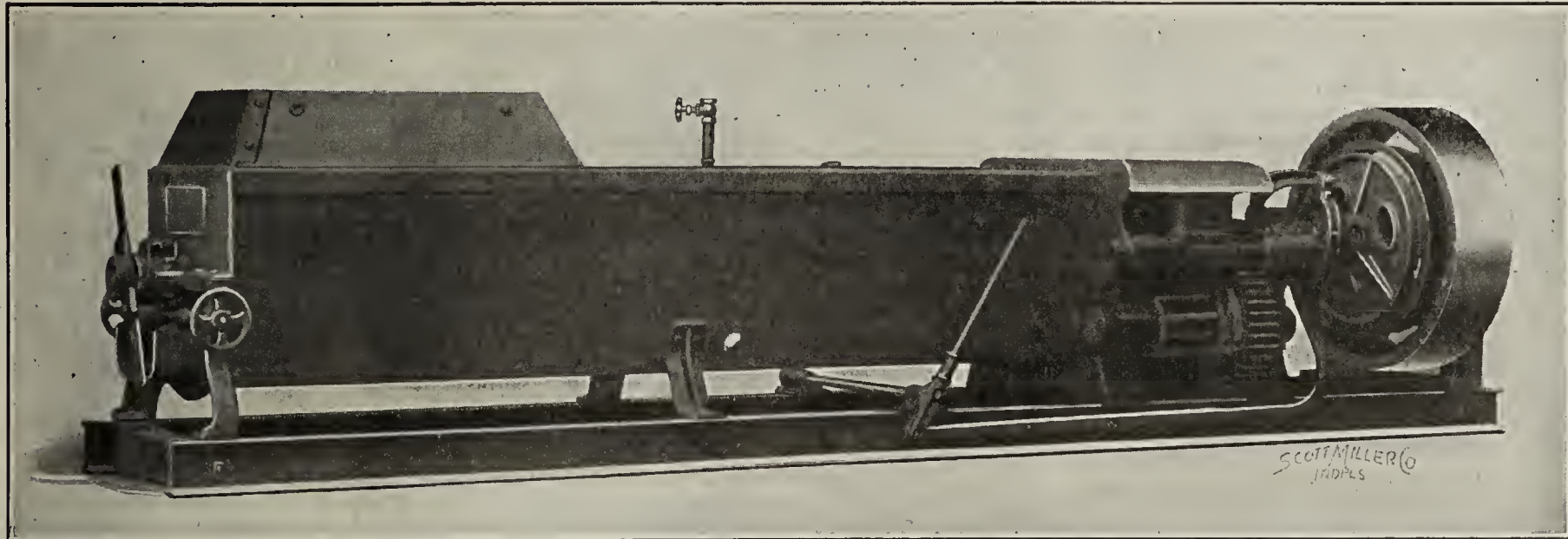
GAS EXPLOSION WRECKS KILN.

An explosion of gas or oil, or both, in the furnace room of the tile kilns of the Omaha Tile and Brick Company, Omaha, Neb., wrecked one section of the kiln recently, and damaged the building considerably. With a lantern in his hand, the night watchman was inspecting the kilns, which are fired with crude oil. He raised the door of the furnace room, when a loud report occurred that was heard for a block. The man was knocked down by the concussion, but managed to crawl out of the room, thus saving his life. The explosion extended through the full length of the section of the kiln, which is about 12 feet wide and 100 feet long. The top section, which was made of concrete and about 3 inches thick, was blown off and broken. The tile in the section were broken and wrecked. The top of the section, after being broken by the force of the explosion, fell in on the burning tile, thus adding to the damage. The sides and ends of the building were bulged out by the force of the explosion, and it is probable the walls will have to be razed. The roof of the building over the kilns and other wooden parts caught fire immediately after the explosion. A fire alarm was turned in and the flames were put out by the firemen before the roof caved in. Crude oil is used for firing the kilns, and it is thought that the burner under the damaged section was not working properly, allowing the gas from the vaporizing oil to escape. The loss by fire was small, but the damage to the kiln was considerable.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



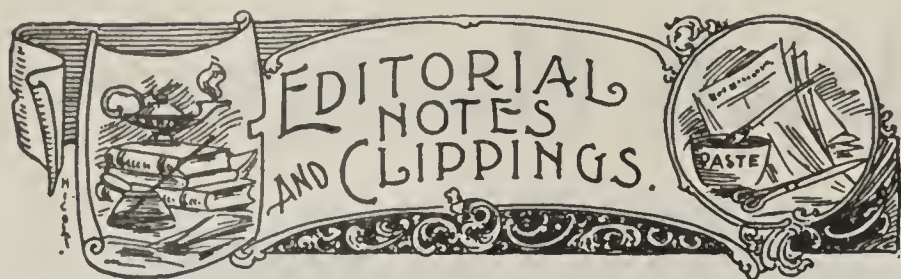
We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

Galion, Ohio.

(Mention The Clay-Worker.)

See ads on pages 482 and 483.



Headed by C. F. Hoffman, a company is being organized to manufacture brick at Nephi, Utah.

Wheeling, W. Va., has let a large contract for street paving to the Townsend Brick and Contracting Company, of Zanesville, Ohio.

The Monongahela (Pa.) Clay Manufacturing Company recently broke a record by making 70,000 bricks in a ten hours' run. The plant is running to full capacity at present.

The Lanus Pressed Brick Company has been incorporated to manufacture brick at Abilene, Texas, by C. A. Lanus, O. P. Thomas and M. J. Craig, with \$35,000 capital stock.

The Campfield Raggie Block Company, of Richmond, Ind., has been incorporated with a capital of \$10,000 to manufacture clay products. Directors are E. M. Campfield, Gertrude A. Campfield and Edna Arnold.

The Susquehanna Clay Products Company has been incorporated by A. Appleton and E. S. Parsons, of Darby, Pa., and W. Kille, of Philadelphia. The company is capitalized at \$100,000. The plant will be located at Darby.

The dryer and storage sheds of J. B. Kendall, at Rochester, Minn., were totally destroyed by fire recently, which, it is supposed, started from sparks from a passing locomotive. The loss is estimated at \$7,000. The plant will be rebuilt at once.

The Diamond Brick Company will establish a large building and paving brick plant at Buttonwood, Pa. Those interested in the enterprise are P. H. Kehoe, Wm. Amesbury, D. H. Evans and Arthur Root. The company has been organized with \$60,000 capital stock.

Prosperity has come to the Savage Mountain Fire Brick Works, at Frostburg, Md., and they are now shipping from twelve to fifteen cars of brick per week. The plant is being run to full capacity, and they contemplate enlarging the works in order to increase the output.

The plant of the Barton Lumber and Brick Company, at Barton, Ark., was badly damaged by fire early in the month. Almost before the ruins had cooled workmen had begun the work of rebuilding, as the company has many orders on hand, and the new plant will be completed as soon as possible.

The Boston Brick Company, under the efficient management of Robert Parry, manufactured over 10,000,000 brick this season at the plant at Gonic, N. H. They have been very successful in burning their brick with coal, which they find is much more economical than wood. They have shipped large consignments to western cities.

The Alliance Brick Company, Alliance, Ohio, capital \$300,000, has been granted a charter of incorporation by the secretary of state. The incorporators are F. A. Hoiles, W. H. Purcell, George Reeves, A. G. Reeves, F. E. Dussell, Ross Rue, Fred Zurbrugg, D. W. Crist and I. Koch. The object of the incorporation is the manufacture of brick and clay products.

A new brick concern has been established at Wells, Delta county, Mich., by the Manufacturing Supply Company. The plant is equipped throughout with modern machinery of 20,000 daily capacity, and the company has already booked a goodly number of orders. The plant will be run through the winter months and additional machinery installed in the spring. The company has a fine clay deposit.

The Clayburn Company is the name of a new concern recently organized, which has taken over the plant of the Vancouver Fire Clay Company, of Vancouver, B. C. John B. Millar, formerly of Toronto, has assumed control as managing director, and writes that the plant will be thoroughly overhauled and modernized, electricity being used as power. A very high grade of facing brick and fire brick will be produced, as well as a full line of paving and common building brick and sewer pipe. The office of the company is 21 Imperial building, Vancouver, while the works address is Clayburn, B. C. Mr. Millar says such an undertaking cannot be

carried on without THE CLAY-WORKER, and orders his address changed on our mailing list without delay.

The Model Brick Company, of Carrollton, Texas, has been incorporated with \$35,000 capital stock by J. C. Giddens, J. C. Thompson and A. J. Boedefeld.

George M. Goodwin, president of the Keisel Brick Company, of Rochester, N. H., died at his home at Haverhill, Mass., September 30th, in his fifty-seventh year.

The Niles Brick Company, of Niles, Ohio, recently booked an order for fire brick to line a \$1,000,000 blast furnace to be erected by the Youngstown (Ohio) Sheet and Tube Company.

John Eichess wants judgment in court for \$5,000 against the McLean Fire Brick Company, of Wellsville, Ohio, for personal injuries which he says have both incapacitated and disfigured him for life.

The Stone Island Brick Company's plant at Bay City, Mich., has been purchased by Becker & Miller, of that city. They will take possession the first of November and put same in shape for operation.

J. T. Wentworth, president of the Albany Brick Company, Albany, Ore., writes that the plant will be remodeled and a soft mud equipment installed. They will be pleased to receive literature from manufacturers of soft mud machinery.

The Zimmerman brick plant at Flint, Mich., will soon be a thing of the past. The clay has given out, and the plant will be dismantled as soon as the present kiln of 750,000 brick are burned. The plant has been in continuous operation for twenty years.

Fred A. Eigenmann, of Abbeyville, S. C., writes that he is anxious to obtain the address of Mr. Lamont, who was employed at the roofing tile plant of the Ludowici Tile Company, at Liberty City, Ga., in 1904, as he has something of interest to communicate to him.

A charter has been granted W. H. Rivers, Wayland River and Leon Keeble, who have formed the organization of a new brick plant under the name of the Leon Keeble Brick Company, with a capital stock of \$20,000, to be established at Lindale, Texas. The incorporators are Elgin men.

The American Clay Products Company, of Minneapolis, Minn., has been incorporated with \$100,000 capital stock for the purpose of manufacturing all manner of clay products. The officers of the new company are L. F. Mettelman, president; F. H. Shriber, vice-president, and Charles Parke, secretary and treasurer. All of these gentlemen reside in St. Paul.

The plant of the Duclos Brick and Tile Company, of Wrenshall, Minn., was almost totally destroyed by fire last month, the engine room being the only part of the plant that escaped damage. The fire started in the drying sheds. They had just finished burning a large kiln of brick, and this will enable them to fill many of their orders while the plant is being rebuilt.

The plant of the Rome Brick Company, Rome, Ga., which was burned some time since, will be rebuilt. The works will be fireproof this time, and as before will be equipped with Chambers machinery. The plans for the plant have been furnished by Lincoln Morrison, and are complete in every detail. The officers of the concern consist of men who have had many years' experience in the business.

The big plant of the New York and Philadelphia Brick Company, at Whippany, was burned last month, entailing a loss of \$20,000, most of which was covered by insurance. The fire started in the engine room, but soon spread to the entire plant. Arthur Huslam, of Newark, president of the company, says the plant will be rebuilt as soon as possible. It was one of the largest brick plants in that portion of New Jersey.

Manager F. H. Chapin, of the Cleveland (Ohio) Hydraulic Press Brick Company, has appointed W. H. Erskine as superintendent of the Cleveland plant to succeed John Hunt. Mr. Erskine was superintendent of the plant of the Forest City Brick Company until a few weeks ago, when it was partially destroyed by fire. So anxious was the concern to retain him that they kept paying his salary in full until he signed up with the Hydraulic Company to look after its plant at South Park, where the celebrated "Cherry Reds" are made. Manager Chapin and his new superintendent intend making a lot of improvements, with a view to enlarging the output of the plant. Mr. Chapin reports that business

(Continued on page 446.)



AUGER BRICK MACHINES

Chambers Brothers Co., Philadelphia, Pa.

End-Cut vs. Side-Cut STREET PAVERS.

Another established manufacturer of Paving Block and Brick in the Central West has just placed his order with us for one of the heaviest **Chambers End-Cut Auger Brick Machines with Round Corner Cutter.**

His letter covering the order contains this paragraph:

"With regard to the results of our rattler
"tests, beg to say that we got results from
"7 to 9 points better with your end-cut
"machine than with our side-cut."

This gentleman made his tests most carefully and deliberately, commencing them in May last. He came to Philadelphia in person to see his material worked, had the dried product, both block and brick size, shipped to his works, burned them in his own kilns under conditions that prevail in regular manufacture and then subjected these samples to Standard Rattler tests in comparison with his own best side-cut products.

With 7 to 9 points improvement in product the next logical move was the purchase of

The Chambers End-Cut Auger Machine
And He Made It.

CHAMBERS BROTHERS COMPANY,
PHILADELPHIA AND CHICAGO.

EDITORIAL NOTES AND CLIPPINGS—Continued.

is excellent, and that no difficulty is being found in disposing of the entire output of the firm. Erskine was formerly employed at Carnegie, Pa.

R. E. Weaver, of Akron, Ohio, the lessee of the Harris Brick Company's plant at Zanesville, Ohio, which was burned recently, has announced that the plant will be rebuilt.

George J. Walter, Chatsworth, Ill., writes that he has not been able to make tile fast enough to supply the demand, and it looks as though he would have to enlarge his plant.

The Aransas Pass Pressed Brick Company has been incorporated to manufacture at Aransas Pass, Texas. Those interested are T. C. Whitehead, P. C. McLead and W. F. Stegall.

Involuntary petition in bankruptcy has been filed against the Morrison-Trammel Brick Co., Rome, Ga., manufacturers of brick and sewer pipe. Liabilities are about \$40,000, with assets of \$30,000.

E. C. and W. R. Stuck have purchased the interests of other stockholders in the business and plant of the Jonesboro (Ark.) Brick Company. W. R. Stuck will take charge of the business, and the plant will be operated with a larger force than heretofore.

The Cary Brick Company, of Mechanicsville, N. Y., has bought the Plaistow brick plant at Plaistow, N. H., from Edward Glidden. The yards cover an area of 108 acres and are the largest in that section, turning out immense quantities of brick every year.

Mr. John A. J. Dixon, one of the oldest and best known residents of Northwest Baltimore, Md., and for many years a brick manufacturer of South Baltimore, died, October 6, at his residence, 1614 Harlem avenue. Mr. Dixon's death was due to general infirmity, as he was eighty-five years old. He left an estate valued at \$60,000.

On the afternoon of September 18, \$600 was stolen from the offices of the Scott Brick Company, at Bearden, west of the city. J. G. Stuart, of the company, had taken the money to the offices, placed it in a drawer to pay off the employees, and stepped out for a moment. On his return the drawer had been broken open and the money taken.

The Pittsburg Kiln Construction Company, of Washington, D. C., has had a very profitable season. Thomas Hampton, manager of the company, writes that they have recently sold the National Fireproofing Company kiln rights. This speaks well for the kiln, for the National Company uses only the best in all departments. The Pittsburg Construction Company guarantee all of their kilns, making a specialty of changing old kilns, furnishing complete plans for brick plants, sewer pipe plants, etc.

Messrs. F. P. Jones and H. C. Burchell are promoting a new company at Sydney, Nova Scotia, to be known as the Sydney Pressed Brick Company, Limited, and, acting for the prospective corporation, they have purchased the necessary machinery and awarded a contract for the construction of the necessary buildings. There will be two large buildings, one 82x36 feet and 23 feet in height, which will contain the manufacturing plant, and the other a shed 143x10x8 feet high, where the washing process will be carried on.

Charles Literer, owner of a brick plant at Maryville, Tenn., was the victim of a terrible accident recently. He was caught by a brick machine and pulled into it, the cogs slowly grinding off both legs to the knee. While pinioned in the machine, Literer saw one of his crushed limbs fall from the machine to the ground. He gave a great display of nerve, directing workmen how to stop the machine and how to extricate him, the latter operation requiring forty-five minutes. He was hurried to a Knoxville hospital, where both legs were amputated above the knee, and at last accounts was well on the way to recovery.

Anton Vogt, Jr., head burner at the Pomona Terra Cotta Company, Pomona, N. C., died suddenly last month as a result of violent exercise. He had been exercising by lifting an iron bar above his head, having one day lifted it twenty-one times. He remarked the next day that he would raise the bar thirty times in succession, but after the fourteenth time he sank to the floor gasping for breath, and died in a few moments, having ruptured a bloodvessel. He was the oldest son of Anton Vogt, of Mangum, Okla., and was probably one of the youngest sewer pipe burners in the country. A wife and two small children survive. His father

writes that he took some of the clay from his son's grave and burned it into small bricks for a remembrance.

Wiltse & Lofstedt have purchased the tile factory at Panorama, Iowa. John Maxwell will have the management of same.

The Interstate Fire Clay Company, of Cleveland, Ohio, has incorporated with \$10,000 capital stock by C. H. Judkins, M. C. Mulhall, A. C. Miller, A. L. Welch and W. H. Boyd.

The plant of the S. Barnes Brick Company, at Rochester, Pa., was damaged to the extent of \$15,000 by fire which started in the engine room. The loss was fully covered by insurance.

The New Jersey Clay Brick Company has been incorporated at Camden, N. J., with \$100,000 capital stock. The incorporators are Frank Murphy and Wm. Giberson, of Philadelphia, and Daniel McCarthy, of Florence, Pa.

The machinery for the new plant of the Lexington Brick and Tile Company, at Lexington, Texas, has been delivered from the shops of the C. W. Raymond Company, Dayton, Ohio, and the plant will probably be turning out brick before the first of November.

The Valleyford (Wash.) Brick and Tile Company has just completed its first season, which has proven so good that a dryer and a continuous kiln will be built at once, so that the plant can be run the year around. The kiln will have a capacity of 40,000 brick.

A gas explosion at the Cartwright Pottery, East Liverpool, Ohio, destroyed a double decorating kiln filled with ware recently, causing a loss of \$1,500 and slightly injuring two employees, Edward Annan and John Frye. Annan noticed the gas had given out in one portion of the kiln. He ran to the rear of the other to shut off the gas at that point, which act probably saved his life, as a heavy iron was blown 20 feet past the point where he had been standing.

The works of the New York Roofing Tile Company, at Malden, near Saugerties, N. Y., was wholly destroyed by fire September 29, entailing a loss of \$50,000. The fire is supposed to have been caused by sparks from a passing locomotive, as the fire started shortly after a train had passed. The loss to the company is serious, as it had several large contracts to fill, among them being three for the United States Government. The works, in all probability, will be rebuilt.

After a three months' illness with Bright's disease, Peter Mehrhof, seventy-four years old, of Ridgefield Park, N. J., died September 20. Mr. Mehrhof was the oldest brickmaker in the Hackensack district. He, together with his brothers, began business at Little Ferry twenty-four years ago. The deceased was born in Germany, but came to this country when a boy and learned his trade at Croton Point on the Hudson. Beside two brothers, Nicholas Mehrhof, of Essex street, and Philip Mehrhof, of Little Ferry, seven children survive.

At a recent meeting of the Directors of the Knowles, Taylor & Knowles Co., East Liverpool, Ohio, one of the oldest and largest pottery manufacturers in the country, Joseph G. Lee, for twenty years the general manager of the concern, tendered his resignation to become effective October 1st. Homer J. Taylor and W. L. Taylor, directors of the company, and sons of Col. J. N. Taylor, the president of the concern, were named as secretary and general manager respectively. Wm. H. Cook, for many years connected with the Edwin Knowles Pottery, at Chester, Pa., will be general superintendent of the East Liverpool plants.

"Local contractors and those who are using brick for building purposes complain of the scarcity of that material, not a sufficient quantity being on sale in the local market to supply the needs for chimney flue purposes," says the "New Castle (Pa.) Times." Bricks are not manufactured there and all that are needed have to be shipped in, and frequently the supply runs short. No better opportunity to make money is offered in New Castle than that of the manufacture of brick. The required clay is there and the demand is great. Men with knowledge of the business and with sufficient capital to handle it could realize handsome returns on the investment.

AUTOMOBILES FOR BRICKLAYERS.

Bricklayers are being taken to their work on the new building of the Patten Paper Company, at Appleton, Wis., in automobiles. The local contractor had to scour surrounding towns to get a sufficient force to complete his contract in the stipulated time.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



BUILDING OPERATIONS in New York have been maintained up to the present writing in quite as liberal volume as usual. The only drawback to a full development during the fall months is the high cost of building material. Conditions do not favor the purchaser of raw material, and only those who are compelled to go forward with the work already begun are buying with any degree of liberality. Meanwhile, building permits are issued daily in larger relative volume than before, and the outlook continues promising. The close of the season will see conditions favorable for an active opening next spring, and everything points to a large business in 1910. Apparently the development of the city requires much more liberal building operations than for the past few years, and capitalists and others interested in such development are taking advantage of these conditions to erect a good many valuable structures. Several large office buildings are planned, and the number of apartment houses and the better class of tenements is legion. There is no means of estimation, and not until the records are given will it be known how the matter stands. That it is more favorable than last year is certain.

The price of brick has not changed materially during the past month. In nearly all instances the market has remained fairly active, and prices have ruled reasonably high. Conditions have been favorable for this, and though the output and delivery have been heavy, consumption has practically kept pace with the supply, thus preventing any serious break in prices. At one time prices were reduced, but shortly afterward they were restored and are now held reasonably firm, pending the close of the season when all structural operations are closed and the market is over for the season.

The Hudson river has been freely advertised during the past few weeks. Over 1,000,000 visitors to New York have looked upon it. Some never saw it before, and perhaps some will never see it again. On the other hand, there are many who were attracted by New York and its environs who will return again to see them both. The Hudson has a good deal of interest to the clayworker, no matter where he may be. It is one of the most productive regions in the country in the production of brick. There is a long line of brickyards, beginning at Nyack and Haverstraw, and extend-

ing as far as Kingston. The banks of the river are composed of good clay for making common brick, and it is liberally utilized for that purpose. The kilns are almost beyond count. Some yards are two miles long, and a number of them produce 1,000,000 bricks a day each. A few employ almost 1,000 men each, and altogether something like 22,000 men are at work along the river making brick. About 6,000,000 tons of brick come down the river each year. Most of them come in specially constructed barges, in long towing lines, preceded by antiquated tugs, each barge carrying more than 500,000 bricks. There are schooners, too, engaged in the traffic, though these do not carry as many bricks as the barges. Conditions are, therefore, of importance when they make or mar such an enormous enterprise. Even though the production is large along the Hudson, the total clay output of New York State does not equal the New Jersey output. But New Jersey includes more potteries than New York, which has some influence upon the output of brick.

The controversy in New York over the coming building code will break out with renewed vigor when the mayor calls for the reports of the experts whom he directed to make investigations and report back to him. The cement and reinforced concrete men are not going to yield without a struggle, and that struggle promises to be serious, not to say acrimonious. It seems that any features of the controversy of a personal nature are likely to be included in the coming discussion, all of which is to be regretted, since it is bad enough for the industries connected with building to be criticised without having to suffer for the shortcomings of misguided, but zealous individuals, who demand more than can possibly be conceded. It is to be hoped that the mayor will stand firm, and will steadily and permanently refuse to allow the admission of materials in construction which are clearly unfit for such purposes. The circumstances under which the code was originally held up gives promise that he will carry out his resolution, and allow nothing to be permitted by the code which has not withstood the test of actual service in the most trying circumstances. This would be a determination in the direction of good government, since safe construction is the only kind which deserves the confidence of the people. It is within the power of the mayor to do this, and clearly he should do it. The cinder concrete men have no basis for their contentions, and the same observation applies, with perhaps slightly less force, to the reinforced concrete. The outlook is disposed to favor the fireproofing which has been demonstrated to be safe and certain. But after all there is no means of knowing what unwise and altogether injurious influences will be brought to bear to force the inclusion of these partially tested and somewhat unsuccessful materials in the code. BURTON.

FOR SALE, WANTED, ETC.

WANTED—To correspond with a reliable man to contract for the setting of paving brick and face brick by the thousand. Plant runs the year around. Address
BURKE BRICK CO.,
10 2 d Ft. Smith, Ark.

FOR SALE.

Modern up-to-date soft mud brick plant; only one in city of 200,000 inhabitants. Daily capacity of 35,000. Ready sale for entire output. Reason for selling, other business. Address
10-J,
10 1 1p Care Clay-Worker.

FOR SALE CHEAP.

One hot blast.
One 125 h. p. slide valve engine.
One Smith valve duplex pump.
All in good running order.
BLACK RIVER STARCH CO.,
9 tf em Black River Falls, Wis.

FOR SALE.

125 double-deck dryer cars.
1 American double-die repress.
1 Eagle double-die repress.
1 American four-mold dry press.
All in first-class condition. Address
BOX 10-R,
10 1 L Care Clay-Worker.

DRYER CARS.

We have on hand a lot of **second-hand single and double-deck dryer cars.** These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. **THE ATLAS CAR MFG. CO.,**
2 tf L Cleveland, Ohio.

FOR SALE.

Practically new Potts brick machine, sander and disintegrator, Martin machine, dump table, brick gravity carriers, Brewer 6A tile machine, Fate automatic end-cut brick cutter, brick pallets, and cast iron yokes for Barron dryer cars. Prices right. Address
D. C. HAEGER,
9 2 c Dundee, Ill.

BRICK PLANT FOR SALE.

One of the most complete **stiff mud brick plants** in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address
S. C.,
8 tf d Care Clay-Worker.

THE UNITED STATES PENITENTIARY, LEAVENWORTH, KANS.

has installed a new stiff mud brickmaking plant, therefore offers for sale, at very low figures:

One Ross-Keller six-mold dry press brick machine, with all belts, shafting, pulleys, screens, etc., as now attached.

One 65 h. p. slide valve steam engine.

The above property is in good condition for brickmaking. Inspection and correspondence invited.

R. W. McCLAUGHRY, Warden,
9 tf d Leavenworth, Kans.

FOR SALE.

Books for brickmakers. Inexperienced workmen will find them a source of valuable information. "Brickmakers' Manual," \$3.00; a practical treatise on the everyday details of brickmaking. "Clay Glazes and Enamels," \$5.00; tells how to glaze and enamel brick, and gives valuable recipes. "The Clayworkers' Handbook," \$2.00; a manual for all engaged in the manufacture of articles from clay. "Clays," \$5.00; their occurrences, properties and uses, with special reference to those of the United States. All or any of these books mailed postage prepaid, on receipt of price. Write for list of other valuable books for clayworkers. Address
T. A. RANDALL & CO.,
Indianapolis, Ind.

(Continued on next page.)

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Position with brick concern.

Can fill any place from manager to head burner. Can build plants and set machinery by plans. BOX 10-P,
10 1 d Care Clay-Worker.

WANTED.

A practical and experienced man in pottery to take charge of souvenir plant. Must have some capital to invest in the business.

HOT SPRINGS POTTERY CO.,
9 2 c Hot Springs, Ark.

WANTED—Experienced man with capital to take share in pressed brick concern and assume management at good salary. Good clay, large market, bright prospects. Location, western Canada. Address

CELTIC,
9 tf d Care Clay-Worker.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address FRANK P. CLEVELAND,
965 Adams Express Building,
8 tf d Chicago, Ill.

WANTED.

A thoroughly practical drain tile man, a hustler with some money to take an interest and help keep things moving in a paying factory in northern Iowa. Home demand will more than take output for years to come. Address, BOX 10-A. B.,
10 1 d Care Clay-Worker.

WANTED—Position as brickworks manager or superintendent. Long practical experience. Technical knowledge. No experimenting. Soft mud or dry press front brick, all colors. Gas, coal or wood fuel. Highest references. At present engaged, but desire change. Address

BOX 10-W,
10 1 c Care Clay-Worker.

FOR SALE—AT A BARGAIN—A BRICK, HOLLOW BLOCK AND DRAIN TILE PLANT.

Located at Omaha and equipped with the latest improved machinery, nearly new, including Raymond's auger machine and Youngren's patent continuous kilns. Good trackage. Plant in operation and good demand for output. Ample supply of shale and clay. Will sell part or all. Reason, ill health. Address BOX 10-I,
10 1 c Care Clay-Worker.

WANTED.

A young or middle-aged man of habits strictly good, honest and reliable, one who is experienced in the manufacture of clay products, and also able to handle correspondence pertaining thereto, and the use of machinery for the manufacture thereof, for position in sales department of reliable machinery manufacturer. In reply to this advertisement, state salary that would be expected, and give several references as to ability and character. Address

R. O. P.,
9 1 L Care Clay-Worker.

FOR SALE.

State rights on my patent kilns. A good chance for a contractor in each state. See ad on page 453. F. W. DENNIS,

188 Bermuda st.,
10 1 c Norfolk, Va.

WANTED.

Experienced brick burner. Only those who have had experience burning vitrified shale brick with gas need apply. Send recommendations with application.

BURKE BRICK CO.,
10 2 d Ft. Smith, Ark.

FOR SALE.

All or controlling interest in one of the best located, up-to-date brick plants on the Pacific Coast, manufacturing high-grade face and sewer brick, the demand for which far exceeds the supply. Money invested to be used in enlarging and improving plant. Address BOX 10-B,
10 1 d Care Clay-Worker.

FOR SALE.

Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
2 tf L Richmond, Va.

PAYING BUSINESS FOR SALE.

We have for sale one of the best pressed brick plants in the southwest; daily capacity, 60,000. Has every facility and modern appliance for economical operation. Located in one of the best towns in central Arkansas, on lines of the Rock Island, Frisco, and Missouri-Pacific Iron Mountain railroads. Future delivery orders for one and one-half millions now booked. If a real bargain interests you, write for particulars. SOUTHERN TRUST CO.,
10 2 cm Little Rock, Ark.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.

THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

WANTED.

We want a good man to take charge of our machine room, one who understands Boyd presses and dry pans and engines, one who can keep things moving and make brick.

We also want a man to take charge of our stiff mud machinery; we have Freese machines; one who understands his business and can keep things moving, and can keep machinery up.

We also have openings for first-class face brick setters and first-class sorters.

We have nothing but first-class machinery, practically new, and manufacture nothing but a high-grade face and fire brick. Location good and positions permanent. Address "LINCOLN,"
9 1 d Care Clay-Worker.

DRY PRESS FOR SALE.

We have for sale one American four-mold dry press as good as new. A bargain if sold at once. Address THE DES MOINES CLAY MFG. CO.,
9 2 c Des Moines, Iowa.

FOR SALE CHEAP.

One hundred thousand dressed pine brick pallets, good quality. Three Martin brick machines. One Quaker brick machine, barrows, shafting, engine, boilers, etc. Address PEERLESS BRICK AND TILE CO., LTD.,
10 1 c Ottawa, Ont., Can.

FOR SALE.

One all iron horizontal Potts soft mud machine, together with Potts sander, two dozen steel-lined cherry molds and 20,000 foot pallets, standard size. Address

BALLARD BRICK CO.,
519 Pioneer bldg.,
9 tf d Seattle, Wash.

FOR SALE.

Stock in a good, up-to-date brick plant in western Kentucky, equipped with first-class dry press machinery and down-draft kilns. Good locality, and is a paying proposition to the man who understands the business. Address LOCK BOX 271,
10 3 cm Keyser, W. Va.

FOR SALE AT A BARGAIN.

One 2D three-mold American Clay dry press, together with radial, octagon and round-cornered pressure feet, with mold box, all complete in elegant condition. Our reason for selling is that our material will not make dry pressed brick successfully. Also, one Steele & Sons' end-cutter in good condition. The trade in this section prefers side-cut brick.

VICTOR CUSHWA & SONS,
8 3 c Williamsport, Md.

BRICK PLANT FOR SALE OR LEASE.

A conveniently located brick plant on the Southern Railway, 90 miles north of Brunswick, Ga., 100 miles north of Jacksonville, Fla., 100 miles from Savannah, Ga., all of which are good, steady markets for brick, together with a good local territory. Have 350 acres of fine clay land, with ample fuel. Have all necessary machinery in first-class condition, including a Chambers automatic end-cut brick machine, kilns, ample yard room, etc. Capacity of plant, 40,000 brick per day. Good labor very cheap. Present owners engaged in other lines of business which occupies all their time. For further information, address

MAX L. McRAE, Sec. and Treas.,
9 1 dm McRae, Ga.

FOR SALE.

Paving brick plant of the Camden Clay Company, situated at Spilman, Mason county, W. Va. The entire plant of this company fully equipped for making 25,000 paving brick per day, a four-mold Boyd dry press, and a Murray clay roofing shingle machine, together with a right to an abundance of shale closely situated, fifteen employes' houses, two residences, thirty acres of ground in fee on bank of Ohio river, an abundance of coal with incline from mine to yard, six two-track fire-proof dryers, twelve 30-foot down-draft kilns. Entire yard paved. Shipping facilities, Baltimore & Ohio Railroad through property and sunken switch through yard, and incline to Ohio river. This plant is for sale at a very low figure. For further information address

M. G. TYLER, Trustee,
9 1 dm Spilman, W. Va.

FOR SALE.

Two second-hand American Clay Machinery Co. No. 2 automatic cutters.
One Western Wheel Scraper Co. No. 2 jaw crusher.
HYDRAULIC PRESS BRICK CO.,
Brazil Branch,
Brazil, Ind.

WANTED.

Superintendent of combined dry press and stiff mud yard. Capacity, about 60,000. Best equipped plant in the south. Want a high-grade experienced man, married preferred. Right salary to right man.
GULF STATES BRICK CO.,
Beaumont, Texas.

FOR SALE CHEAP.

Four-Mold Ross-Keller Brick Press; good working condition.
CHISHOLM, BOYD & WHITE CO.,
57th and Wallace Streets,
Chicago.

GRAFT

is frequently covered with a coat of
WHITEWASH.

So, also, are bricks.

We are an investigating committee to locate the cause of whitewash or scumming on bricks, and we also prescribe the remedy.

Is the cause in the water used? Is it in the fuel? Is it in the clay itself? Wherever it is, we can find it.

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We have entered suit in the Circuit Court of the United States, Western District of Pennsylvania, against R. H. Lynn, J. L. Hammond, J. B. Hammond and F. R. Hammond, trading as the Bolivar Terra Cotta Company, at Bolivar, Pa., on an infringement of our patent No. 685,410, for veneering bricks, and will prosecute all and every infringement of this patent.

ANDREW RAMSAY,

Mount Savage, Md.

246

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One revolving screen.
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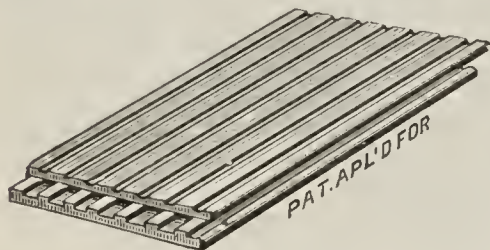
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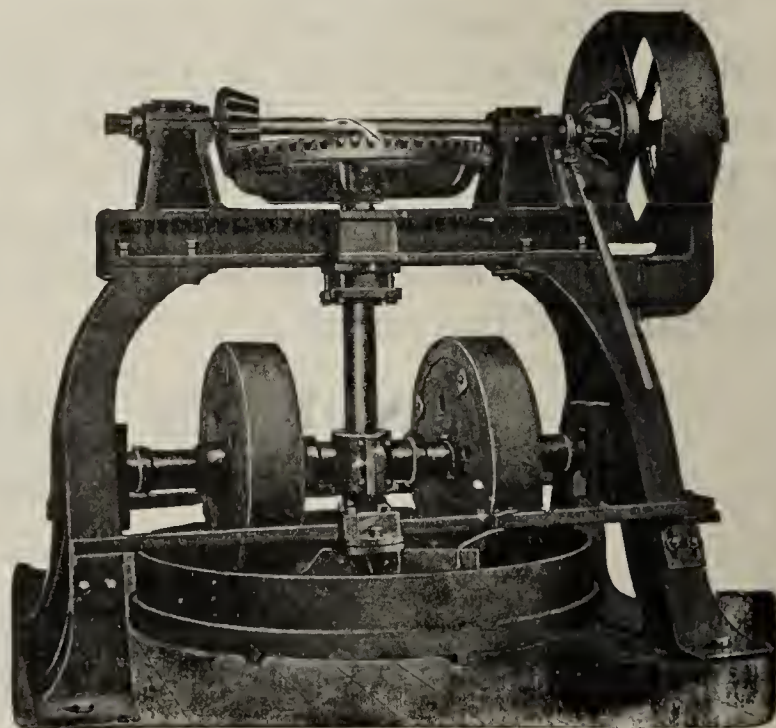
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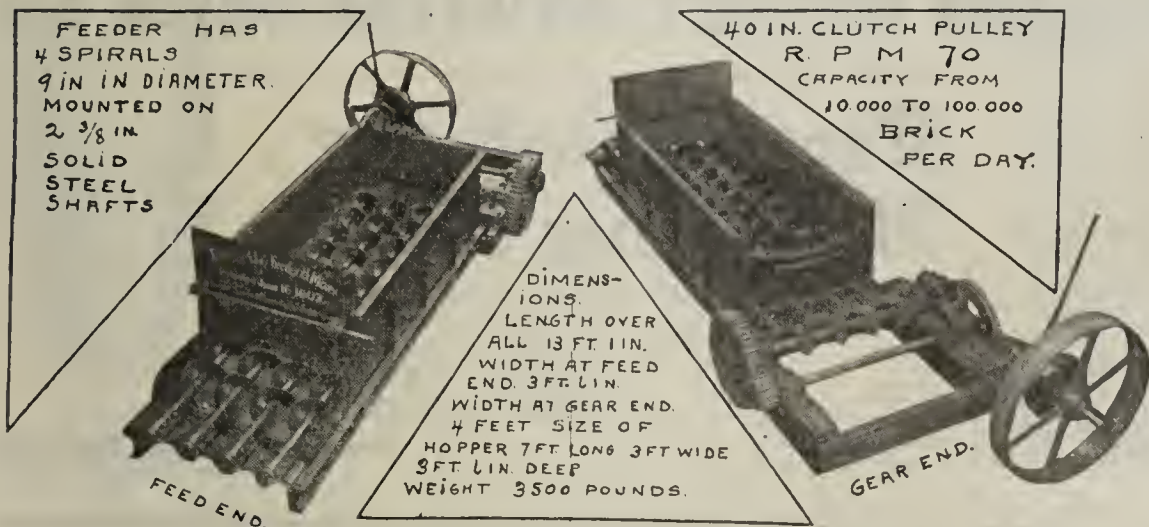
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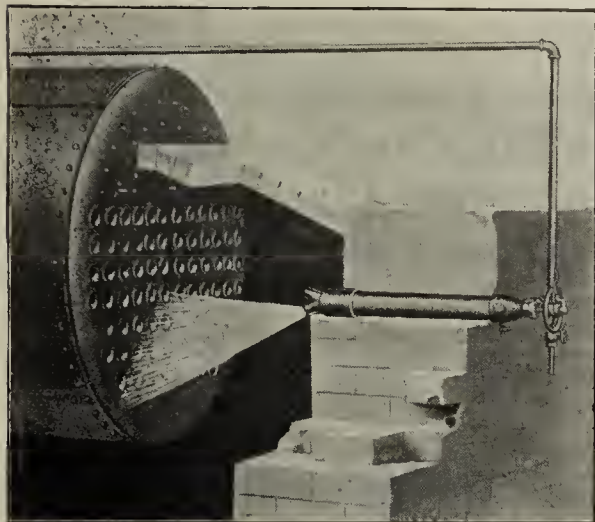


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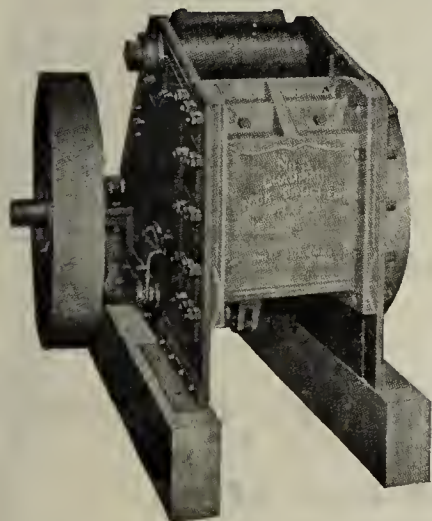
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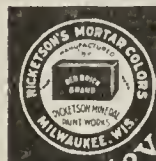
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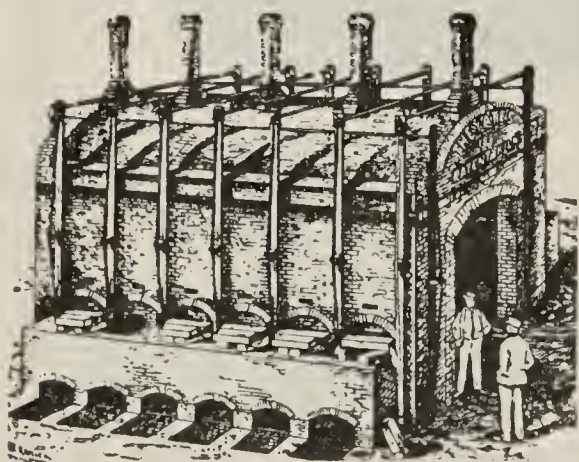
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Waste Engine Heat

drying bricks "solid" and AT LESS COST for
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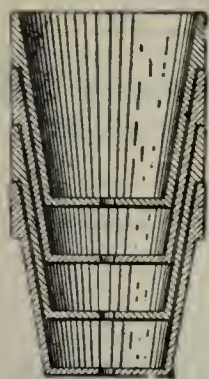
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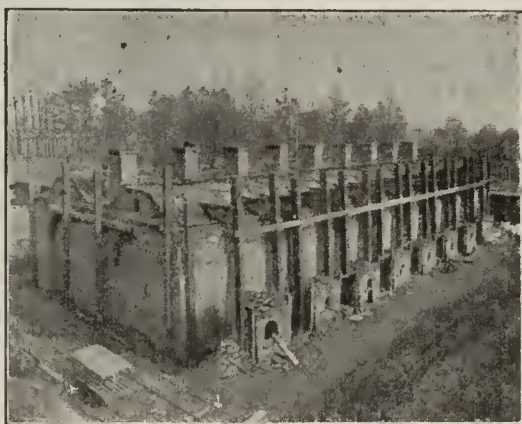
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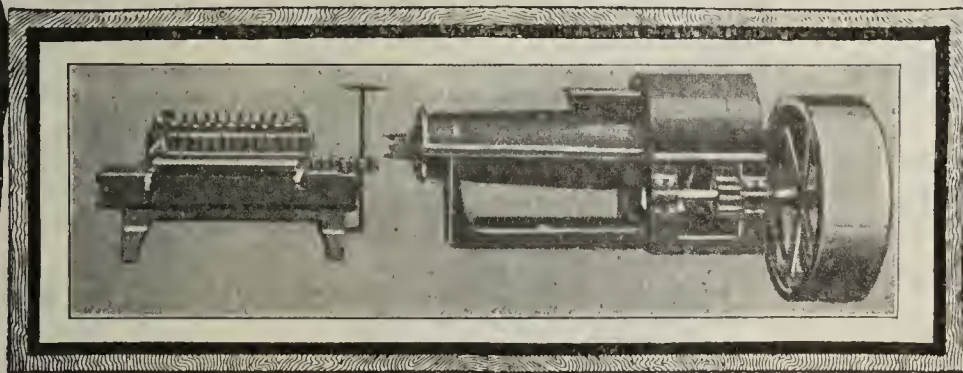
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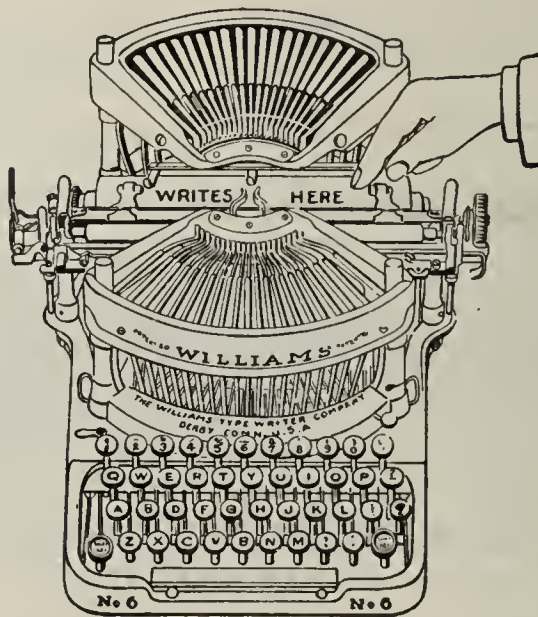
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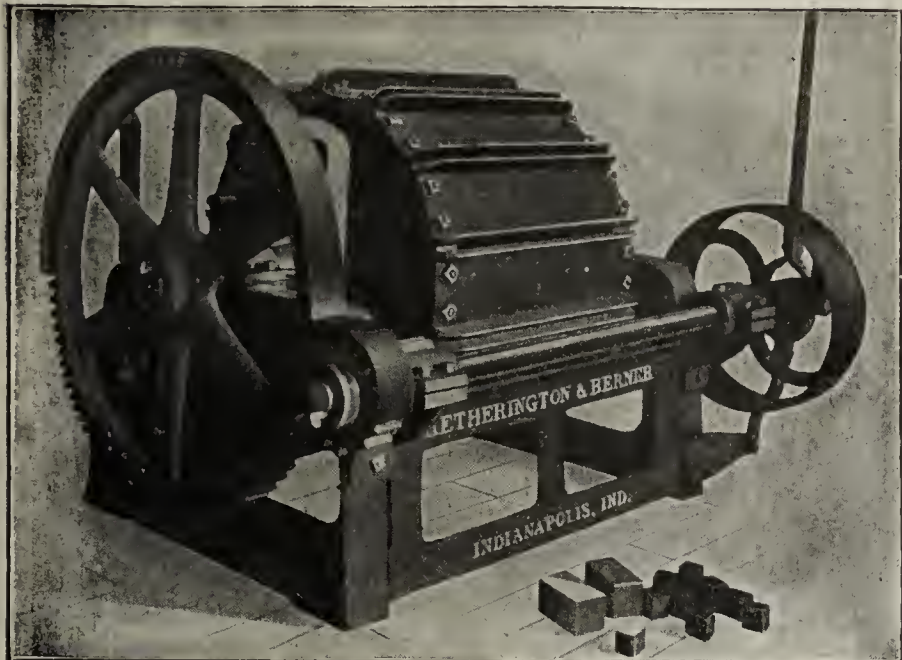
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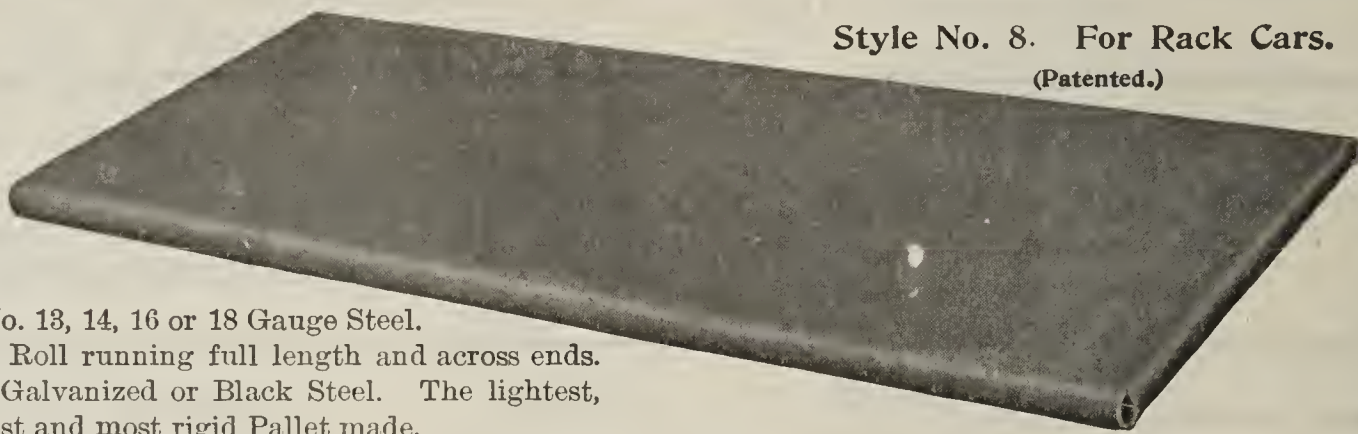
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CHEAPER THAN HORSE TRANSPORTATION

and will reduce costs of delivering your material to your
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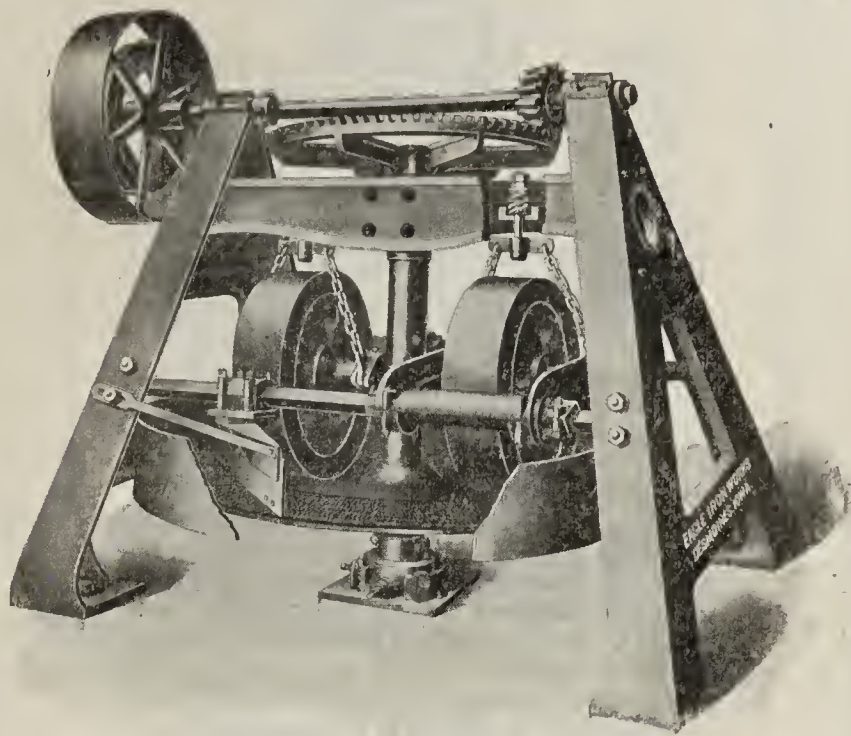
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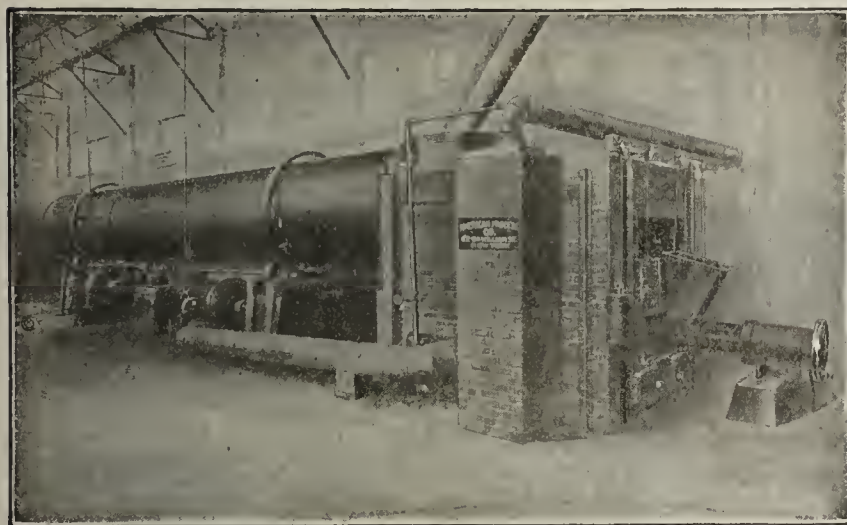
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ECONOMICAL, EFFICIENT, GREAT CAPACITY.

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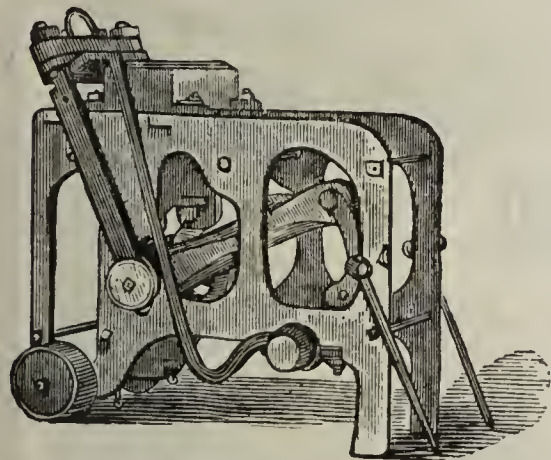
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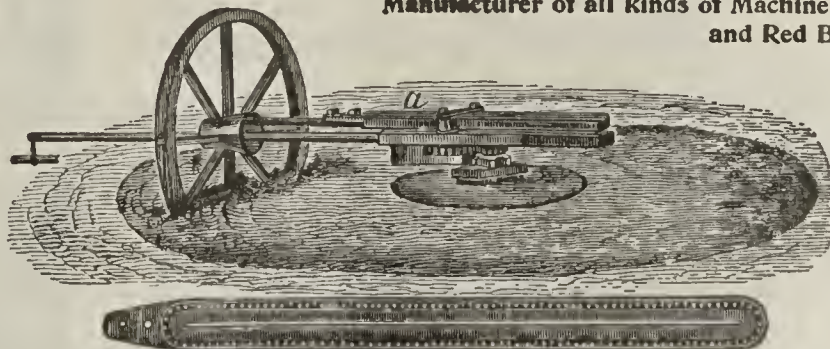
Philadelphia Brick Machine Works.

Fire and Red Brick Presses all Sizes. Machinists and Engineers.

Manufacturer of all kinds of Machinery used in the manufacture of Fire
and Red Brick.



RED BRICK PRESS.



These Tempering Machines
can be driven either by Steam
or Horse Power. The latest im-
provement requires less power
to run than the old style Steam
Gearing, and fitted up 10 per
cent. cheaper.

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The fact that we are selling Leviathan belting to concerns who have been buying of us from ten to twenty-seven years, we have already set forth. The evidence thereof we have a certain pride in submitting on request, such requests being very welcome.

A few days ago a customer of seventeen years wrote us that he has reduced his manufacturing cost by the tremendous durability of Leviathan, as compared with other belting in use in concerns similar to his.

We want your orders squarely on giving you the greatest value for each dollar you pay us, and standing responsible for that value throughout the life of each belt. May we send you some "evidence?"

Main Belting Company

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59 Market Street,
118 Pearl Street,
305 Broadway
908 Ellicott Square,
33 Terminal Way,

PHILADELPHIA
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NEW YORK
BUFFALO
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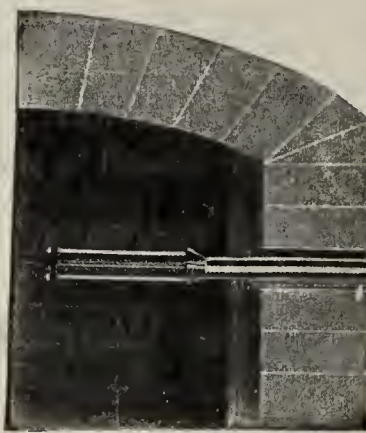
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BURN 99% HARD BRICK.

This is the daily experience of those using these kilns. Hampton Kilns are cheap to construct and are great fuel and labor-savers. Perfect burns from top to bottom, with no over-burned brick around the bags. It will cost you little to investigate and may save you much loss.

Pittsburgh Kiln Construction Co.,
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PYROMETERS



For measuring the temperature of kilns, do away with guess-work. For temperatures to 3000° Fahr.

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BROWN
& SON,**
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Walnut St.,
Philadelphia,
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YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

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THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

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Fire Brick—Fire Clay

AND FIRE CLAY PRODUCTS

Manufactured out of highest grade Missouri semi-flint fire clay. A large stock of Number One brick and shapes always on hand. Let us quote you prices and we will save you money. Samples sent upon request. Address

Mexico Brick & Fire Clay Co.

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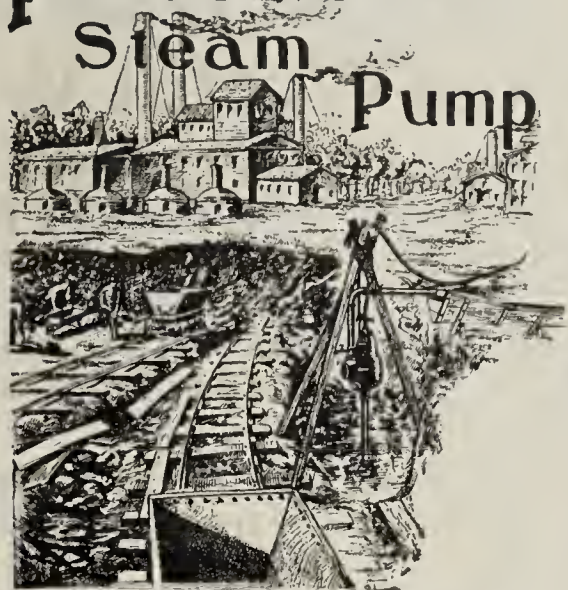
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is registered in the United States Patent Office and is our exclusive property. It brands our best burned clay products. All manufacturers and dealers, except those selling our goods, are warned against infringement.

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DRAINING CLAY PITS.

For this **rough-service** you need a pump that is simplicity itself—one that will handle any kind of dirty, muddy, gritty liquids without suffering the least injury, in short, a

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No engine, belt, oil, packing or special foundation required: just a steam pipe from boiler—that's all. Operates as well suspended as stationary.

Simple to Install.

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ESTABLISHED IN 1860.

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Constructor of Brick, Tile and Lime Works for Coal or Gas Firing, and Kilns with or without Dryer.

Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

In the Buhrer Chamber Dryer bricks and tiles made by the plastic process from clays of normal character may be dried, the former in one to one day and a half, and the latter in 4 to 5 days. In the Buhrer Tunnel Dryer green bricks may be very well dried in 24 hours with the waste heat of the kiln only.

The Buhrer Fan increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

Clay Testing is done in a thorough way. Write for illustrated pamphlet.

ABOUT 1,000 KILNS HAVE BEEN CONSTRUCTED ALREADY.

"ENTIRE SATISFACTION."

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Dear Sir—The results obtained from the brick plant, which we have constructed according to your plans, being quite satisfactory to us, we state that it consists, besides the machines, of a dryer of 32 chambers and of a kiln of your system of 20 chambers with a fire gallery, the total length of which is 218 yards, its width 9 feet and its height 7 feet 8 inches.

The first test of burning was commenced on May 18th last at 11 o'clock in the morning, and was finished on the 20th of May at 5 o'clock in the afternoon. It lasted 54 hours, and during this time the fire advanced 109 yards, burning 10 chambers filled with 130,000 bricks of 10x5x2½ inch, equivalent to a daily production of about 57,000 bricks in 24 hours.

We have ascertained that 210 to 220 pounds of good English coal is sufficient to burn 1,000 bricks, and that burning is done at about 1,700 degrees Fahr.

We state with pleasure that the brick plant constructed on the plans of Mr. Buhrer works to our entire satisfaction, and that the bricks produced are in great demand at Milan.

Your Superintendent of the construction work and your instructor-burner performed their duty in a most satisfactory way. We remain, Dear Sir, Yours Faithfully,

For the FABBRICA LOMBARDA LATERIZI.

Mr. Jacob Buhrer, Constance.

The President: (signed) Conti.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

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Works:

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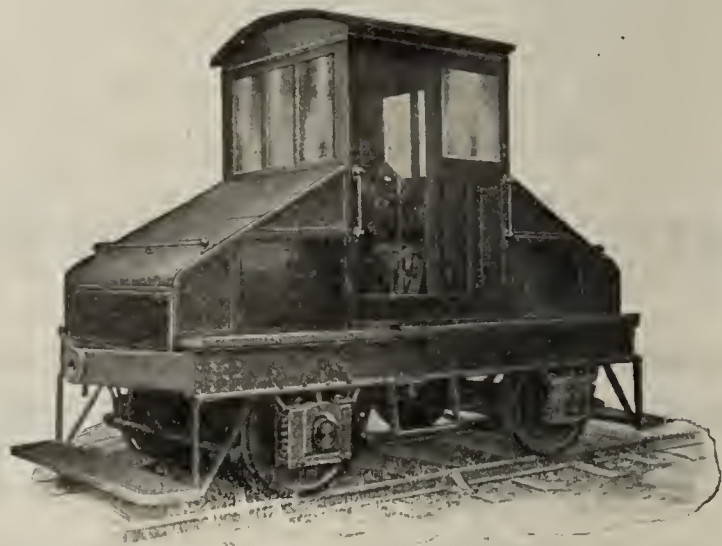
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Builders' Exchange,
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Milwaukee Locomotives (Gasoline Driven) for CLAY HAULAGE.



Type "C" Milwaukee Locomotive.

Milwaukee Locomotives are built for all gauges of track and in sizes from 2½ to 30 tons. They are always ready for instant use, are very efficient and economical to operate. Reduce haulage costs to the minimum, as their operation is much cheaper than animal haulage.

Write for Publication No. 1003.

Milwaukee Locomotive Mfg. Co.

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The "EXCELSIOR" CONTINUOUS KILN

IS WITHOUT DOUBT THE MOST UP-TO-DATE CONTINUOUS
KILN YET DESIGNED IN EITHER THE NEW OR THE OLD
WORLD.

IT IS THE OUTCOME OF YEARS OF PRACTICAL TECHNICAL
EXPERIENCE AS KILN BUILDERS AND CERAMISTS.

IT IS ECONOMICAL IN FIRST COST [THE CHEAPEST CONTINUOUS
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IT IS ECONOMICAL IN ACTUAL AREA TAKEN UP.

IT IS ECONOMICAL IN FUEL AND LABOR.

IT IS A DRYER AS WELL AS A KILN

AND IT WILL GIVE **ANY** OUTPUT REQUIRED.

If you want kilns of any description built in any part of the world consult

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THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,

GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over 40 years, and are the original of all machines now made that use a Pug Mill and Sqaure Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brick-making since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

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THE BOSS SYSTEM

of

BURNING BRICK

Involves the Original Principle

Of Applying
Air Under Pressure.

Burns all first-class
hard brick
at
40% reduction in
fuel cost.

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HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning

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AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

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Every Brickmaker Who Has Kilns With an Arch on Should Have One.

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Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

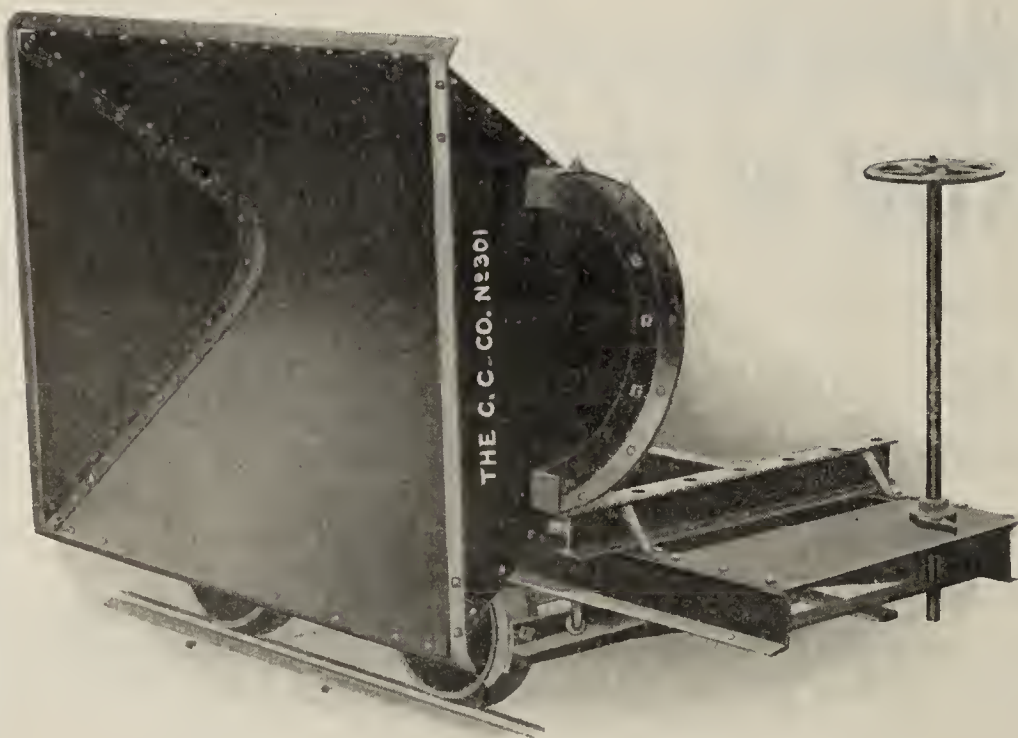
Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

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We can convince you of that
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These cars are properly bal-
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Note these features carefully
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Manufacturers of Industrial Railway Equipment for all Classes of Service.

We Manufacture a Complete Line of BRICK MACHINERY

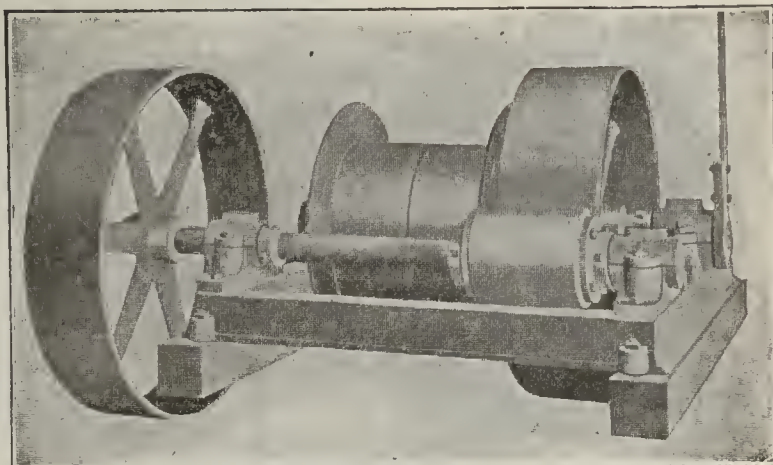
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Roller Bearing Brick Barrows.

Everybody duplicates orders; they must be used to be appreciated.

Price \$7.50 each.

Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.

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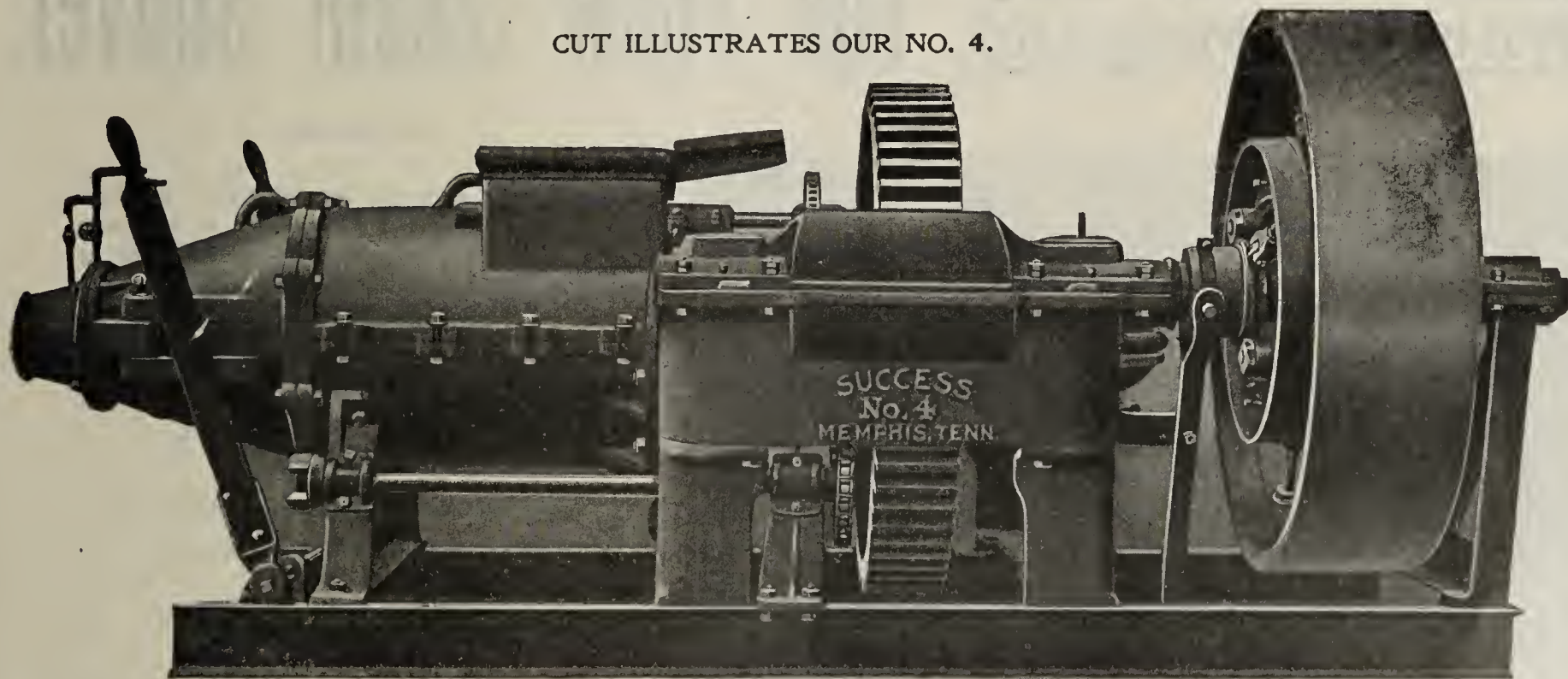
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Successor to S. K. Fletcher.

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SUCCESS STIFF MUD MACHINE

CUT ILLUSTRATES OUR NO. 4.



We have five sizes, ranging in capacity from five to seventy-five thousand per day, with end cut or side cut automatic cutters, as desired.

FULL LINE SOFT MUD MACHINES, CAPACITIES FROM FIVE TO FIFTY THOUSAND PER DAY.

Granulators, Pug Mills, Disintegrators, Hoisting Drums, Clay Cars, Wire Rope, Steel Rail, Automatic Switches, Trucks, Barrows, Castings, etc., H. S. & G. Engines and Boilers. Machinery guaranteed. Freight paid both ways if not found as represented. Building of complete plants our specialty. "SUCCESS" is what you are looking for; write us.

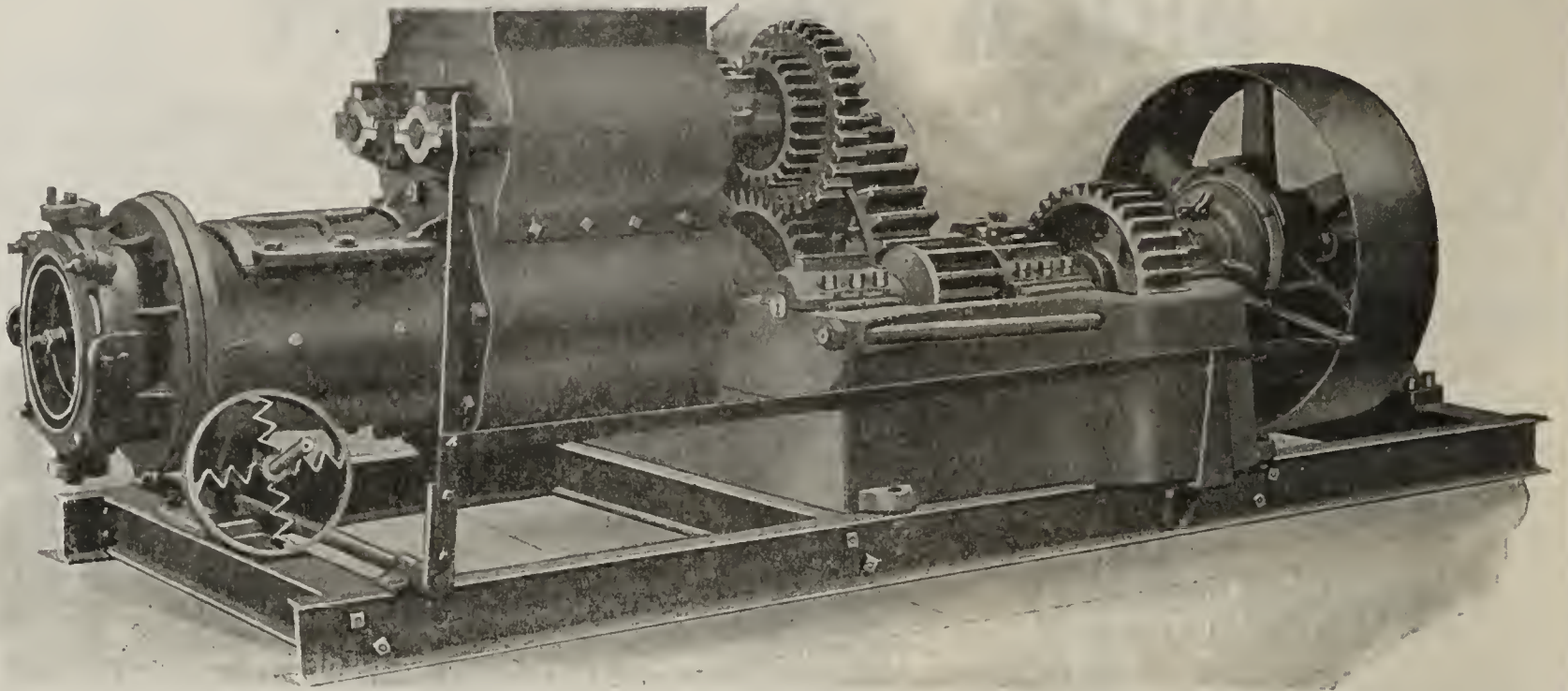
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MADDEN 6D HORIZONTAL TILE MILL.



This machine has the largest capacity of any mill on the market. Will make 30,000 4-inch tile per day in the most stubborn clay. Cut Gears, Hammered Steel Shafting, Rigid Frame. Built to withstand any strain. We build four other sizes to suit the capacity of any plant. Also full line Pug Mills, Disintegrators, Crushers, Barrows, Trucks, Tables and Wire. Write us for prices.

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With One Man and**

The Thew Steam Shovel.



Type No. 0—Ohio Brick Company, Toledo, Ohio.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.

Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

ANNOUNCEMENT

It is with pleasure that we inform you of our acquisition of the patents, business and good will of the Horton Manufacturing Company, of Painesville, Ohio.

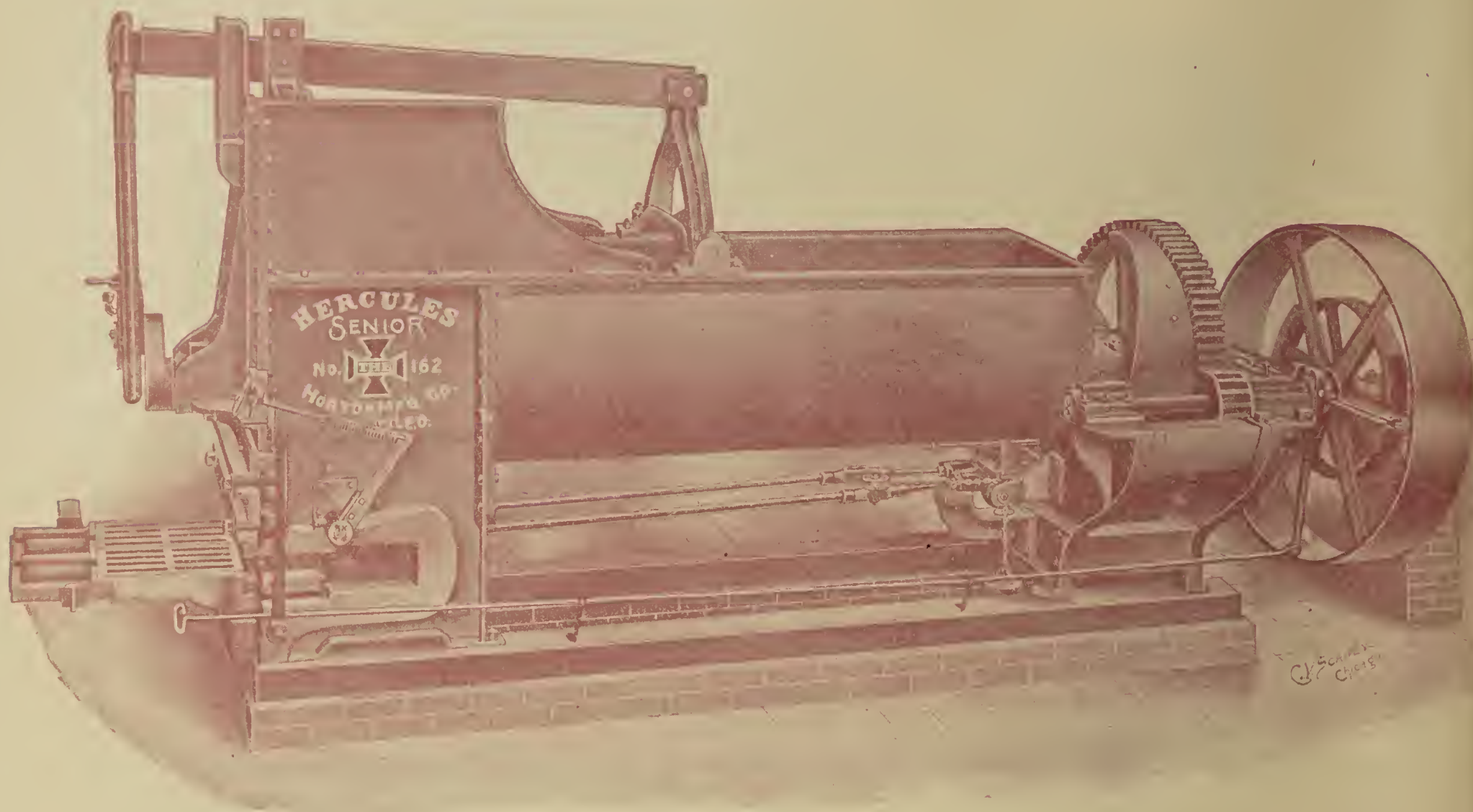
The Horton Manufacturing Company built the most complete and perfect line of Soft Mud Brickmaking Machinery in the United States, which, added to our line of modern machinery will constitute the strongest power in the world of Clayworking Machinery.

The new line will be christened the "Raymond-Horton," and is now placed before you as the embodiment of Soft Mud perfection.

The C. W. Raymond Co.

Dayton, Ohio, U. S. A.

THE RAYMOND-HORTON.



The unification of the Raymond-Horton Soft Mud line brings into being the magnificent results of the best thoughts on the subject, with all experiments made and every machine with its efficiency demonstrated beyond the point where there is not the faintest shadow of a doubt as to its practicability.

The purchase is complete, every brick machine, sander, pug mill, disintegrator and all appurtenances will be manufactured at Dayton, Ohio.

New parts which may be from time to time required will be supplied by us. We are now ready to fill your orders for any of the Raymond-Horton line.

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THE RAYMOND LOW FRAME DRY PAN.

Built to meet the requirements of those demanding a machine of this character.

The Low Frame allows a more stable setting to the foundation, thus eliminating possible vibration.

Massive in every detail, with the now famed Raymond Three Bearing Cross Rail, which gives the maximum efficiency in the driving section.

Glad to send details of these machines.

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Saves
60%
of your
Fuel

There's a
reason
why—ask
for catalog.

A Youngren Continuous Kiln Installation—Producer Gas Fired.

The C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

The Raymond Metallic Radiation Dryer

(Patented May 11, 1909.)

The highest radiating powers of any dryer ever conceived, using the least amount of fuel to acquire the maximum results.

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THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

**CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.**

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

**One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.**

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

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Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

THE KING ENGINEERING CO.,

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GOING TO SHUT DOWN OF COURSE.

Can't Make Brick in Winter Without A DRIER.

BETTER GET IN LINE.

"In reply to your favor of the 2d, will say our Drier, which you installed last spring, is giving the utmost satisfaction. We are drying more brick than you guaranteed, and can recommend it to anyone as a first-class Drier in every respect. Easy to operate and no expensive repairs, and never out of order. Wishing you success, we are,

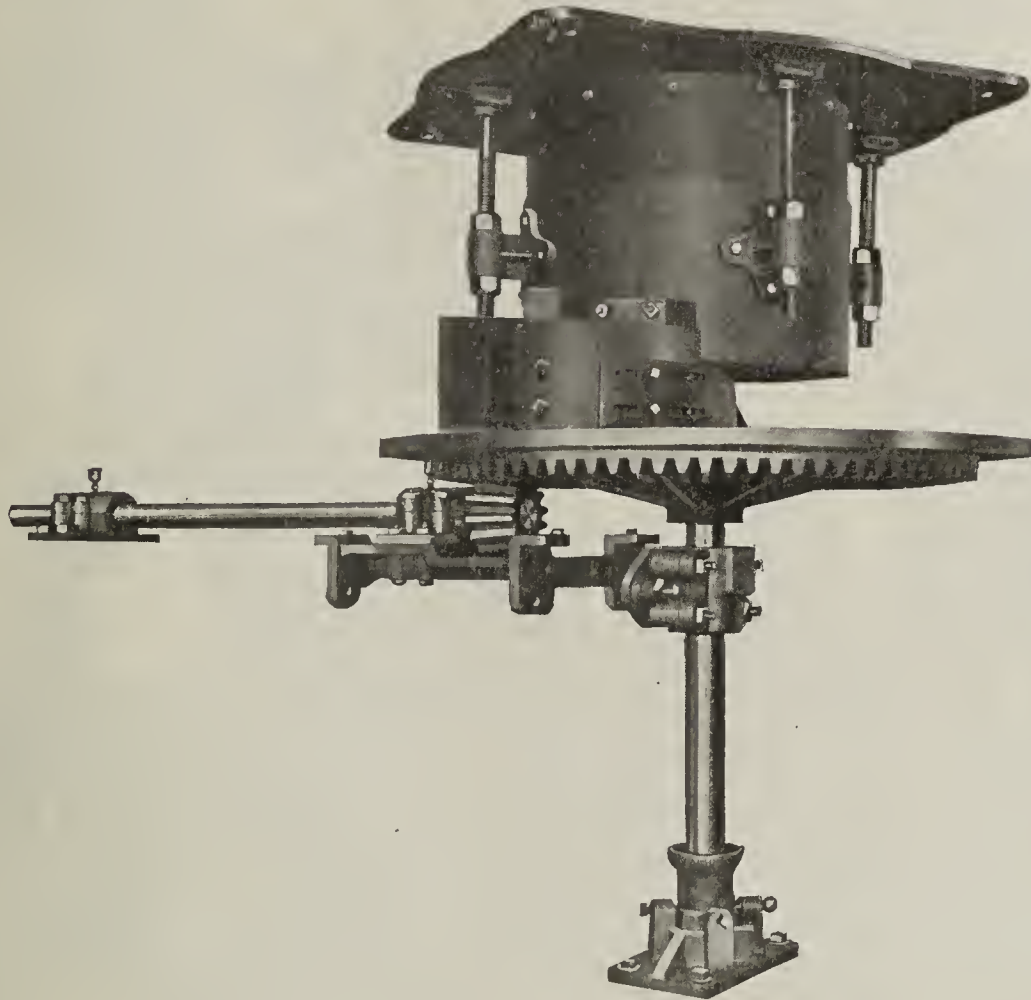
THE CARROLLTON BRICK CO.,
Carrollton, Ky."

The National Dry Kiln Co.,
Exhaust Steam. **Indianapolis, Ind.**

TO ALL WHO

Deliver crushed clay to Dry Pan, or
Temper pulverized clay or shale in Pug Mill, or
Feed definite proportions of different materials for
accurate mixtures

THE COLUMBUS FEEDER



Will save its cost in a few months and give better
results than are possible without it.

If interested send for catalog or any of the following
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"Bucket Elevators for Clay."

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"Apparatus for Controlling the Drying."

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The Best of Everything for Clayworkers.

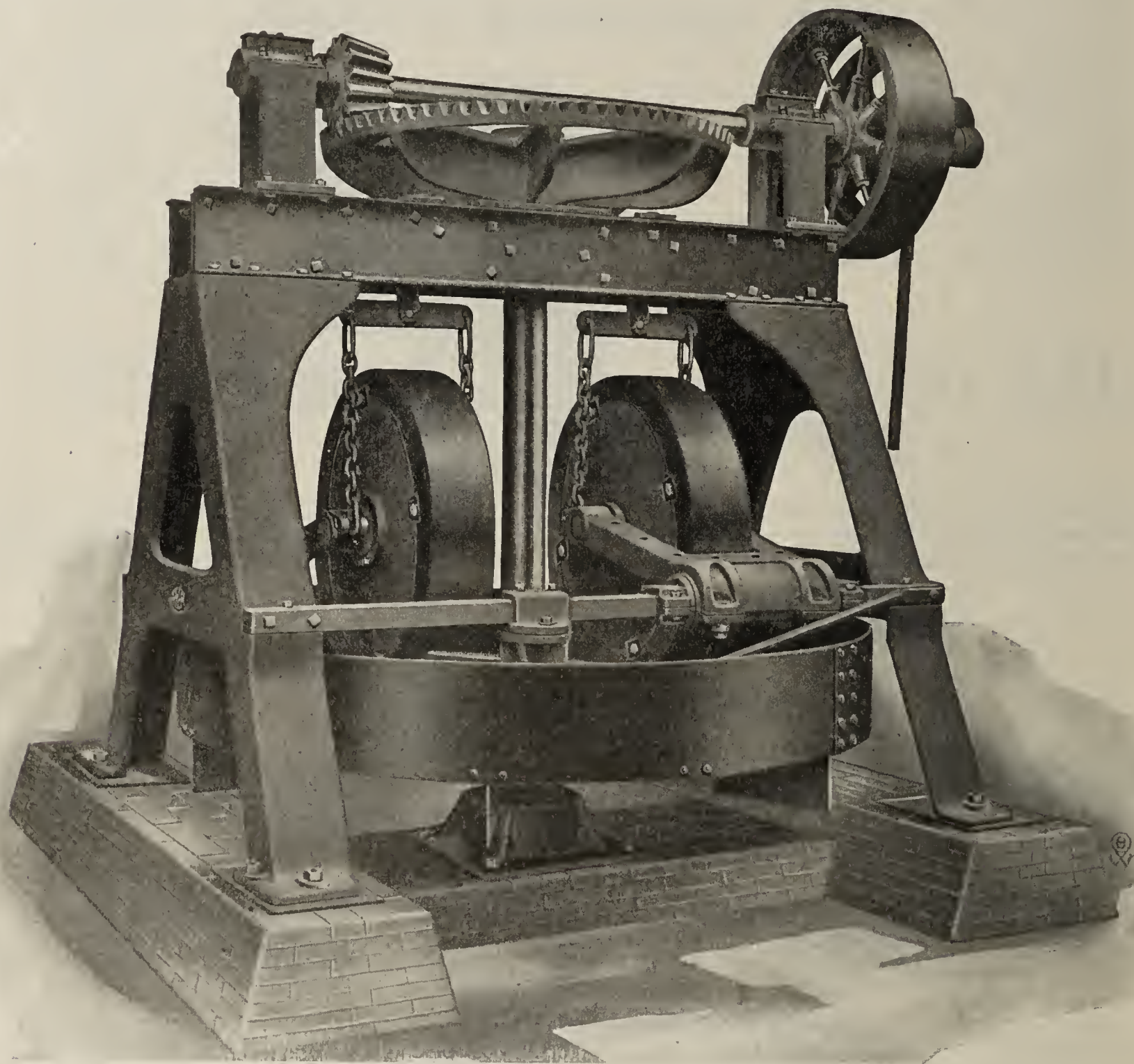
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DRY PANS

The Brewer No 67 (nine-foot) and the No. 66 (five-foot) are the same except size. They are rated and sold as standard machines, but are as heavy and capable as the so-called "heavy duty" pans.



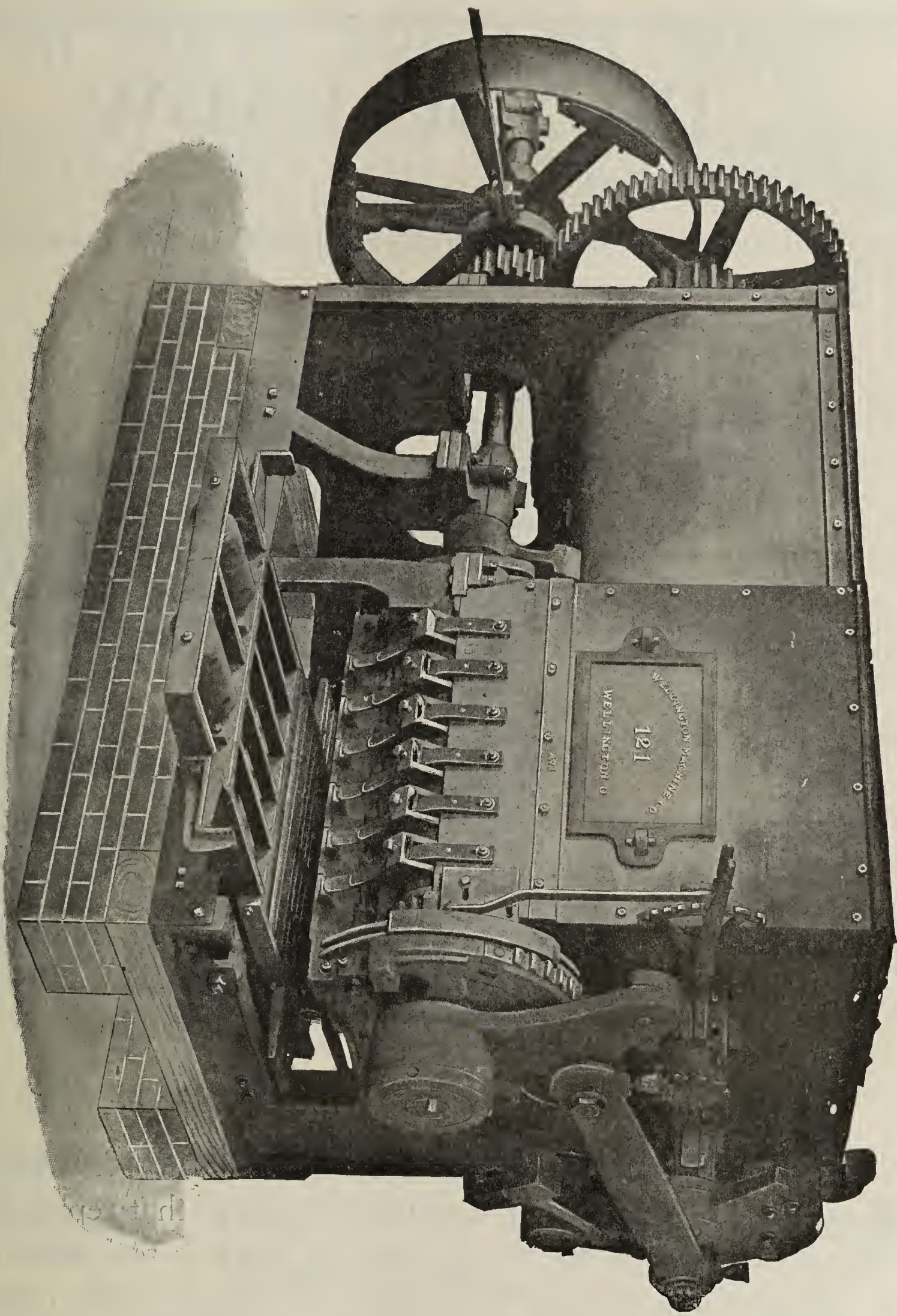
The Construction is Superior

Mullers, independent, with removable white-iron tires, removable bushings, and suspended on springs. Step bearing accessible, self-oiling and removable. Wearing plates, white-iron. Screen plates, malleable iron. Scraper blades, crucible steel.

Ask for detailed specifications.

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The Big "No. 6" "Monarch" Brick Machine.



OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
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grators,
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and all
kinds of
Kiln
Castings.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

ROLLER-BEARING
BARROWS.

The Wellington Machine Co.,

WELLINGTON,

OHIO.

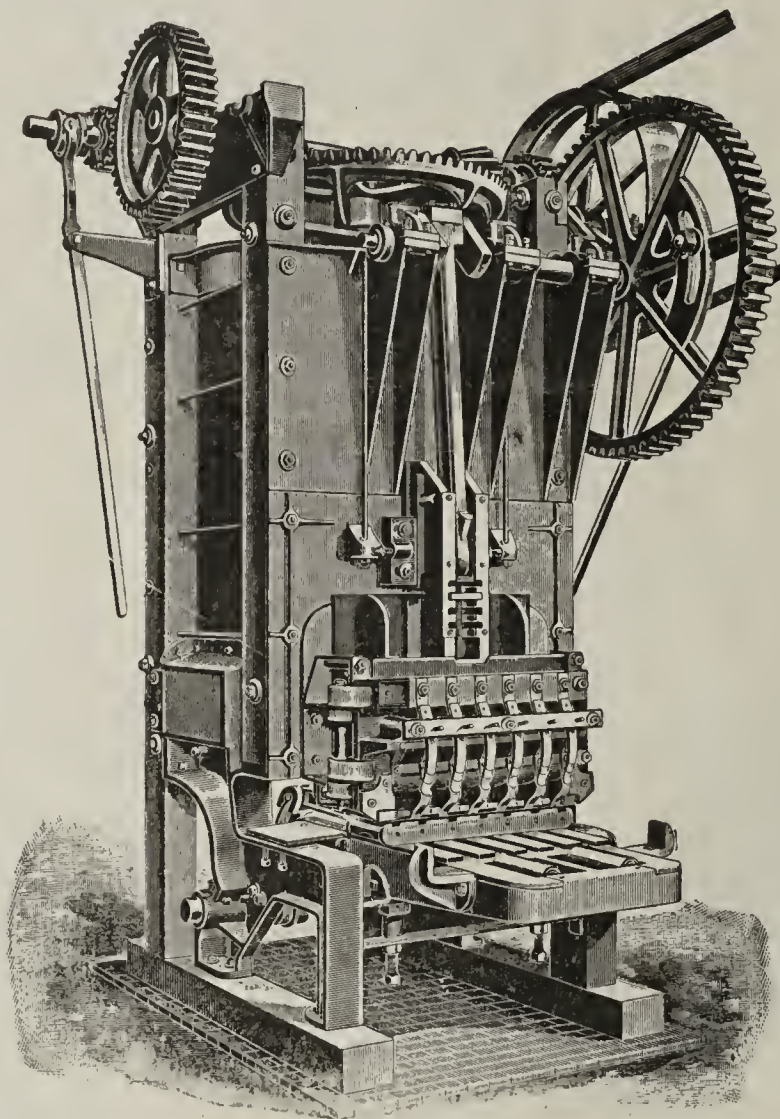
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Mention the Clay-Worker.

DO YOU KNOW

that more than eighty-five per cent of all the brick made in New England today are made on the New Haven Brick Machines made at New Haven, Conn?

Catalogue
and a Good
Line of
Testimonial
Letters for
the Asking.



We will be
Glad to Tell
You all
About Our
Horizontal
"New Haven."

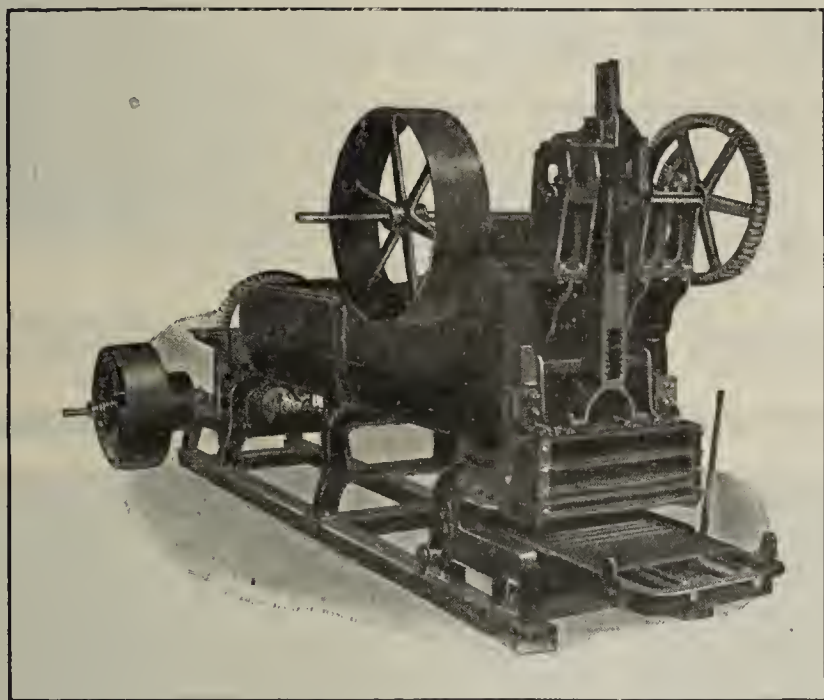
NEW HAVEN VERTICAL BRICK MACHINE.

We have made a good reputation for our New Haven Soft Mud Machines, and the Machines live up to that reputation, turning out Good brick day in and day out, week in and week out, year in and year out, without breaking down. Repair bills reduced to a minimum. Brickmakers who buy of us get their money's worth.

The EASTERN MACHINERY CO.,

NEW HAVEN, CONN.

SAND MOULD BRICK MACHINES DISINTEGRATORS AND MOULD SANDERS OUR SPECIALTY.



POTTS HORIZONTAL BRICK MACHINE.

Cast Steel Gears.
Steel Shafts.

No
Extra Pug Mill
Required.

As we make a specialty of

SAND MOULD MACHINERY,

equipping the yard complete from Clay Bank to Kiln, we are in position to give the very best designed and constructed machinery.

WE GUARANTEE RESULTS.

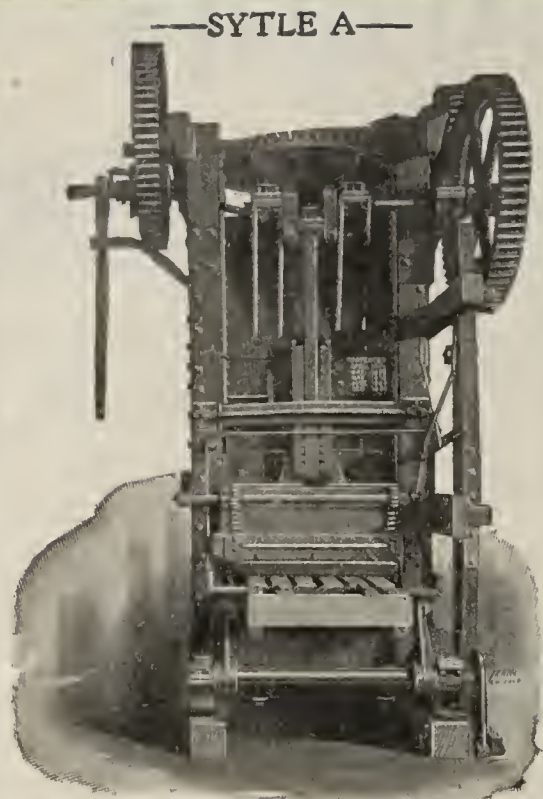
We are manufacturers of

Brick Machines, Disintegrators,
Mould Sanders, Pug Mills, Winding Drums,
Clay Cars,
Elevators, Barrows and Trucks.

Let us quote prices on your wants. We can please you.

C. & A. Potts & Co., Indianapolis, Ind.

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STEAM POWER BRICK MACHINE

This View Shows the Handling of the Raw Materials to the "MARTIN" Patent Crusher—also to the Brick Machinery.

The "MARTIN" Company Have the Most Complete Line of Yard Supplies, Brick Moulds, Barrows, Trucks, Elevators, Cars, Conveyors, Dry or Wet Pans

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UP-TO-DATE
Clay Working Machinery
IS BUILT FOR
WORK AND WEAR

WE ARE BUILDERS OF
BRICK PLANTS FOR THE
MANUFACTURE
OF HIGH GRADE BUILDING BRICK

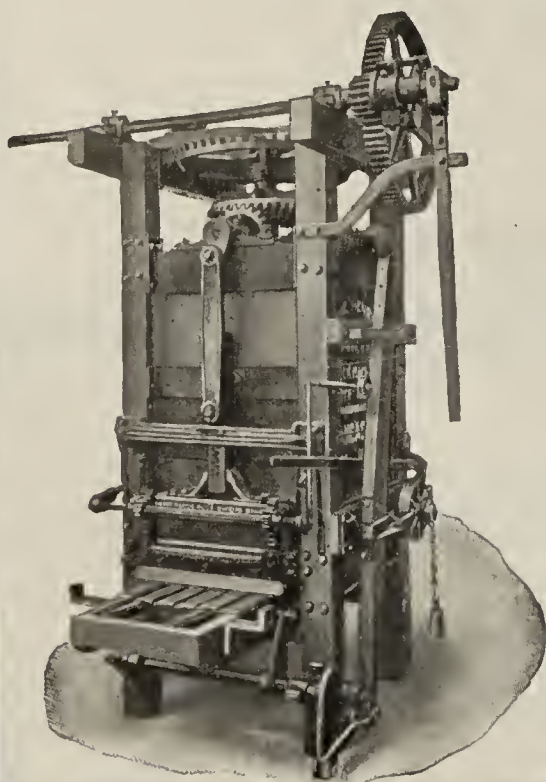
MARTIN
SAND DRYER

— THAT'S US —

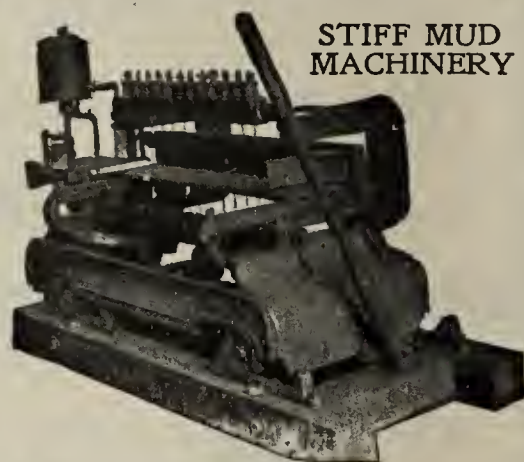
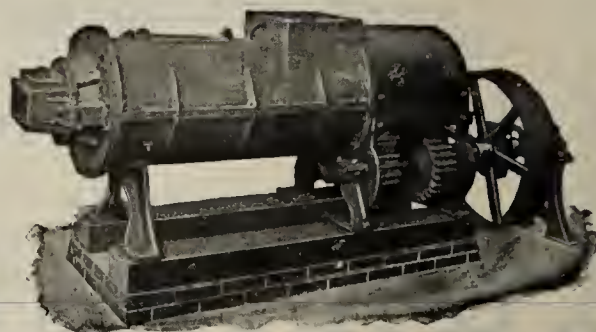
"WE FURNISH EVERYTHING
THE BRICKMAKER NEEDS"
Let Us Talk it Over?
We Are in a Position to
Handle Your Order Most
Satisfactory and Guar-
antee Good Results.

DROP US A LINE

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "B" BRICK MACHINE

STIFF MUD
MACHINERY



ANIMAL POWER
BRICK MACHINERY

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

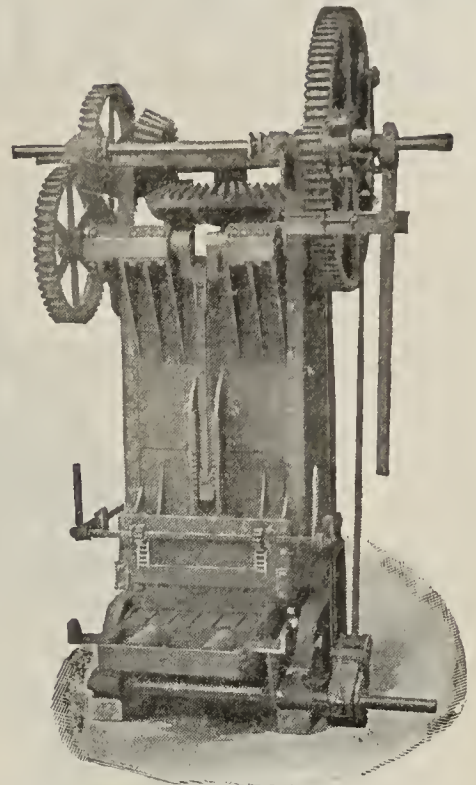
FULLY COVERED BY PATENTS

PATENTED

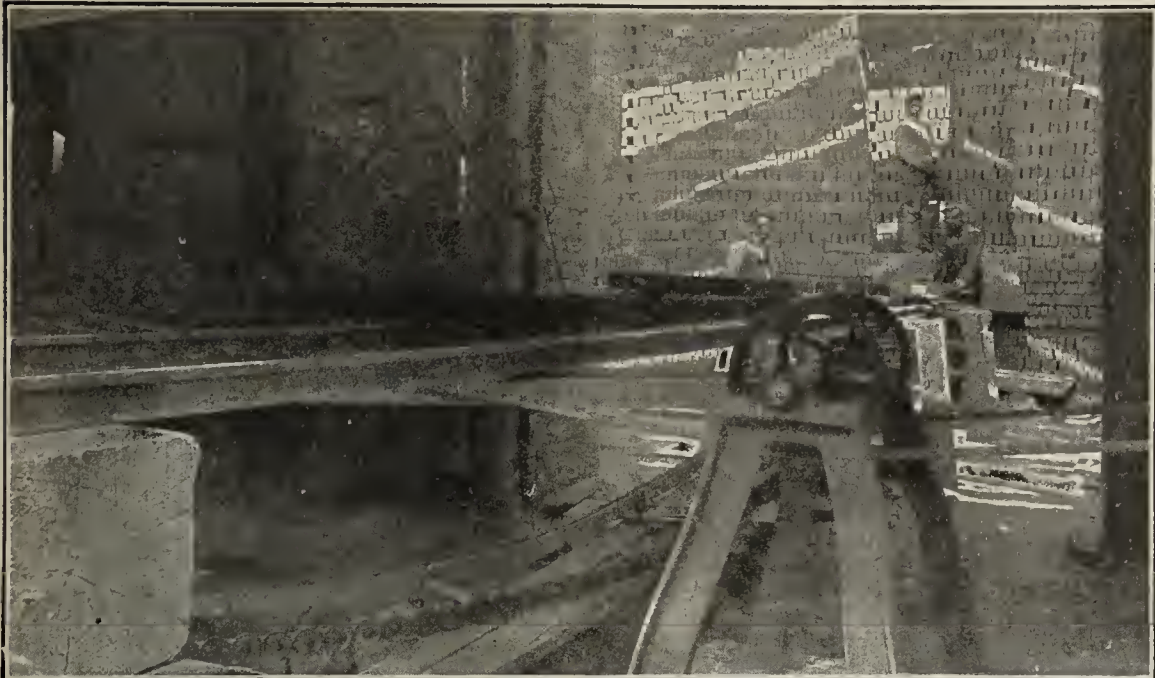
Feb. 22, 1898 == 599509
Oct. 10, 1905 == 95520
Nov. 14, 1905 == 804489
May 26, 1908 == 888831

UNITED STATES & CANADA

—STYLE "P"—

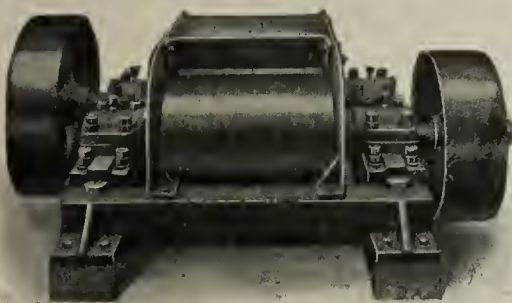


STEAM POWER BRICK MACHINE



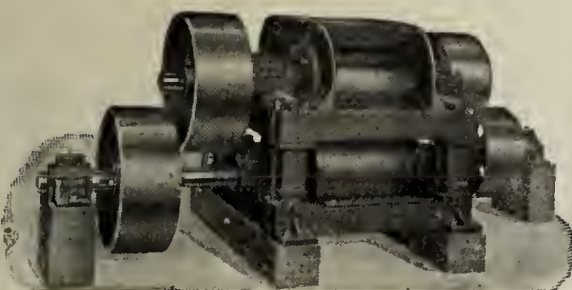
— This View Shows the
Dried Brick Coming From
A "Martin Patent System"
Steam Brick Dryer to
the Kilns == Labor Saving

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem == Quick to Install and
Low in Price == Investigate



TWO-ROLL DISINTEGRATOR
—PATENTED—

FOUR-ROLL DISINTEGRATOR



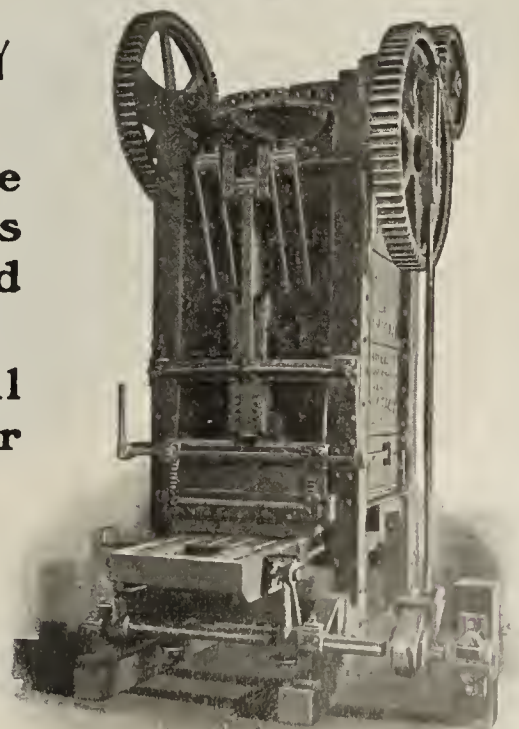
THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE

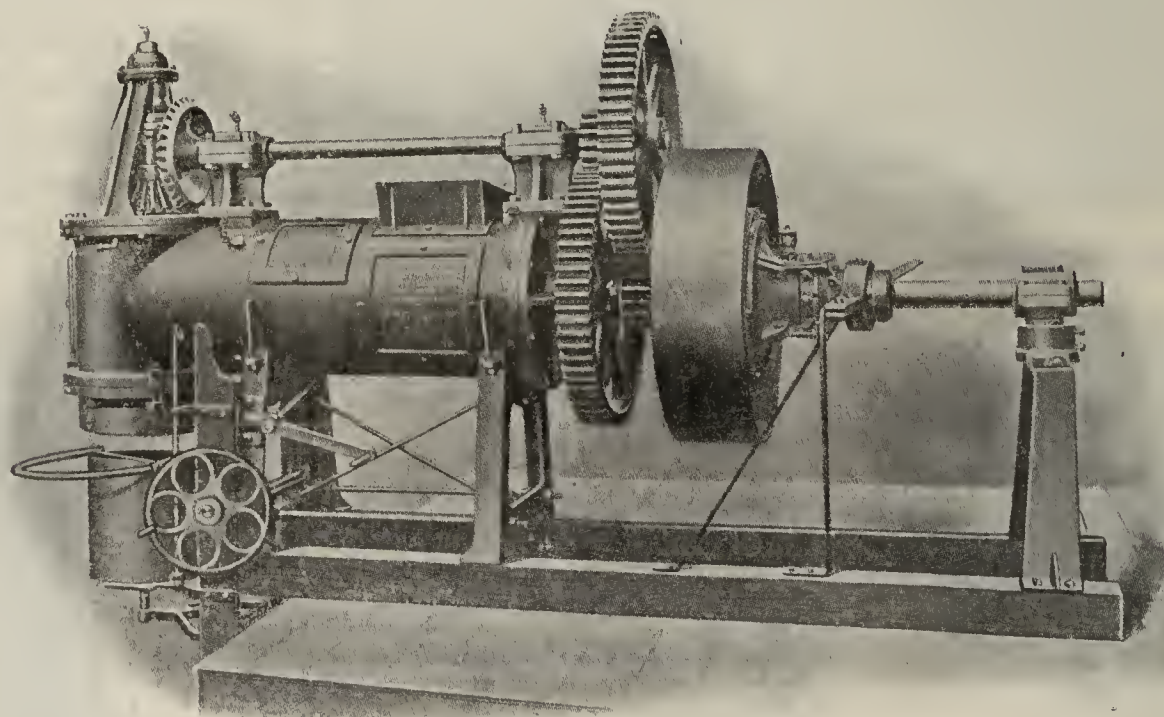
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

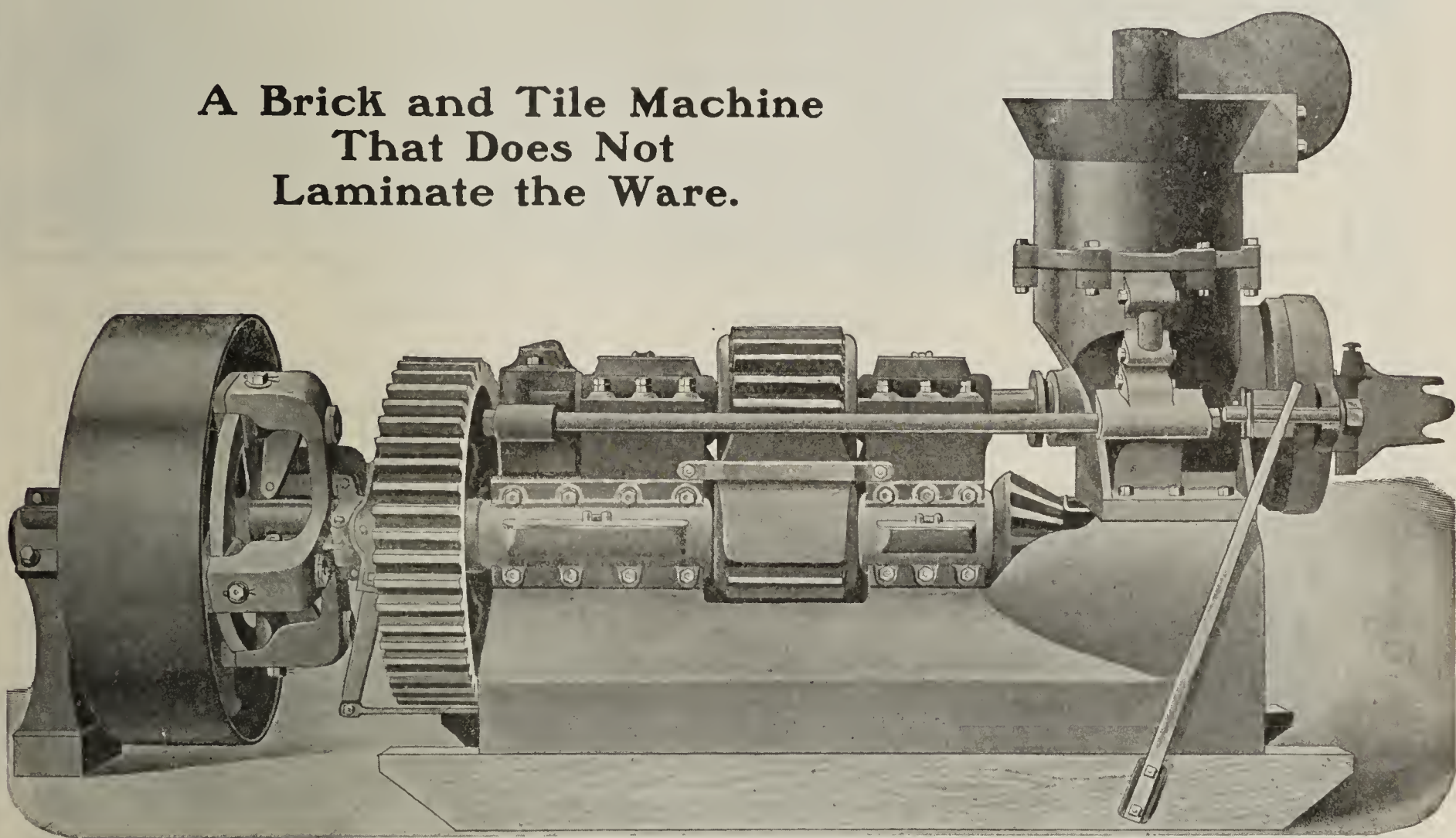
See ad on page 378.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.

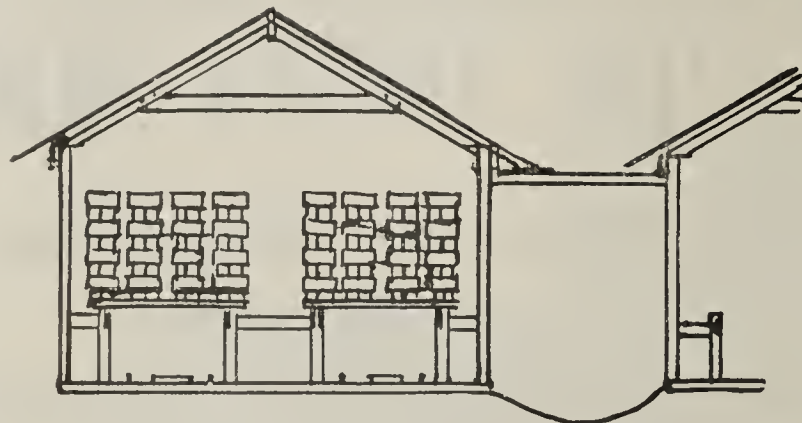


The Big Wonder Brick and Tile Machine.

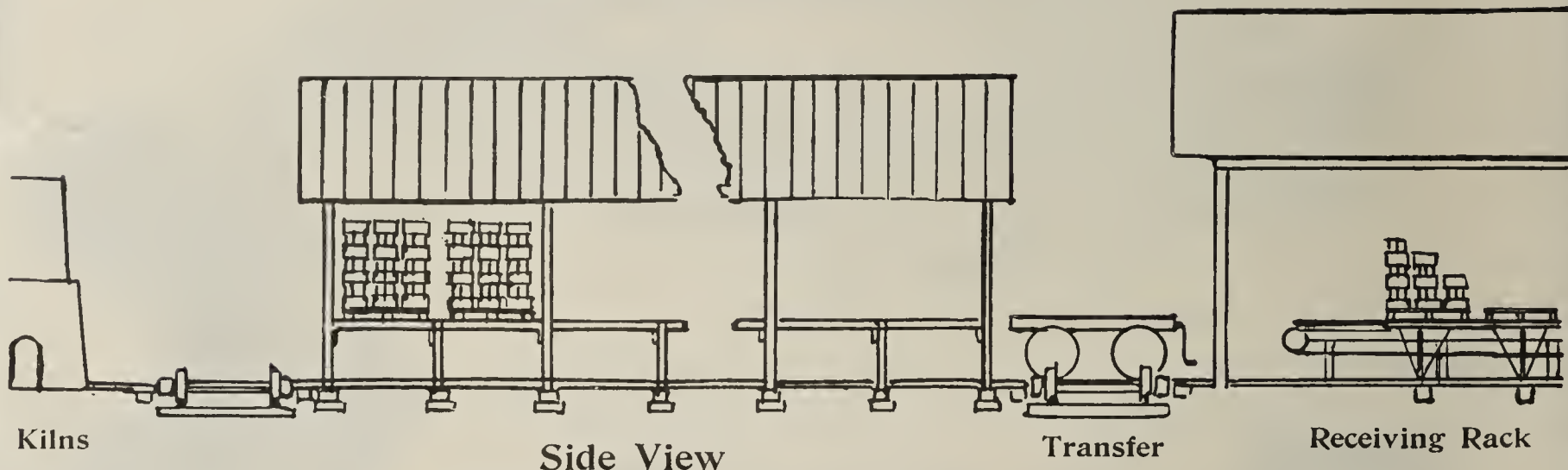
We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.

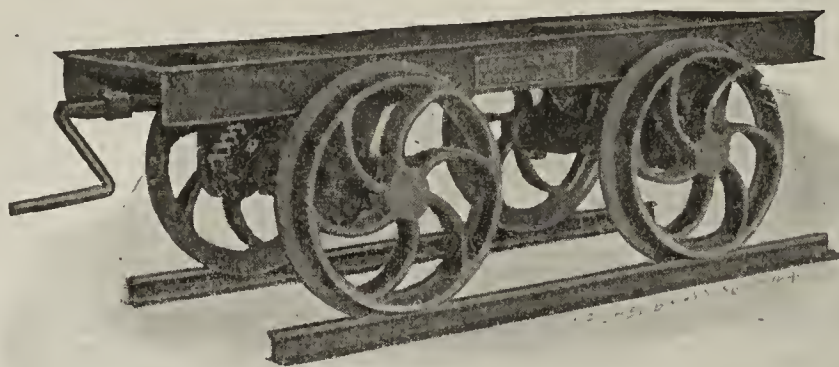


End View



STEELE'S SYSTEM OF DRYING

The best method of drying for most Southern yards. The cost of construction is not more than one-third the cost of a dryer ordinarily, and the cost of handling is about the same, while the cost for fuel is nothing.



STEELE'S ELEVATING CAR

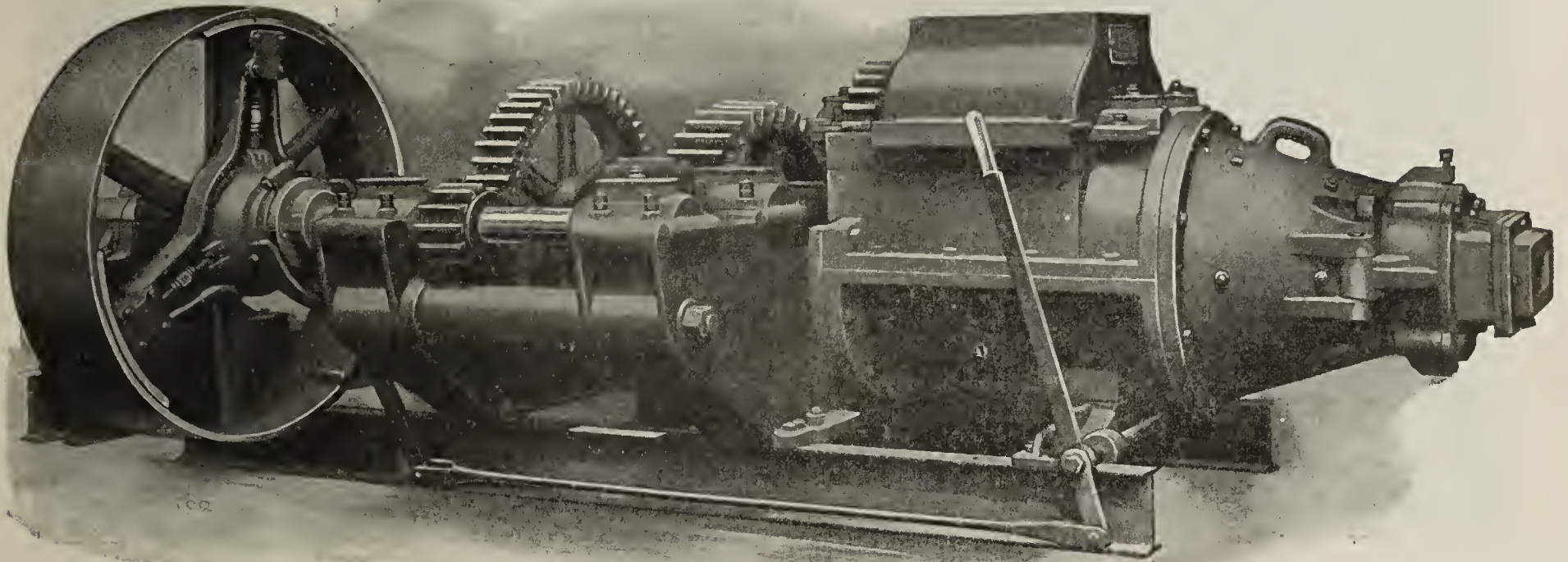
Our Elevating Car is much simpler than any other. Doesn't it look better? We also build a Turntable Rack that will turn.

Our prices will interest you.

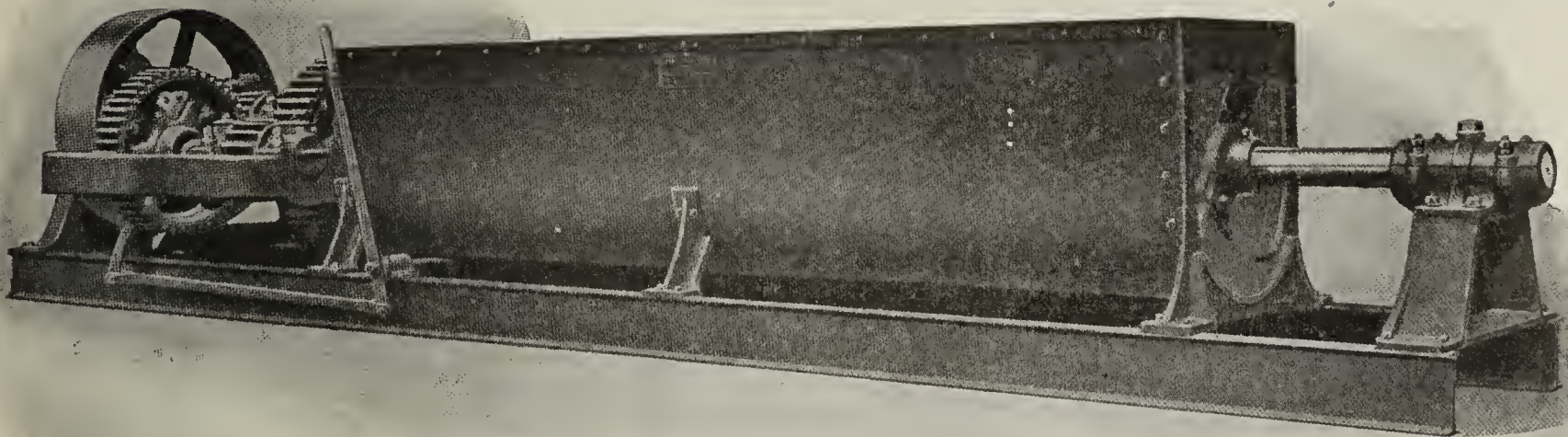
J. C. STEELE & SONS,
STATESVILLE, N. C.

Modern Clayworking Machinery

Single and Combined Machines of Any Capacity.



No. 10½ Auger Brick Machine. Capacity 50,000 to 70,000 Brick per Day.



12 Ft. Pug Mill With Open End.

DRY PANS
SCREENS

CUTTING TABLES
REPRESSSES

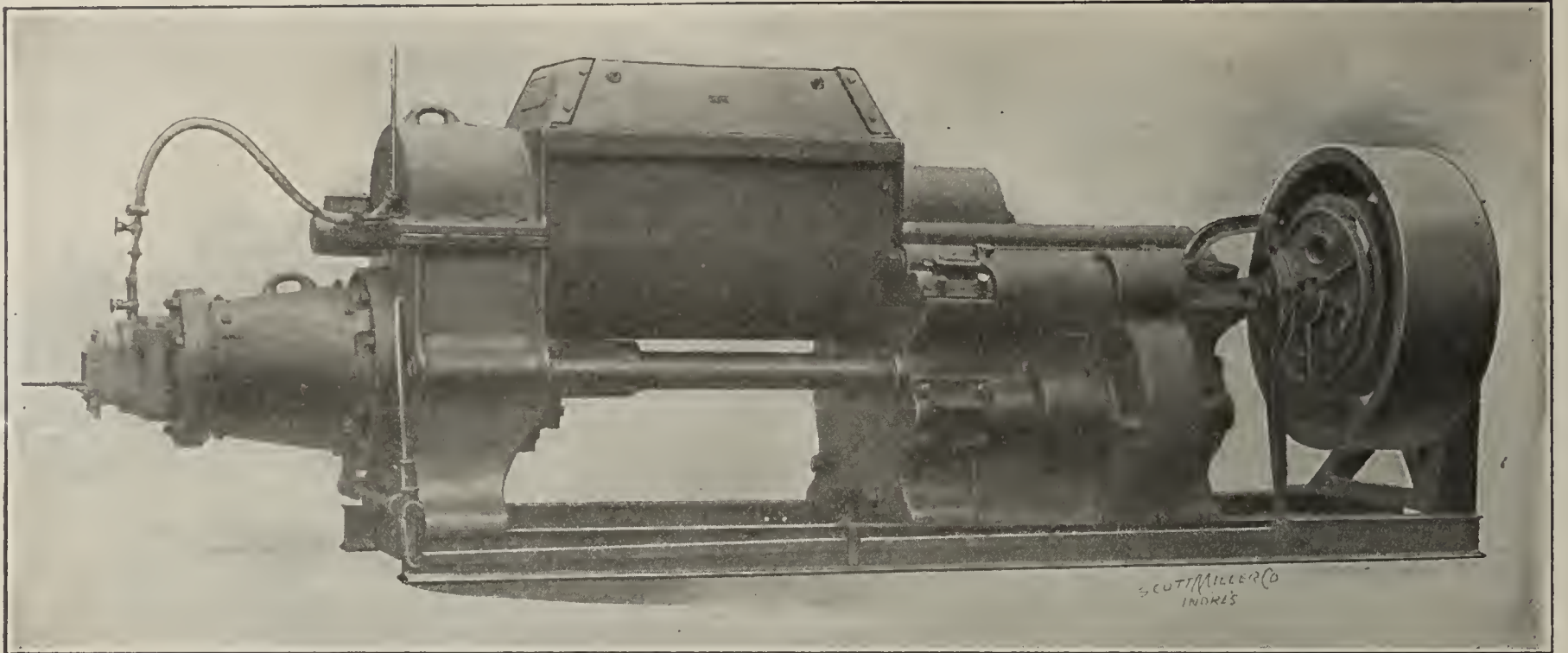
THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

CANTON, OHIO

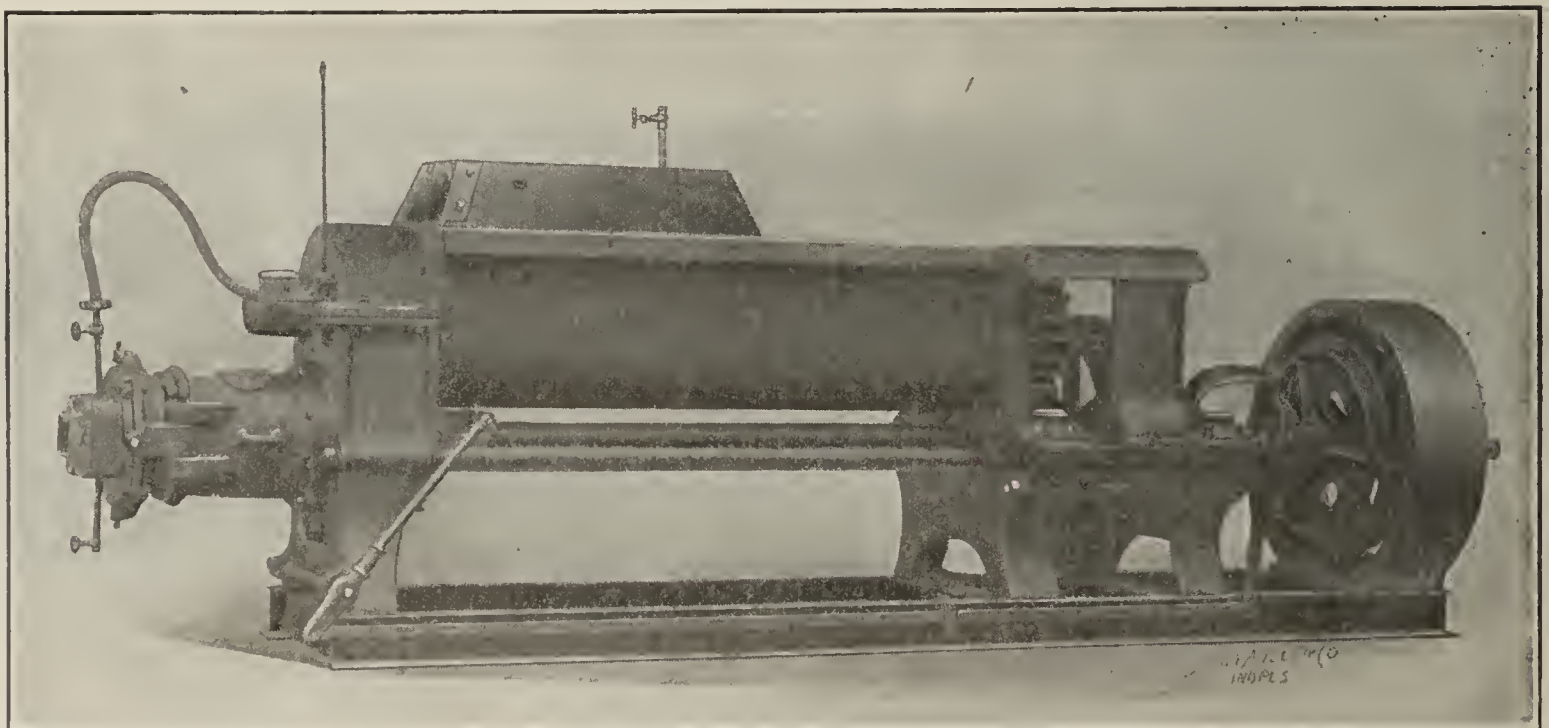
Mention The Clay-Worker.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

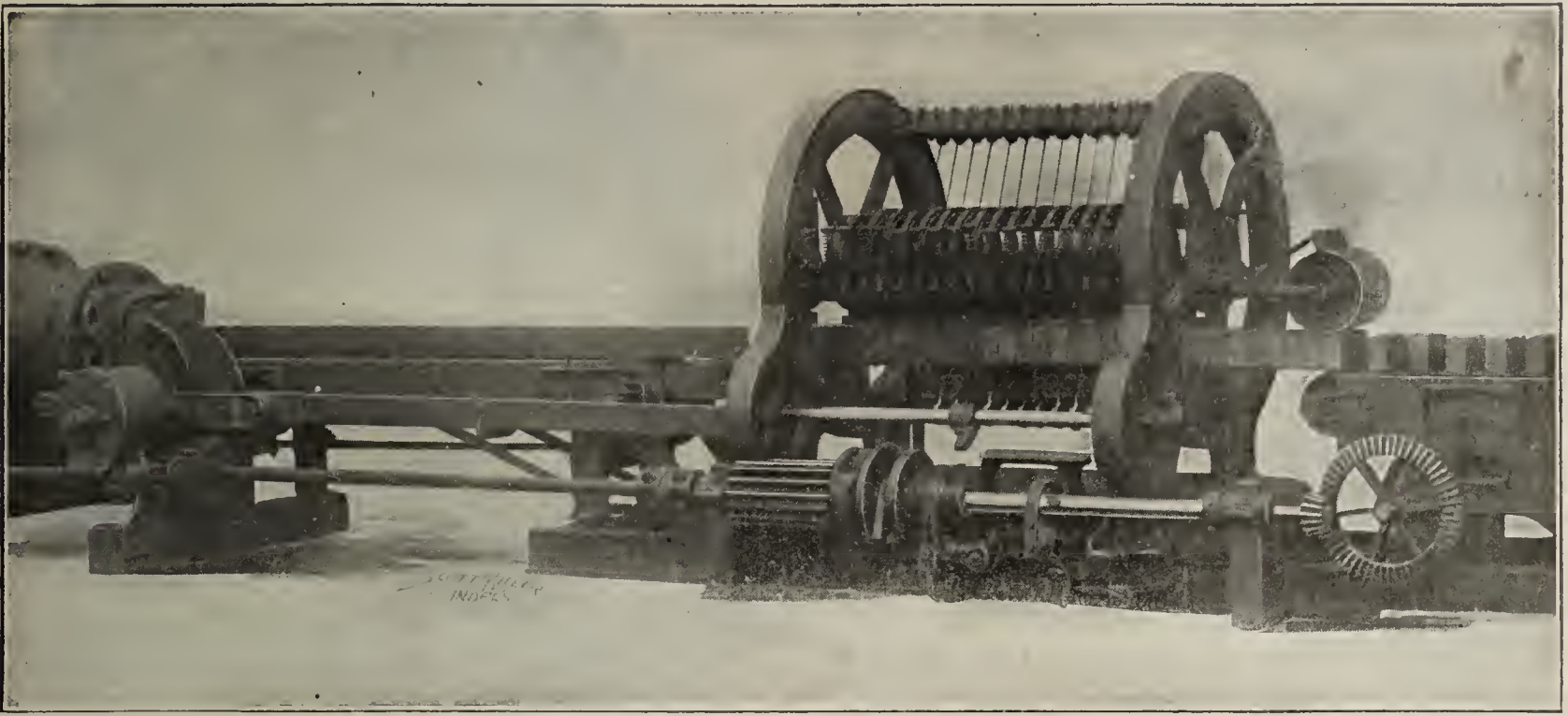
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

Write for Catalog.

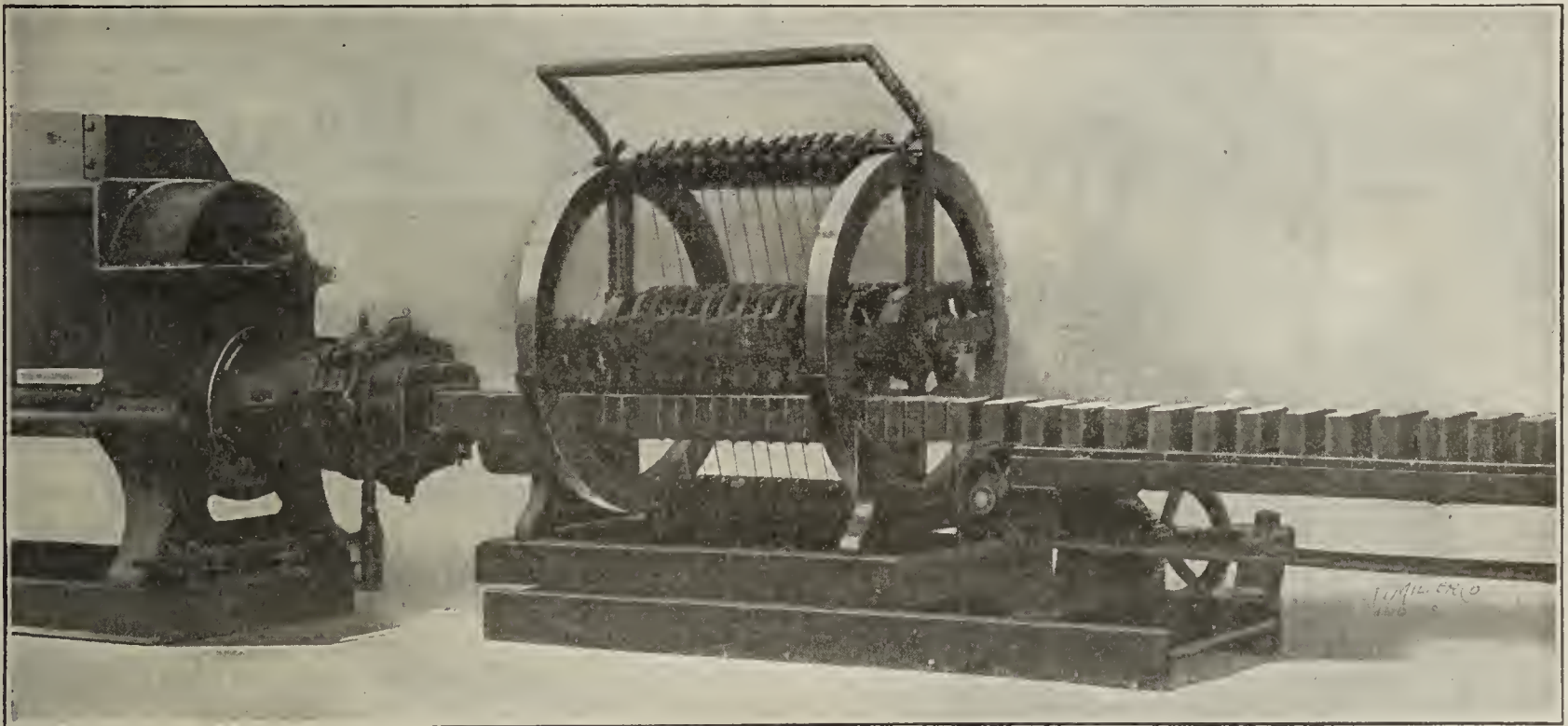
Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing.

Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

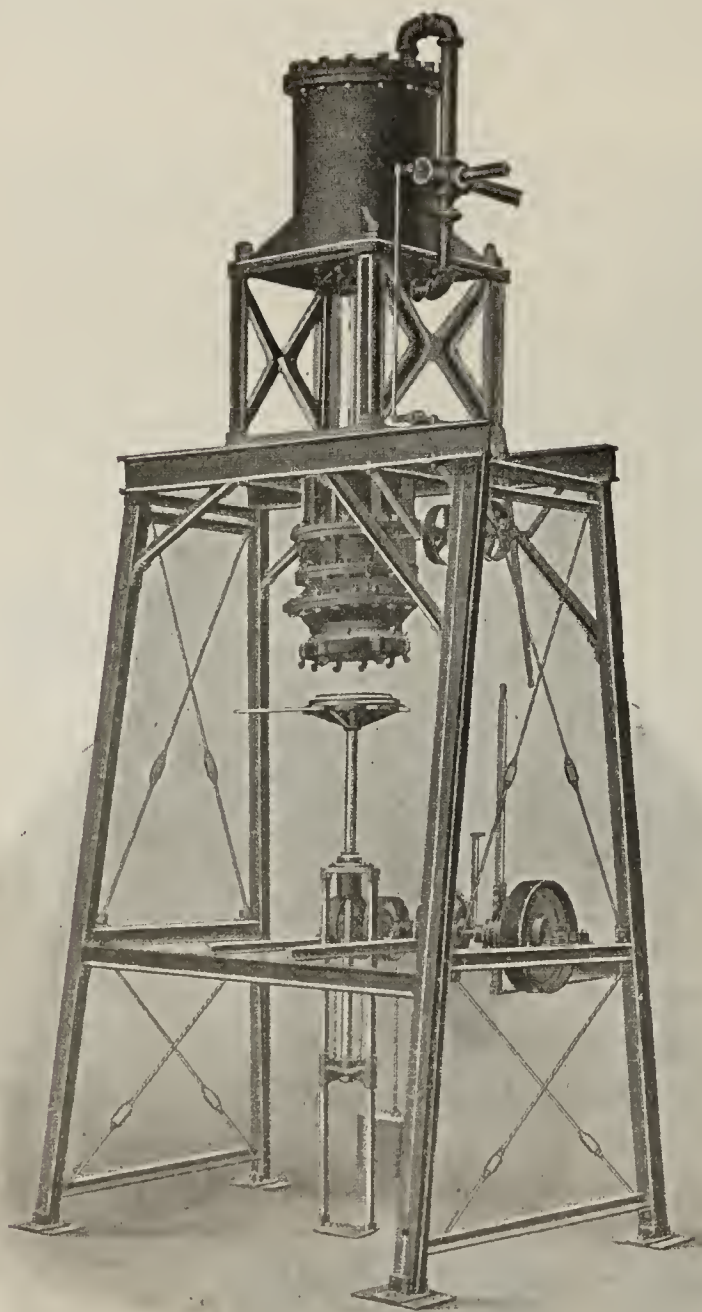
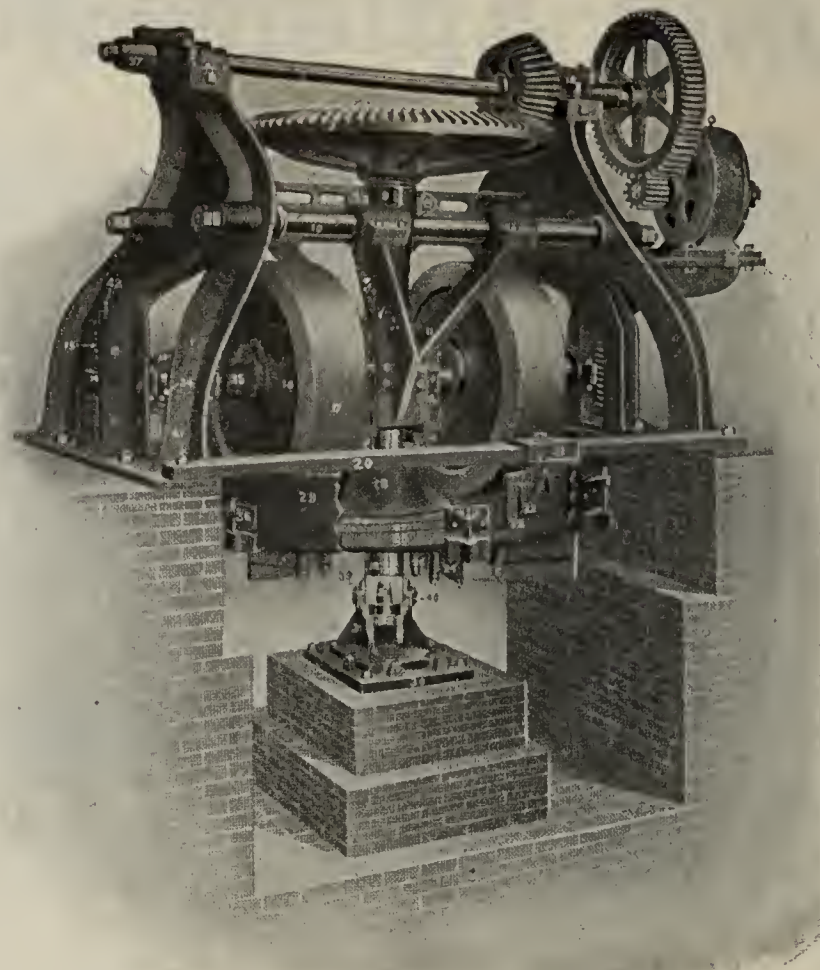
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the equal of **Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

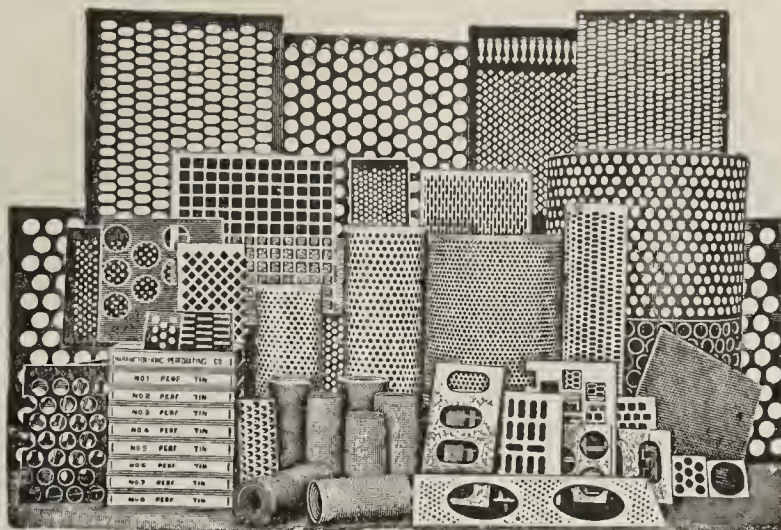
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



IF YOU ARE TROUBLED,

As everybody is troubled when trying to straighten out something that wont straighten,

and

If the "something" that wont "straighten out" for you is a **Dryer** trouble,

just turn it over to us—we'll straighten it out for you.

We're looking for Dryer troubles.

If you've any to dispose of

Write the

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

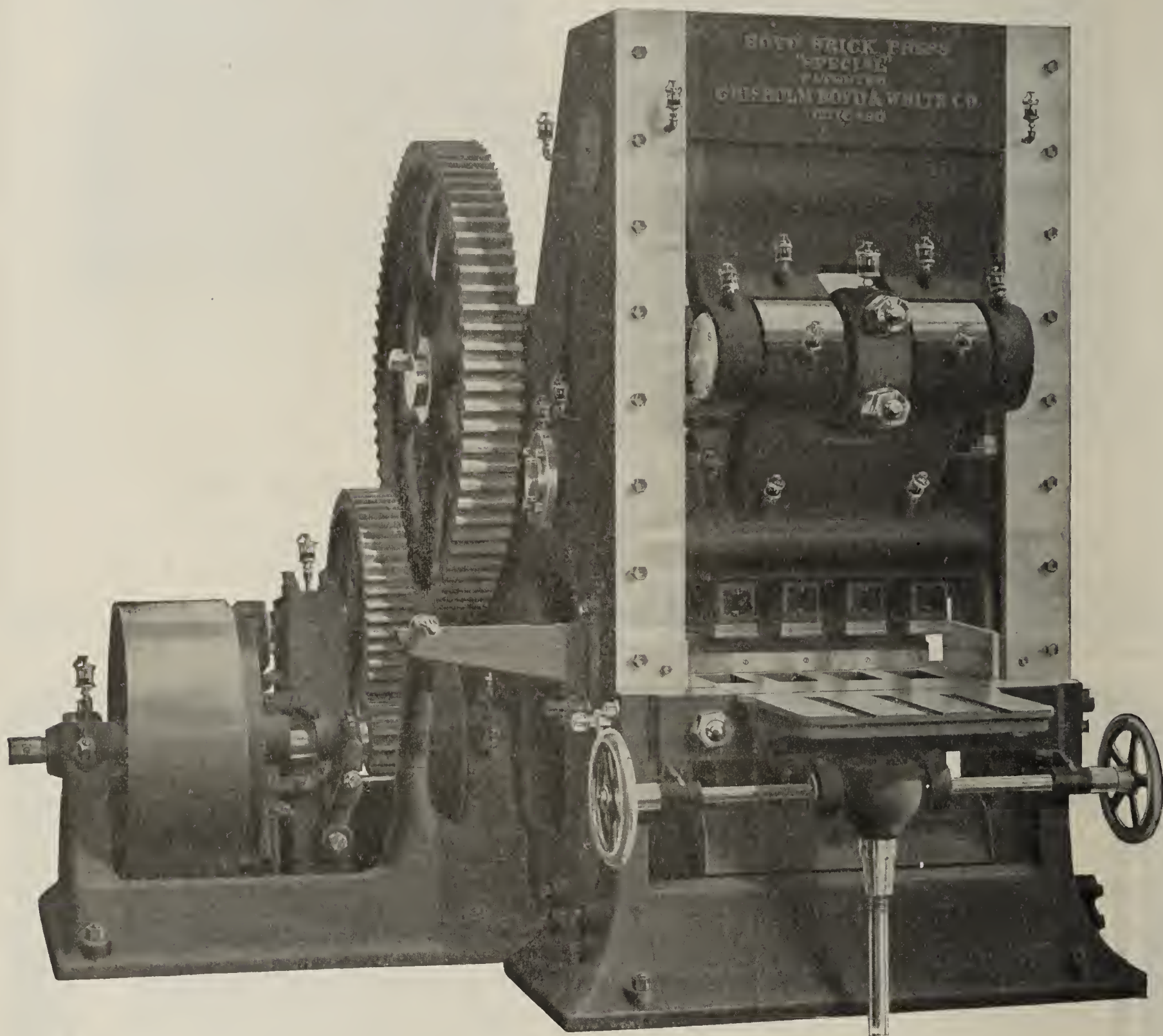
108 LA SALLE ST.

CHICAGO.



The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

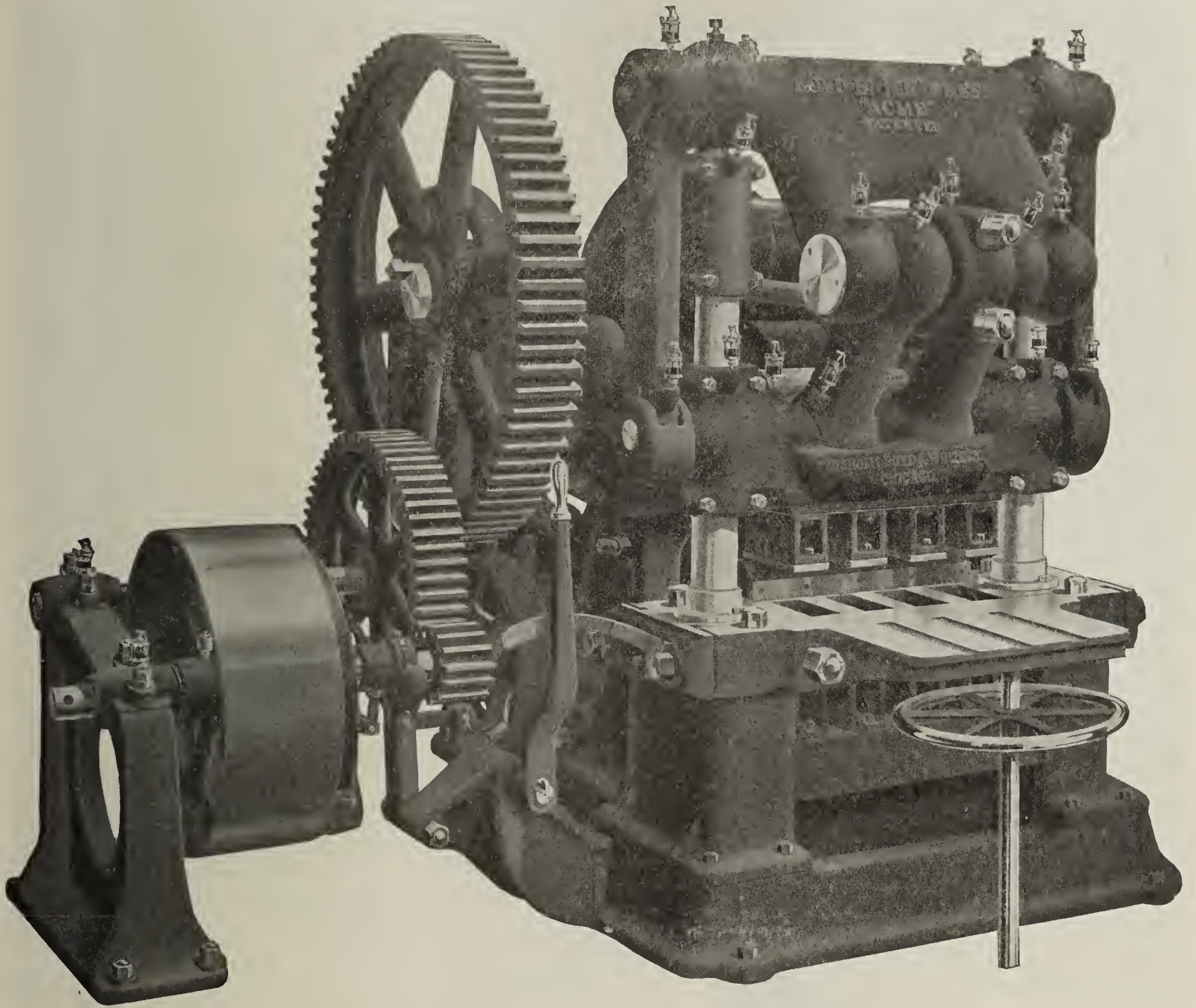
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

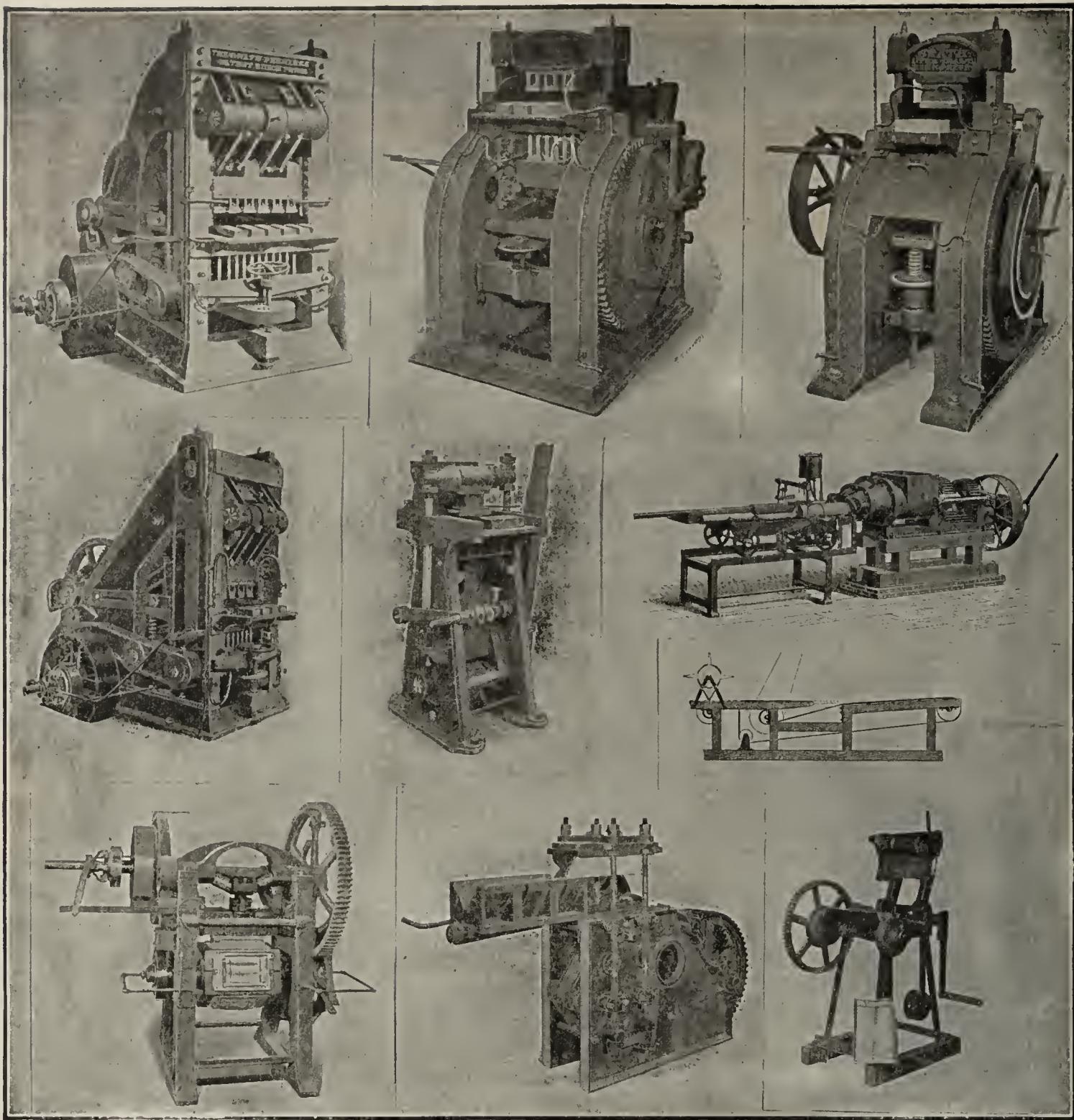
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

We Have the Best and Most Practical Brick
Presses and Roofing Tile Machinery.



OUR PRICES WILL SUIT YOU.

Press Brick and Roofing Tile Machinery. All Guaranteed
Against Breakage and to Give Satisfaction.

Get Our Prices Before You Buy.



Selling Agents for The

SCHURS PATENT PERFECT OIL BURNERS

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.
Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most Economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

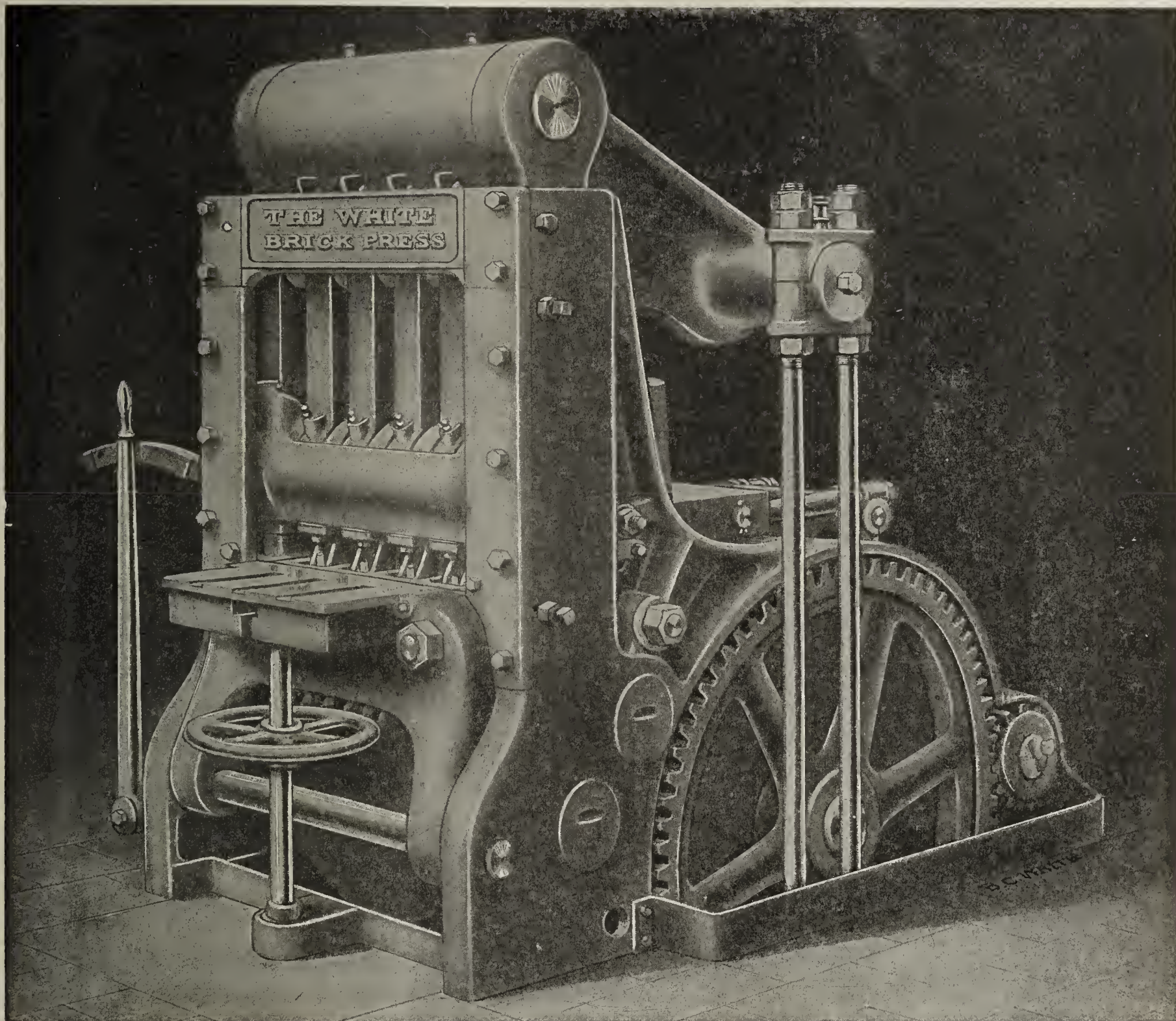
Lieber's Code.
Cable Address,
GRATH, St. Louis.

CENTURY BLDG., ST. LOUIS, MO.

Mention THE CLAY-WORKER.

Long Distance
Phone
Bell, Main 235.

Always Worth More Than You Pay For It



THE WHITE BRICK PRESS.

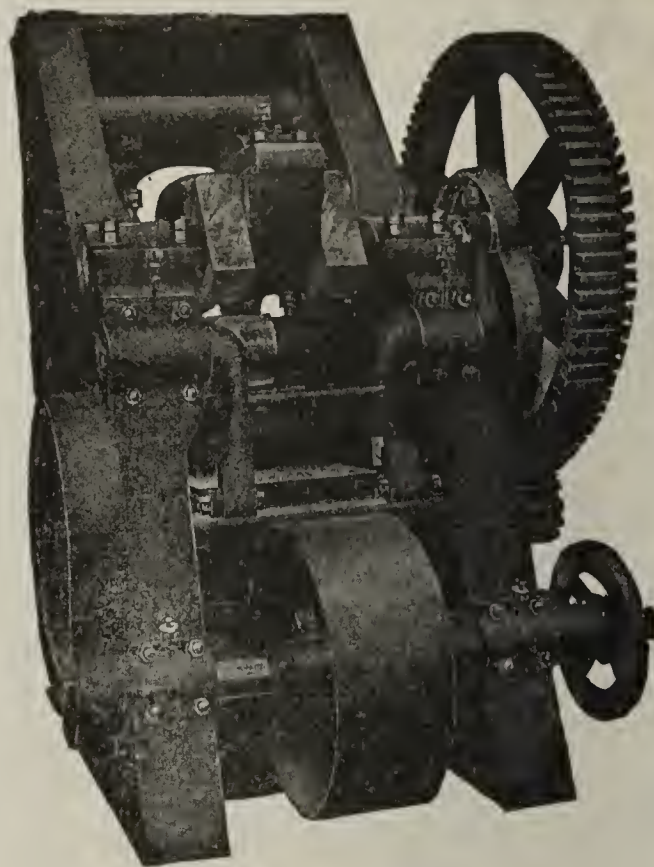
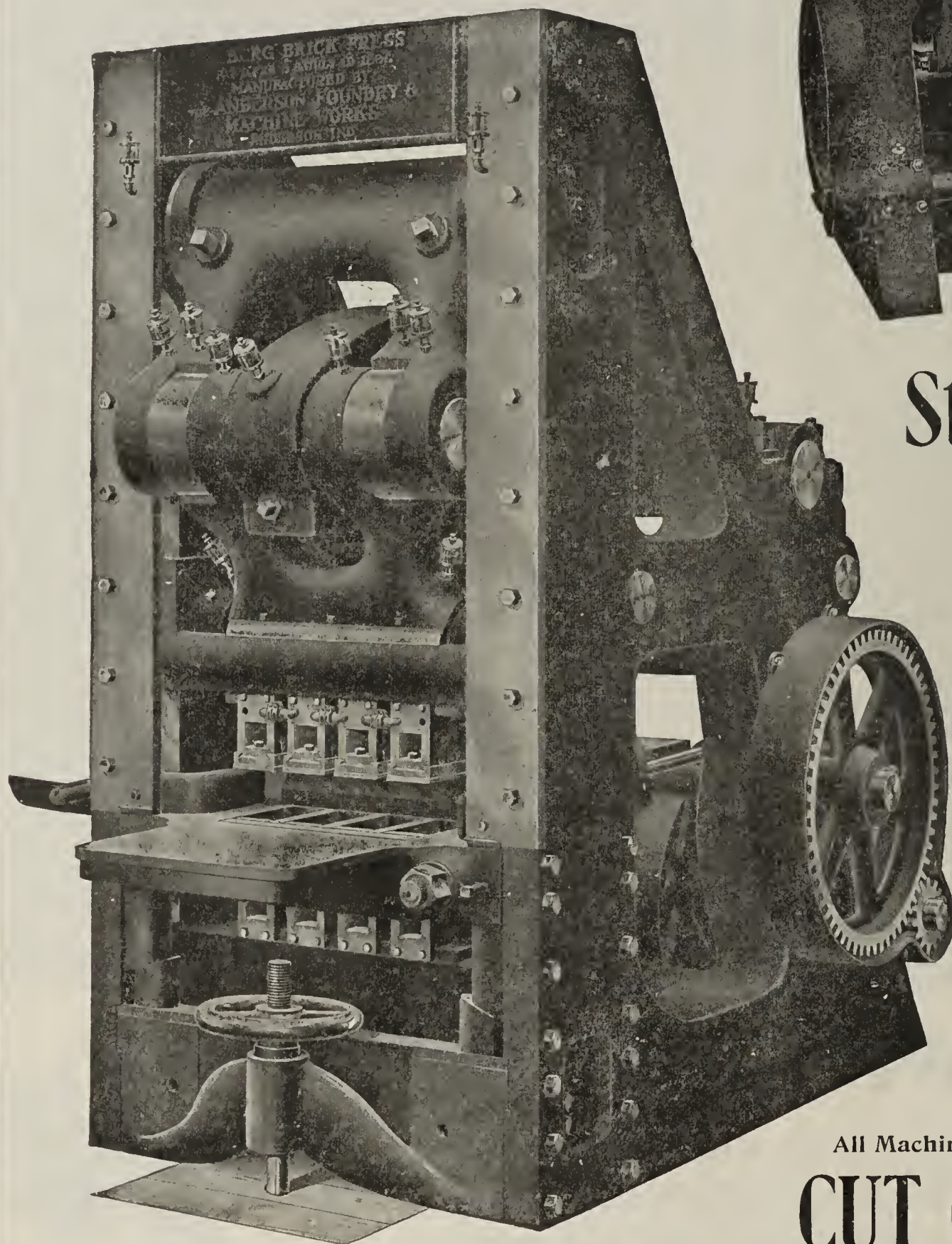
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention THE CLAY-WORKER.

New Model Berg Brick Press



Back View.

Still in the
Lead
and
One Step
Further
Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

All Machines Are Equipped With

CUT GEARING

Manufactured and Sold by

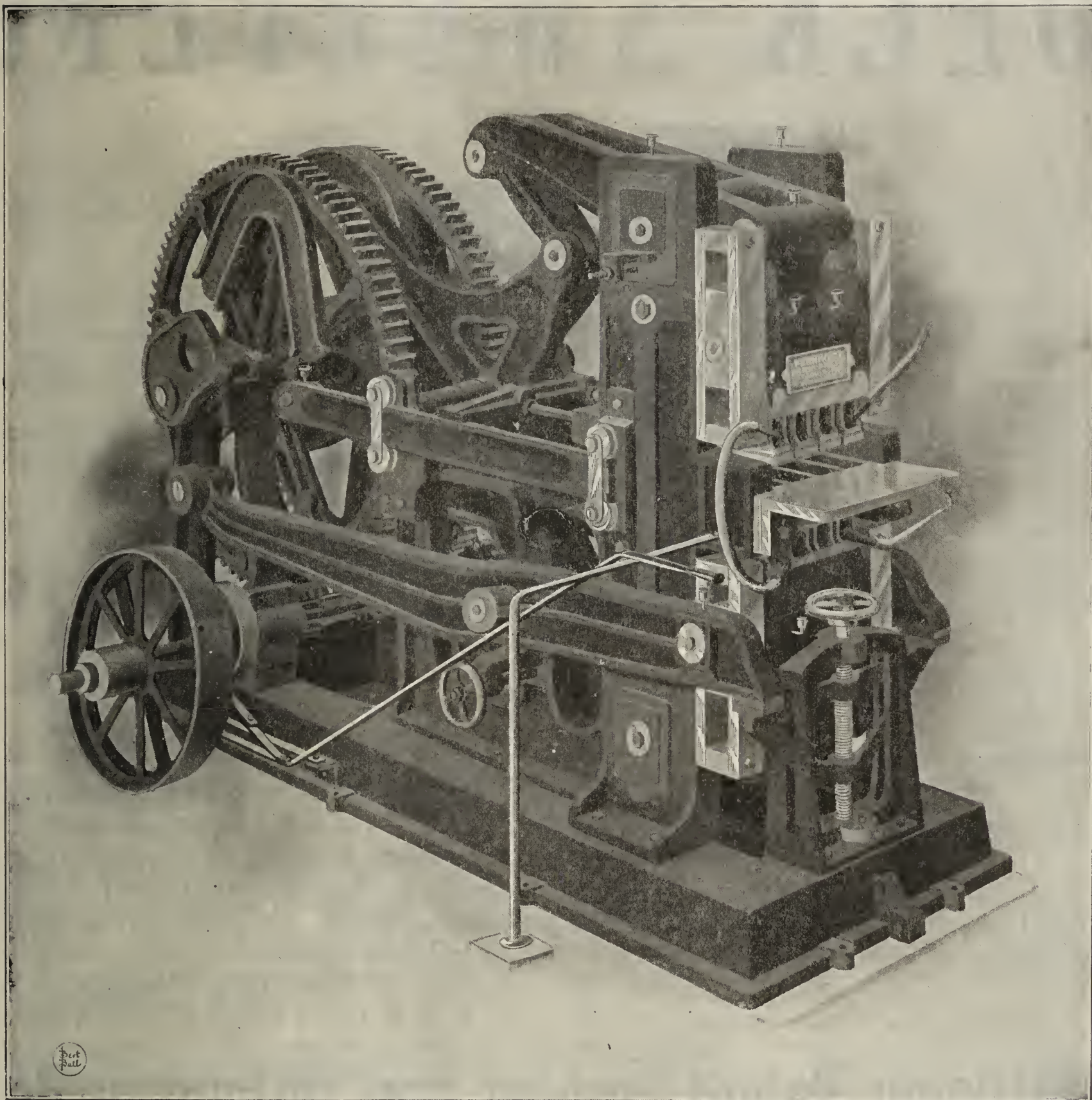
THE ANDERSON FOUNDRY & MACHINE WORKS,

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

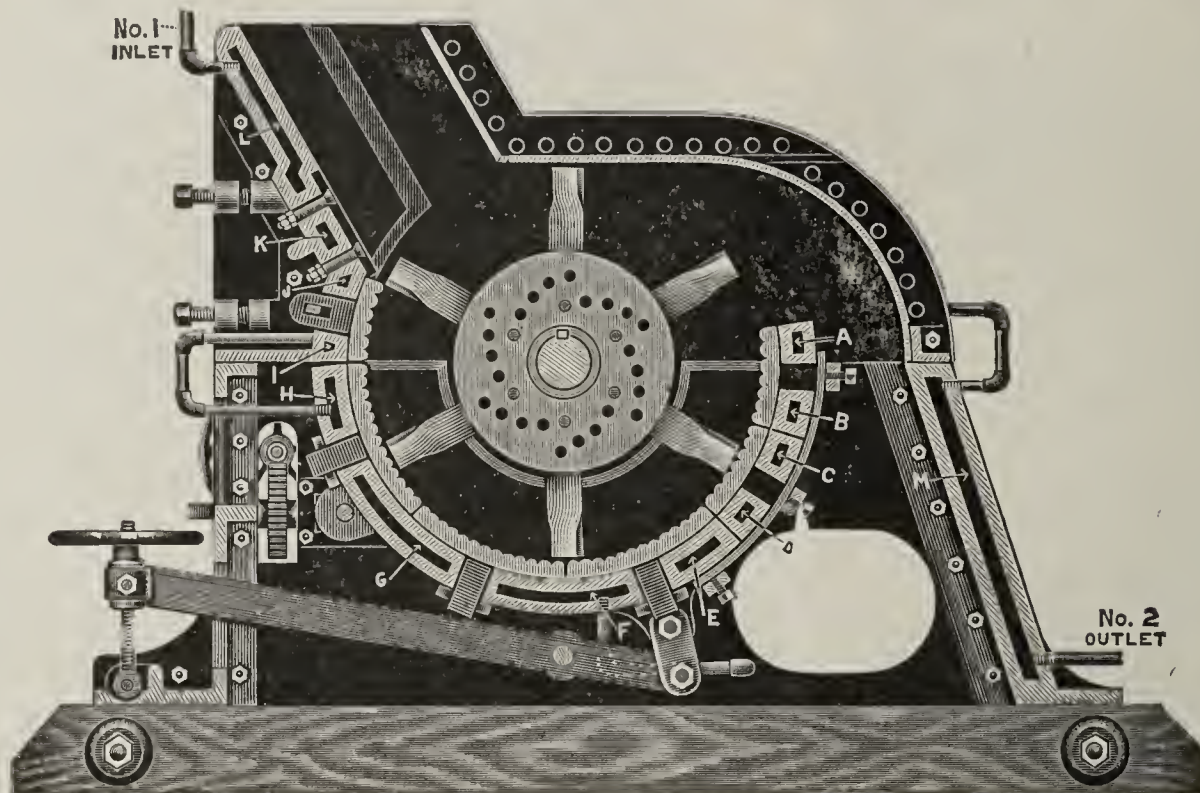


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

JUST OUT! DECK SWEEPER.



York, Pa., Nov. 4, 1909.

The Williams Patent Crusher & Pulverizer Co.,
2701 North Broadway, St. Louis, Mo.

Gentlemen:—

Having used one of your Pulverizers, known as the Deck Sweeper continuously for six (6) months, I take this opportunity to tell you what I think of same.

We find the machine **entirely satisfactory** in every way. The adjustment is certainly very good. We adjust the machine while in operation for any desired fineness, and do heartily recommend your machine to any person in the brick business.

Yours very truly,

Howard Gise, Manager
Gise & Diehl Pressed Brick Works.

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Bldg., Chicago.

San Francisco Office, 428 Monadnock Bldg.

Write for Bulletin 21.

Over 1500 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking. Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport,

Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Tile Underdrainage. By J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

The Andrus Brick Press

Makes Brick Every Day.

Been doing it **20** years.

Strong, Simple and Capable.

24 in operation in St. Louis District

Weight, 30,000 lbs.

INVESTIGATE.

Scott Manufacturing Co.

1812 Third National Bank Bldg., St. Louis, Mo.

REMARKABLE OFFER

We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

"POST" SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.



The Old Way.

GEN. LEW. WALLACE: The author of "Ben Hur" wrote, "I have tried every kind in the market and unhesitatingly give the preference to the "Post."

JUDGE LUTHER L. MILLS, CHICAGO: The "Post" Fountain Pen is the Best I have ever used; simple, reliable, durable.

DR. JOSIAH STRONG: The great author of "Our Country" says: "I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the "Post" leaves nothing to be desired.

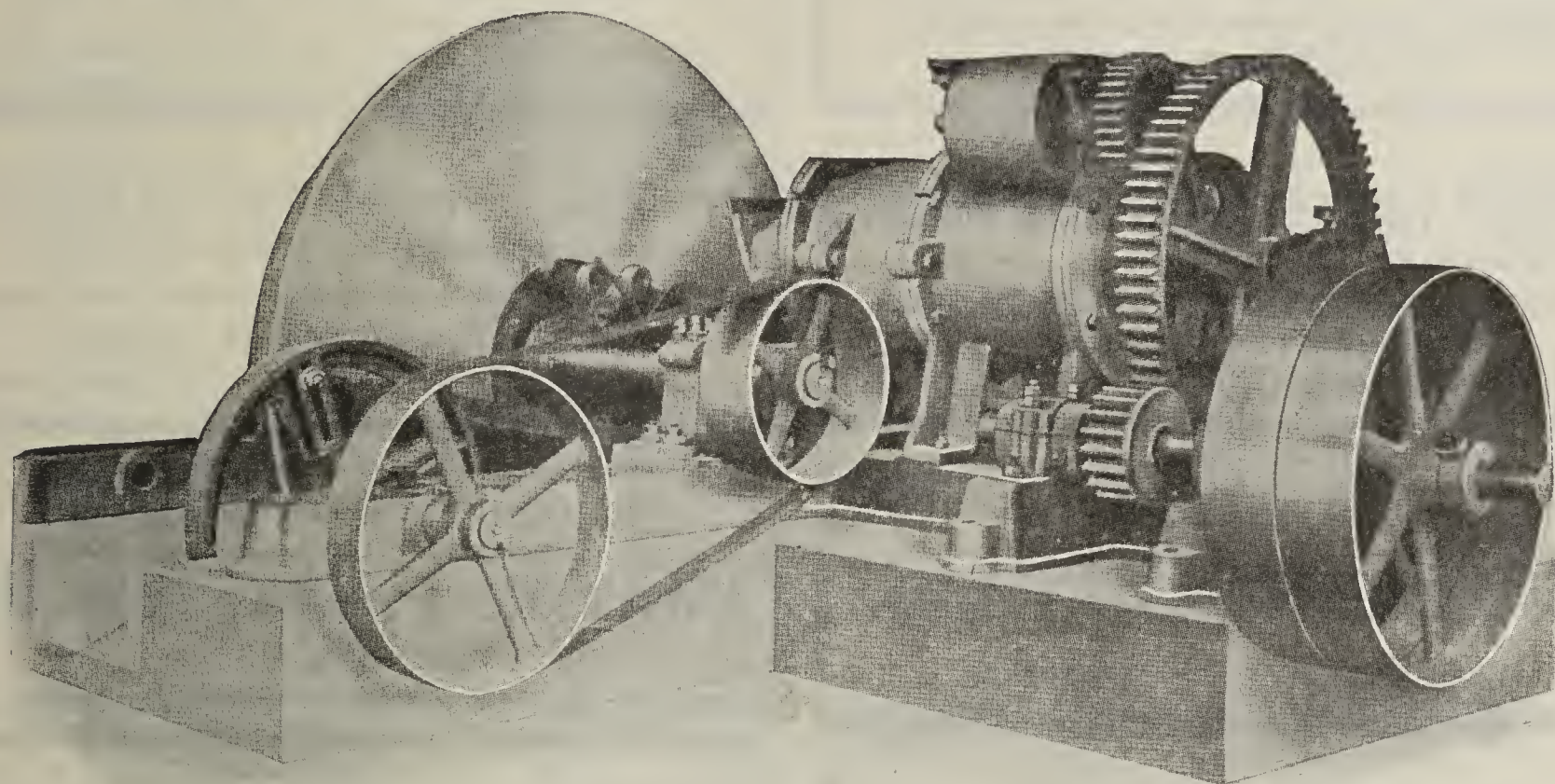
THE CLAY-WORKER, INDIANAPOLIS, INDIANA.

IS YOUR BEST CUSTOMER THE SCRAP-PILE?

Then change your method of
preparing the clay and

Get Customers That Pay.

The DIESENER CLAY CLEANSER will help you to get them.



THE DIESENER CLAY CLEANSER

(U. S. and Foreign Patents.)

Takes the Dirt Out of the Clay.

The Diesener Clay Cleanser works upon plastic surface clay AS IT COMES FROM THE BANK, after this clay has been well tempered and pugged in a suitable pug mill. The process of cleaning is as follows:

An auger machine (as shown in the above halftone) pushes forth a solid bar of well pugged and watered clay in stiff mud condition. This bar slides down an inclined plane and is pushed against a rotary disc. The material of this disc is a special iron alloy, discovered after many costly experiments.

The disc by friction "sucks" the clay into and through a slot, and the foreign matter like PYRITES, LIMESTONE, PEBBLES, SCREW-NUTS, WEED-ROOTS, and so on, if they are too big to pass through the slot, are caught in it and REMOVED from it CONTINUOUSLY and AUTOMATICALLY.

We wish to emphasize this particular feature of the Diesener Clay Cleanser—that it does not crush or pulverize the pyrites or limestones and then mix the same into the clay. It takes them out without crushing or even without breaking.

Richard G. Hoffmann,

Sole Representative in the U. S. for Mr. H. Diesener,
Charlottenburg, Germany.

La Grange, Ill.

The National Paving Brick Manufacturers' Association

Will send you free, upon request, any or all of the following booklets:
 "Directions for Laying Brick Street Pavements."
 "Proper Construction of Brick Street Pavements."
 "Why Vitrified Brick Street Pavements Are the Best."
 "Why Should You Pave at All?"

Address **WILL P. BLAIR**, Corresponding Secretary, 522 Board of Trade Bldg., Indianapolis, Ind.

PRESTON BRICK COMPANY,
 Manufacturer of

Vitrified Shale Paving Brick,
SEWER AND HARD BUILDING BRICK.
Hornellsville, N. Y.

OXBLOOD RED FRONT BRICKS

DEVONSHIRES and REPRESSED
KUSHEQUA

Highly Vitrified by Natural Gas.
 Made from same shale as our well-known Kushequa Paving Blocks.
KUSHEQUA BRICK CO., Kushequa, Pa.

SHAWMUT VITRIFIED PAVING BRICK WORKS,

Shawmut, Pa. Alfred Yates, Gen. Mgr.

Vitrified Shale and Fire Clay Paving Bricks and Blocks.
 Burned in Yates' Patent Kiln.
 Samples and Prices on Application.

Thurber Vitrified Paving Brick
 and Pressed Building Brick of Superior Quality.

Made of the finest shale, absolutely free from lime.
Arthur S. Goetz, Agent,
 Factory at Thurber, Texas. Ft. Worth, Texas.

PAVING BUILDING • BRICK AND BLOCK • SIDEWALK FOUNDATION

The Barr Clay Co.

C. C. Barr, Pres. • Streator, Ill.

The Danville Brick Company,
 Manufacturers of the Unsurpassed

Danville Paving Block.
 Danville, Ill.
 LET US QUOTE YOU PRICES.

THE DECKMAN-DUTY BRICK CO.
Paving Brick and Block.

Annual Capacity 30,000,000.
 Plants, Collinwood, Ohio, Carrollton, Ohio, Malvern, Ohio.
 Offices, Electric Bldg., Cleveland, Ohio.

Marion Brick Works

Indianapolis, Ind.

MARION PAVERS

A Strictly High Class Paving Block.
 Also

FANCY FACE BUILDING BRICK,
COLONIALS, ANTIQUES, ETC.

Tile Underdrainage.

By J. J. W. Billingsley. Price 25 Cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.



The Best
Paving Block
Made

SIX FACTORIES
DAILY OUTPUT
500,000

The Metropolitan Paving
Brick Company
CANTON, - - OHIO

Terre Haute Vitrified Brick Co.,

Manufacturers of

High Grade Vitrified PAVERS.

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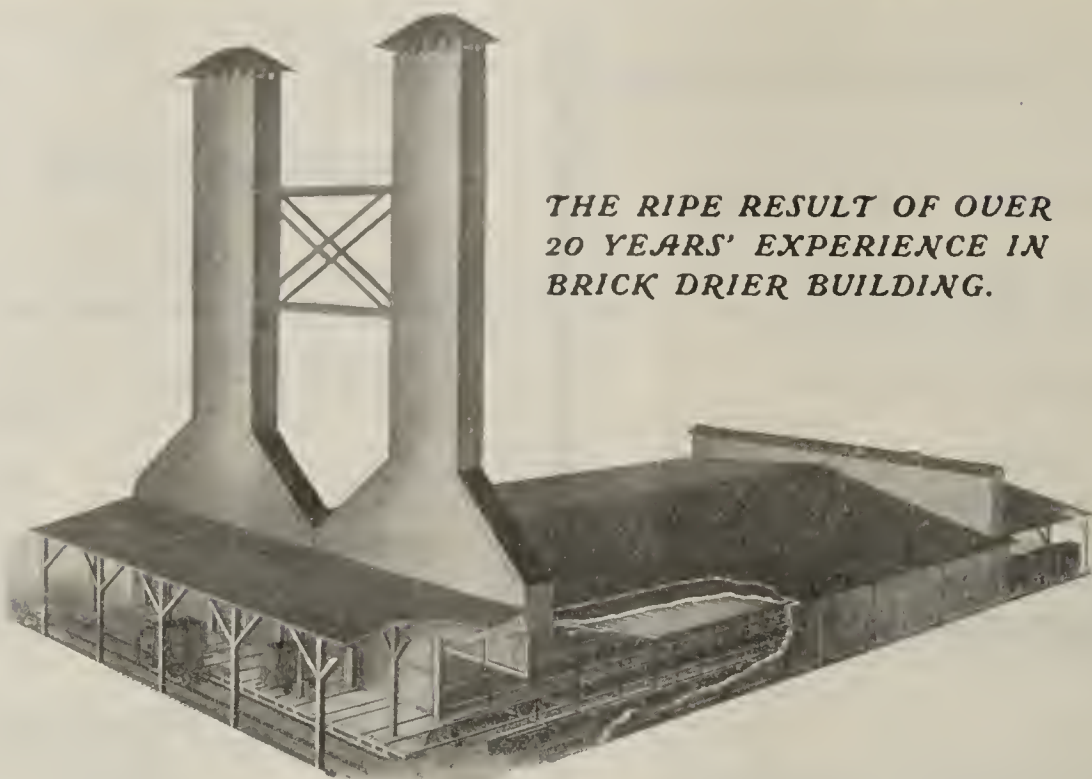
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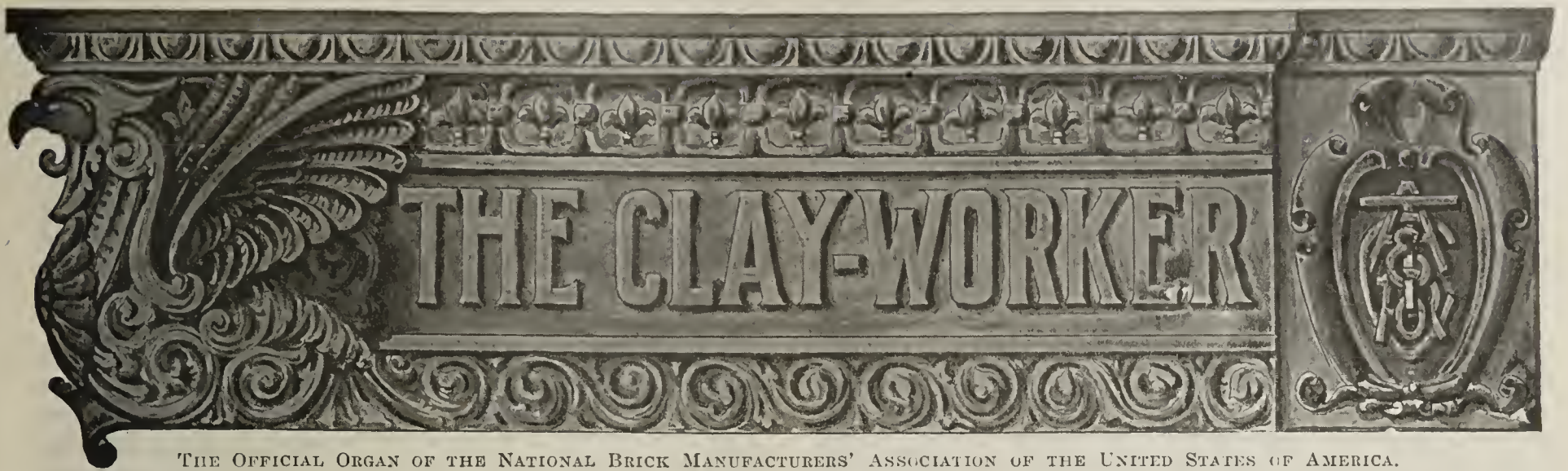
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VOL. LII.

INDIANAPOLIS, IND., NOVEMBER, 1909.

No. 5.

Written for THE CLAY-WORKER.

ORNAMENTAL BRICK ARCHITECTURE.

A Fine Example of Artistic Brick Work Adds to the Beauty of One of the Finest Parks in America.

ONE OF THE gems of public architecture which is receiving much attention and much praise just now is the new refectory building in Lincoln Park.

Prettily situated between a bit of the park lagoon and the broad three-bordered driveway, with the shaded lawns of the park stretching away to the left, its grace and sweep of line and the simple but effective elegance of the exterior finish and decoration, cause it not only to blend perfectly with its

surroundings, but to add a new and distinctive beauty to that portion of the park.

As would be expected, the materials which contributed to this pleasing result are the most modern triumphs in brick and tile and terra cotta, made plastic and wrought and blended into the plan and scheme of the Park Board's architects, Perkins & Hamilton. The brick used in the exterior is chiefly the Oriental, pioneer of the face-cut brick, which are so much in vogue now where quaint ideas are to be carried out, or rich wall effects are desired. All of the brick on the exterior are furnished by the Bonner & Marshall Co., and material and results are acknowledged to be of the very highest class.

The new brick building taking the place of the old frame



Main Ornamental Features of the Refectory in Lincoln Park, Chicago. Perkins & Hamilton, Architects.

refectory which served the public at Lincoln Park for many years, stands facing due west, and the three artistic panels in brick above the main doorways light up with all the colors of the richest Oriental tapestries in the warm glow of the afternoon sun. The various shades and tints of dull reds and delicate browns, with their sub-tones of greens, olives and moss colors in which the Oriental brick run, have been used in working out patterns and designs, pleasing both in outline and in blending and harmonization of tints. In these panels and in the beautiful frieze between these panels and the eaves, most skillful combination of the Orientals in clever alternations of headers and stretchers, tapestry brick in various shapes, dark paving bricks and blocks with their smoother surfaces in effective contrast, and use of extra heavy white joints has produced a "weave" in clay texture which is unusually interesting and attractive. The middle panel is the largest of the three in the front facade, and is divided in half from top to bottom by a strip of the lighter shade of Orientals, outstanding in relief.

cently been started. Looking at the left of the picture showing the detail work of the front facade, the brick piers just put up for the construction of the other flying gallery may be seen. Approaching the southern wing an artificial knoll has been raised, and a wall of brick running down from the juncture of wing and colonnade serves to retain the earth.

While there is nothing of the ginger-bread order about the exterior finish of the building, decorative touches and details have not been omitted. Beneath the eaves all the way round the building runs a fresco in ornamental brick and terra cotta. In this the brick predominates as a setting for squares of green terra cotta. The frieze is bordered along the lower edge by a double row of No. 13 paving brick and paving block, outstanding in relief against the surface of the rest of the wall and joined by headers, also in relief, at regular intervals. Above this the Oriental brick comes in again, but with extra heavy white joints instead of the red joints of the greater part of the wall, and in this strip of Oriental brick are set squares and longer rectangles framed in more of the



The Completed Portion of the Lincoln Park Refectory.

The building, which is a two-story affair crowned by a green tile roof of easy pitch, stands back from the driveway proper, standing upon a special loop of boulevard way which taps the main road at either side of a bit of flower garden and shrubbery immediately in front of the refectory. It is built on square and compact lines with a shallow "L" at either side. To the right from this "L" as one looks east from the main driveway a gallery or colonnade, roofed over by green tile, like the rest of the structure, sweeps in an easy, graceful curve, joining the main building with a square-built wing, also roofed in green. The roof to this wing is supported by a number of columns of brick. Brick piers support the colonnade, and among these are afforded passageways for reaching the boat landing on the east side of the refectory.

It may be said that this building is only two-thirds completed, for the wing on the north side of the building to balance the one on the south just described, has only re-

outstanding pavers. Inside this is a stunning mat of the gray Tapestry brick and apparently set in this latter material, as though in stucco, forming at once a sort of inner border and a background is another square frame of pavers, joined by a single brick with the outer square at the middle point of each side and thus breaking the solid bond of the Tapestry cement. Within this square again, and sunken, is a delicate narrow border of the mossy Orientals, and outstanding in all this setting is a single solid square of green terra cotta. This somewhat minute description, of course, fits only the cases where the outer frame forms a perfect square. In the oblong frames are two or more of the smaller squares instead of one, these squares being joined to one another, just as the smaller squares are joined to the larger.

The dark, smooth surface of the pavers is in marked distinction to the rougher surface of the pioneer face-cut material, and is used with excellent results in a number of different places about the exterior. This is especially notice-

able in the outer wall of the curving colonnade which connects the main part of the structure with the south wing or dining pavilion. Here we find the Oriental brick laid stretcherwise in the upper courses, resting upon a lower course of the Bonner & Marshall pavers, which, for further contrast, are laid perpendicularly, side to side, instead of end to end all along the wall. Over to the water side of the main building a pretty balcony juts out, with doors opening upon it from the ballroom or assembly hall on the second floor, and in the outer wall of this also the same device may be noted.

At this point it may be well to note by whom the materials which have made for the artistic success of the new building have been furnished. The Oriental brick and the Fiske & Co. Tapestries, and the No. 13 and Barr pavers are supplied by the Bonner & Marshall Co. The S. S. Kimbell Company has furnished the Columbus Iron Clays for the interior. The terra cotta, which is of great artistic importance comes from the famous plant of the American Terra Cotta and Ceramic Company. The roofing tile is that of the Ludowici-Celadon Company, and the large floor tile that of the Akron (Ohio) Roofing Tile Company, also handled by the Bonner & Marshall Co., of Chicago. The Rookwood Potteries, of Cincinnati, Ohio, have supplied the special tile panels

the use of bricks is striking and is possibly one of the best examples of what may be achieved in this line to be seen in this part of the country. The detail of the mural decoration below the frieze and between the two sets of windows in the picture showing the colonnade, is a fair illustration of what has been done in this building. Pennant-shaped decorations dropping from the tops of the facade columns of brick which divide the panels also are noteworthy. Incidentally, in speaking of the strong points in the exterior the terra cotta crowns to these facade columns should not be overlooked. Right up under the eaves they do not attract immediate attention, but their absence would be noted, and their part in the general scheme is an important one. Moreover, they will bear close inspection, for their simplicity and beauty of line is in keeping with the excellent standards of the company that has put them there. On the water side similar crowns show up even better.

Seen from the entrance to the park, coming from either direction along Sheridan Drive, or viewed across the lagoons, the building is beautiful with its green thatch of roof and warmth of wall and its pleasing lines. The interior, also, especially in the front part and the upper story, is artistic and pleasing. The graduation of the dark Columbus (Ohio) Iron Clay brick wall with the special tile panels from the



A View of Lincoln Park Refectory from Lagoon.

with which the iron clay brick on the more ornamental walls of the interior is graduated, and in the kitchen is found the celebrated Tiffany enamel brick, supplied by the Thomas Molding Company.

An attempt has been made at a general sketch of the front of the building, the keynote of which is supplied by the arrangement of three panels above the bronze canopy which is hung above the doorways. They have been compared to three magnificent Persian rugs hung up against the wall, warm with a wealth of blended tints and shades and colors, giving an impression of softness and depth, or better, perhaps, "nap," which scarcely would be looked for in the hardened product of clay and of fire. But the result is so dazzling as to make analysis difficult, and the details are so numerous as to make minute description equally difficult and more tiresome. Suffice to say that the extreme outer borders are of the smoother brick for contrast; that innumerable special shapes and cuttings of the Oriental brick, variously set and with extra heavy white joints, come next, and that the remainder is worked out by massing the shades of the brick and varying the surface relief. The whole scheme of coloring is given unity by four squares of Prussian blue terra cotta, one in each of the side panels and two in the middle one, set near the top.

The working out of artistic decorative detail simply by



Colonnade and Dining Pavilion, Lincoln Park, Refectory.

celebrated potteries on the Ohio river, and the capping of the brick stair posts with green terra cotta of the famous "Teco" green, is most effective. The use of the Tiffany white enamel brick in the kitchen speaks well for the sanitary provisions made, and the employment of the vitrified floor tile in the colonnade and the dining pavilion, where it is considerably exposed to the weather, shows the common sense—hard as the tile—of those who planned the structure.

With so many pleasant things to say about the building and the design and employment of materials, it is too bad, having said them, not to be able to stop right there. Unfortunately, however, to present the case fairly, it must be said also that in some respects the new refectory will not bear too close scrutiny. Coming nearer one can see things which jar upon the sense of beauty, and, above all, of harmony which one receives from more distant views alone.

The plain fact is that unity of material has been sacrificed, and the result is painfully apparent in one part now, and soon will be in two when the other wing is completed. A good deal of concrete is in evidence in window trimmings, foundation exteriors, balustrade and wall copings and the like. To this there could be no objection. Also, it must be admitted that the ceiling of the eaves with this material is good rather than otherwise. It must be recalled, however, that the supports of the colonnade are of brick, and the arches

joining them are of brick, and the railing or wall of the colonnade is of brick, and when one looks up on passing through these arches on the way to the boat landing on the water side of the building and sees with surprise that the fair-looking colonnade is, after all, but a false thing with but a shell of brick, and that the expanse above him is of cold, white concrete, presumably reinforced, it sends a prolonged chill down his artistic spine, if he has one—the chillier because the concrete surface is very bad even for concrete. It also is disappointing to note that bracket supports of concrete jut out from the brick-clad pillars to support the outer portions of the colonnade, and these are not works of art in concrete, either. The rough outlines of the rough boards used in “setting” the concrete are plainly visible, and there is considerable profanity on the part of the “rough neck” concrete toward the elite of the brick world. Stone would offer contrast; so would terra cotta; concrete, or at least this concrete, simply refuses to combine in synthesis or antithesis for pleasing effect.

Then, stepping out a little and examining the colonnade, one has a few more jars forced upon him. The roof is of tile, the floor of tile, the rails of brick, the scupper spouts of terra cotta, and the pillars reinforced concrete. On into the dining pavilion the lack of harmony is still further emphasized. There the large columns which are of brick intermingle harshly with the concrete pillars. Concrete bracket supports projecting from a wall of brick are also used to hold up the balcony overlooking the boat landing.

It is difficult to appreciate any constructive value in such a “finish.” A little money has been saved, it is true, but a very little. It probably would not be fair to criticize the architect too harshly, for doubtless it is the result of one of those little streaks of economy which sometimes strike public boards as well as private bodies at unhappy moments. and, moreover, as has been said, the general achievement is worthy of high praise.

PERMANENT EXPOSITION BUILDING FOR CHICAGO.

THE CONSTRUCTION of a hotel at Chicago with 1,000 rooms built in the very best style of architecture and with an Italian garden and casino and later perhaps an opera house besides, is now talked of in connection with plans for a permanent exposition building for the sale of goods by sample. This all is to be one enterprise and it is stated positively that a syndicate of Chicago and New York capitalists has secured from the John V. Farwell heirs an option on 300,000 square feet of land in “Streeterville,” lying between Chicago avenue and Superior street, and that plans soon will be completed and contracts let. The hotel is expected to cost in the neighborhood of \$2,500,000, and the whole enterprise to represent an investment of about \$6,000,000.

It is part of the present plan to have the hotel completed within a year. West of it will lie the Italian garden and the casino, while beyond that again it is planned to have the universal, permanent exposition building, where leading wholesalers and manufacturers both of this country and Europe may exhibit and sell their goods by samples, supplanting to a large extent the old-fashioned methods of having samples exhibited in rooms of hotels by traveling salesmen. It is presumed that the adjoining property will be improved by first-class apartment houses.

Money will not be spared in making such an undertaking a great artistic as well as a great commercial success. Brick and the other wonderfully facile products of clay, hard as the original rock against the elements and plastic as modeling clay in the hands of skillful architects, will undoubtedly be employed in producing the desired results, and rivalry will be keen among those who produce and handle beautiful front brick, terra cotta and tile wares.

Written for THE CLAY-WORKER.

A METHOD OF OVERCOMING THE SULPHUR PROBLEM.*

BY H. B. WELLS, IRONTON, OHIO.

The presence of sulphur in clays and its elimination with good results has been and will be a subject of much discussion. Sulphur probably causes more trouble than any other element occurring in clays, especially so where the product manufactured will not justify an expensive preparation of the clay. It is not only troublesome during the process of burning, where it causes discoloration and distortion in defective burning, but in many cases where the burning has been successful sulphur is the cause of surface discoloration or scum. This latter case we will not touch upon at this time, as that is a problem by itself, but we will deal with the burning only.

We have had papers read before the Society covering the carbon and sulphur problem which have been based on laboratory experiments, and which have been an invaluable guide in overcoming the trouble arising from these two elements. What is to follow is based on the problem as it confronts us in a commercial way. The method of experimentation is not a very commendable one as it is very expensive, but the plant where the experiments were made, like many others which manufacture crude ware, did not have the luxuries of a laboratory, a test kiln and a pyrometer, so there was no other alternative. In fact, a test kiln would not have been of much value to us, as the effect of the mass would have been lost, which was very important.

The plant to which the writer refers is operated by the stiff-mud process, manufacturing brick and fireproofing. There being practically no difficulty in making either of these products and getting them into the kilns, we will confine our remarks to the burning. There was also no difference in the burning of these two products, with the exception of an extension of time for the bricks, so that the general principles apply to both. The wares were burned in round down-draft kilns 30 feet in diameter.

The system of burning which had been used previous to our experiments was to start with low fires and gradually increase them till the burning was completed. During a great part of the time volumes of sulphur fumes would evolve from various parts of the kilns and from the stack. The fumes were still evident for several hours after the firing had been completed. The results of this method were anything but satisfactory, as a large per cent. of the product was taken out of the kilns in chunks and carted to the dump. The drawing would show that the contents for about 4 feet in was a little underburnt, then for a few feet the ware would be well matured, while the center was very much overburnt, being stuck together and out of shape. By breaking a piece of the overburnt ware, it showed a very black spongy core, from which the conclusion could be easily drawn that some gases had formed on the inside and could not escape on account of the outside shrinking too soon and closing up the pores.

We are somewhat handicapped by not having a total analysis of the clay, which is of Cretaceous origin, having pebbles of iron sulphide distributed all through the bed, but we are fortunate enough to know the sulphur content, which is 1.82 per cent. Since the scumming of the product is by no means excessive, it is safe to say that the larger part of the sulphur is present in the form of FeS_2 .

Knowing from past experience that the sulphur in the FeS_2 oxidizes at two stages, the first molecule at about 400 C., while the last remains until about 900 C., and that this

*Reprint from Transactions American Ceramic Society, Vol. XI.

oxidation will take place properly by a careful regulation of the air, we started to work by bringing a kiln up to a dull red heat and letting the fires die down at this point, merely keeping them alive, thinking that by so doing the oxidation of the sulphur would take place at a slow rate. We did not attempt to close up the fire boxes and other air inlets, not wishing the heat to go back too far, but before we realized what was going on, the kiln had attained a bright red heat. Ceasing to fire the furnaces proved of no avail, as the heat in the kiln became more intense in spite of all we could do. No more firing was done until the center of the kiln, which was the hottest, had cooled down, when enough fuel was added to finish the outside courses.

Upon drawing we found that the only advance made was that there was no underburnt material.

Our next step was to bring a kiln up to a dull red heat, pull the fires and close up the fire boxes, leaving them in this manner until the kiln was again ready for the fire to be started for maturing the ware. As there was some difference in the floor construction of some of the kilns, this system was tried on several of them, but the result was the same in each case—an overburnt center, but of not quite so great an area as the first trial. The top courses were well burnt, but the middle and bottom were as much distorted as before.

The top being good, with no improvement in the middle and bottom of the center, led us to believe that the air, as it passed through the top courses, became preheated and more efficient, causing the oxidation in the bottom to take place too rapidly, so we made some experiments with the setting, that is, set the bottom courses more open, thus allowing a greater draft, having a tendency to carry the air through much faster and not allowing it to become so hot. This did not have the desired effect, as the overburnt middle and bottom of the center were still there.

On the next kiln we carried the problem one step farther by closing the kiln before it had attained a dull red heat. As we had no pyrometer to indicate the temperature, this had to be done by guesswork. Knowing the time that usually elapsed between the evolution of the first molecule of sulphur and the attainment of a dull red heat, we divided this time in half and closed the kiln up at this midway point.

The kiln advanced at a much slower rate than in any of the previous burns, but even this time the kiln reached a bright red heat in the bottom and middle, but not so much as before. The drawing showed a decided improvement, but a portion of the kiln was still unmastered.

The next kiln was closed up as soon as there was evidence of sulphur fumes. We were a little in doubt as to whether the kiln would advance in heat, being closed up at such an early stage, but, to our surprise, it did increase very slowly and at a rather uniform rate. It gained an intense heat in the bottom, but covering less area than any we had tried so far. On drawing, we found a bad place where we had expected it from our external observations.

What to do next was rather perplexing, but having come so near the solution of the problem, we were not willing to give up. The central part of the kilns being the point of contention, we concluded that if it were possible to admit air at this point at a low temperature and prevent the hot gases from passing through this one central point, we would have mastered the situation. Being willing to try most anything, the exhaust fan, which was connected with all the kilns, was put into play. We handled a kiln as before except that the gases were turned into the fan instead of the stack during the oxidation period, thinking that the gases and air passing through at a rapid rate would have a tendency to keep the temperature down and cause a slow oxidation. Such was not the case, however, as the result was nearly as disastrous as some of our first trials.

At this point we began to think that we would be unable

to burn the clay in down-draft kilns. Knowing that the gases were not under very accurate control in the up-draft type, our attention was turned to reversible kilns, and we conceived a plan to carry out the idea with the kilns we had, which was to open up the top of the kilns during the oxidation period. This would allow the gases from the top courses of the ware to escape first, and, by going directly into the atmosphere, they would not pass through any of the other ware and give off heat which would cause a rapid oxidation in other parts of the kiln.

At first we were in doubt as to what point in the oxidation we should open up the top of the kiln, but, as we were more willing to increase our fuel bill, if necessary, rather than endanger the ware, we brought the next kiln up to the ignition point of sulphur, when the fires were allowed to die out and the fire boxes closed up, the openings in the crown uncovered, and the gases shut off from the stack entirely. The heat advanced rather slowly, but it moved gradually from the outer courses toward the center, giving no evidence of becoming too hot at any point. The sulphur gases kept passing off for several hours after the black core had all disappeared from the trials. When they had ceased, the top of the kiln was closed, damper opened to the stack, and fire started and carried in the usual manner for the completion of the burning.

The result of this method was practically a uniform burn throughout. The bad place which we had been fighting in the center had all disappeared. No sulphur fumes could be seen after the burning was complete.

During our first experiments, we thought that the evolution of sulphur after the firing had ceased was due to having the dead coals in the fire box. This undoubtedly produced some of the gas, but upon cleaning the fire on several of the kilns at the end of the burning, there was no apparent reduction in the volume of gas. This showed conclusively that the sulphur in the clay was the cause of our trouble.

There is no question but that the carbon played some part in the imperfect oxidation, but the black core, which is largely due to carbon, disappeared long before the evolution of the sulphur ceased. As the ignition point of the carbon, which is about 700 degrees C., is midway between the ignition points of the two parts of the sulphur, the former would take care of itself if we could control the latter.

After having satisfied ourselves that the above method was successful by burning several kilns in the same manner, we came face to face with another obstacle, which was that we were not turning our kilns over fast enough to keep up with the capacity of the plant. This called for further experimenting, the outcome of which resulted in the covering of the top of the kiln before all of the sulphur had passed off, which advanced the heat in the bottom much sooner than we could produce the same heat from the fire boxes with no sulphur in that part of the kilns. Much care had to be exercised in judging the proper time for action, in order not to start the fires too soon and ruin some of the ware. After watching several kilns very closely, we were able to pass this point with safety.

Our experiments resulted in our adopting the last mentioned system, which, to the writer's knowledge, has been used for two years with much satisfaction. It is not, however, a commendable method for all clays which contain sulphur, but where they contain a very large amount, it is one solution of the problem.

The Government figures on the freight movement indicates there are now about as many cars moving as there were in 1907. Maybe they are not carrying as much nor going as far, but even so it looks like something doing industrially, and that we may soon have another car shortage crop.

Written for THE CLAY-WORKER.

THE BRICK-PAVED STREETS OF THE PACIFIC NORTHWEST.

THE PACIFIC northwest, embracing a territory in the extreme northwest corner of the United States, includes the following cities, reading from north to south: Vancouver, Seattle, Tacoma and Portland, with several smaller towns such as Bellingham, Everett, Chehalis, Aberdeen, and a number of others.

Among these cities, which are all growing in size at an enormous rate, the public improvements are keeping in harmony with the rapid growth, and among the improvements which are talked about the most is street paving. Street paving is not only a subject in which only property holders are interested, but in which nearly the whole community

of Pike street which runs from First avenue to Seventh street.

As far as Seattle is concerned, paving brick have given entire satisfaction, and all other cities of the northwest are rapidly following the example set by Seattle, and adopting brick as paving.

Tacoma's main street, Pacific avenue, was partly paved with brick in 1898, and last year was paved its entire length of three miles with vitrified brick. Of other cities, North Yakima takes a very important place. It paved over three miles of streets last year, and used over 4,000,000 brick.

Lewistown, Idaho, Chehalis, Centralia, Bellingham and Victoria, B. C., and Everett, Aberdeen and Spokane, Wash., have all some brick paving. It is estimated that the total amount of vitrified paved streets in the Pacific northwest exceeds forty-five miles, of which twenty-two miles are in Seattle alone.

The engineering fraternity in this section does not con-



Second Avenue. Seattle, Wash. Paved With Denny-Renton Clay and Coal Company's Vitrified Brick in 1895.

takes a lively interest. It is, therefore, no wonder that these cities had to improve their streets, and that public interest is generally aroused when the material to be selected for such paving jobs was brought up.

Of the cities above-mentioned, the city of Seattle is the farthest advanced from a clayworker's standpoint. Brick paving is laid down in large quantities and has given good satisfaction. The first street paved with vitrified brick was improved in 1892. One of the cuts shows this section of the street, which has now been in constant use, under the city's heaviest traffic, for nearly seventeen years. The amount of brick used was 60,000. This section, which is called First avenue, runs from Yesler Way to Washington street. After this section was given a thorough test and its paving proved satisfactory in every respect, Second avenue was paved in the following year—1893—from Yesler Way to Pike. The cut shows this street as it is today. Among the streets subjected to the heaviest traffic in the northwest, is that section

sider asphalt in competition with brick for heavy traffic, inasmuch as asphalt wears fast under traffic, and deteriorates under elementric conditions. Nearly all engineering departments of the cities above-mentioned use the standard test of the N. B. M. A. in testing the paving brick. As filler, loose sand is used in a few cases, while principally a cement and sand mixture is employed as filler. All vitrified brick is laid on a concrete base varying from 4 to 6 inches, with a sand cushion of from 1 to 2 inches.

The paving brick used in the Pacific northwest are exclusively manufactured by the Denny-Renton Clay and Coal Co., of Seattle. This company maintains a large plant for the making of paving brick at Renton, a small town some twelve miles south of Seattle. They have, at present, a capacity of 60,000,000 brick per year, and are turning out a paving brick which compares by tests favorably to standards of the eastern states. This company also manufactures a

paving brick especially used by the street car companies for paving between T rails. S. GEIJSBEEK.

Written for THE CLAY-WORKER.

NEWS FROM THE TWIN CITIES AND THE NORTHWEST.

The

BUILDING RECORDS for the Twin Cities for 1909 will be among the biggest and best which have been reached in many years. Already, with two months yet to go, each city has shown a marked increase over the entire twelve months of 1908, St. Paul showing the tremendous gain of 70 per cent. on the ten months. These gains are accomplished because there is an increase in all classes of building, for each city has several large projects under way,

It is more than obvious that the building business in the northwest presents an unexcelled opportunity for the brick and clay interests to come forward and get their rightful share of the prosperity which abounds, by a proper and continuous presentation of the merits of their wares. The clay manufacturers have the real goods, but they are often woefully lacking in the manner of a press agent's capacity, and this is just where the concrete dealers have the advantage of the clay dealers. The concrete proposition was taken up as a new toy by the bulk of those entering the business. They knew nothing about the article themselves and the public was equally ignorant. Many of the persons engaging in the business were honest enough in their representations as to the uses of concrete blocks, because they believed what they had assumed to be so or had been told so. And it being new



A Fine Vitrified Brick Pavement, First Avenue, Seattle, Wash. Paved 1896.

while they also have a great many of the smaller, but numerous structures, which count so much in the long run. All classes of buildings are included in the work, from the small, but substantial residence, to the small store and to the larger structures. This season has seen a marked gain in the use of brick for dwelling purposes, there being many more brick veneered buildings than formerly, while the solid brick structures are also showing heavier. The number of private garages for individual owners includes a very fair showing of brick and brick veneered work. The development of the hollow block business in clay work has also brought out a large quantity of this class of work. Much more may be expected in it, however, for some of the companies have begun exploiting it through liberal and judicious advertising.

to them, they went into it with all the enthusiasm of a convert. The result was that the public was deluded into accepting the concrete goods at their assumed value. And the clay interests, instead of boosting their own products actively, were apparently stunned and dazed at the new article, and sat quietly, letting the other article get the bulk of the business. But the concrete proposition has pretty nearly run its course. Its devotees are in an apologetic state of mind and are explaining volubly, but not convincingly, why there have been d'sappointments and losses in their product. Now is the time for the clay interests to make up for their lost time and neglect of the past, by pushing the value of their own product. They can do this by urging the many points wherein their article is free from

the troubles of the other without specifically referring to the concrete goods at all. Then when questioned by a customer, they can indicate the comparison plainer.

Northwestern Clay Notes.

The brick plant at Ottawa, Minn., is reported to have been sold recently.

The brick plants through the country in the northwest are generally shutting down. Most of them have had a better season this year than last, and will have but a reasonable volume of brick on hand for the fall, winter and early spring trade.

The Twin City Brick Company, of St. Paul, has completed its new plant for the manufacture of interlocking terra cotta facing blocks, of which 600,000 were used in the construction of the new Hotel St. Paul, which is now being completed in St. Paul at a cost of over \$1,000,000. There were also 150,000 of these blocks used in the new factory of the Drake Marble and Tile Company, in St. Paul. These blocks, through their interlocking feature, add great strength to the wall, and also afford an absolute bed for the mortar joint. They are made in a wide variety of colors and sizes. They are vitrified clay and impervious to water. These blocks are made under patents held by the company. The plant has a capacity of 9,000,000 facing blocks, but this can be doubled readily. They claim for them that they afford a great saving in the cost of laying, being about half, and 40 per cent. in freight and in hauling, which makes them a strong competitor with frame construction, while far in excess of frame as to worth, value and attractiveness.

The Board of Education of St. Paul has named the following architects to supervise the construction of the four new high schools which are now being started in that city: Buechner & Orth for the John A. Johnson building; Clarence H. Johnston for the West End; E. J. Donahue for the Humboldt, and Herman Kretz for the Mechanic Arts building.

The Twin City Brick Company, of St. Paul, announces a reduction in the price of clay drain tile, having completed a substantial new plant which is equipped to run all winter. The company guarantees the tile to meet the needs and demands of anyone, it being made of a superior quality of shale and expertly handled in the manufacture.

The Minnesota State Association of Builders' Exchange will hold its annual convention at the quarters of the Minneapolis Builders' Exchange, December 8, beginning at 10 a. m. This annual gathering always brings out a great deal of valuable information to the contractors and others who make up the membership, and the forthcoming meeting is of especial importance, since there were many matters of importance which were instituted at the meeting a year ago in St. Paul to come up for reports as to progress and the present state.

The Range Brick Company, of Pengilly, Minn., has been formed by Minneapolis and Hibbing, Minn., capital to establish a sand-lime brick plant.

The St. Paul building permit totals for October were \$1,324,400, a gain of \$612,790 over the same month of last year. For ten months the present total is \$9,953,367, an increase over the same time of last year of \$4,129,968, or a gain of 70 per cent.—the greatest gain in twenty-two years, with November and December still to add.

The Minneapolis building totals for October were \$1,035,815, as compared with \$990,390 for the same month of last year. This makes the total for ten months \$11,180,835, a gain of \$1,086,920 over the whole of 1908.

The Northwestern Clay Association held a meeting at the Builders' Exchange headquarters in Minneapolis, November 3, to consider trade matters. This organization is young and has been working hard to get organized upon a good, substantial basis, but is experiencing the common life of associations at the early part of their history. The matter of

active membership has been hard to attain, although those in the association take a good part in the work. The organization a year ago took the position that brick manufacturers, as a whole, should boost their own goods harder and should do less recrimination against other materials, concrete in particular. The prospects for the organization are good for developing into a strong and active association.

The Decorah Realty Company has started work on a three-story brick store and apartment building at 1100-1104 Hennepin avenue, Minneapolis. It will be 66x141 feet, of brick and cut stone, containing seven stores on the ground floor and apartments above. Cost, \$50,000.

The Minneapolis Sash and Door Company has had plans prepared by Kees & Colburn, architects, for a new building to be erected at its plant, at Central and Third avenues, Northeast. It will be 163x132 feet in size, five stories and basement, and of brick and cut stone work. Cost, \$90,000.

The H. N. Leighton Company, which has the general contract for the superstructure of the Roman Catholic Pro-cathedral in Minneapolis, has the brick piers and arches well up toward the eaves, and is ready to start laying the exterior stone work.

The Minnesota Club, of St. Paul, has had plans prepared for a handsome new club building to be erected next season. It will be of pressed brick and terra cotta exterior walls, fireproof interior construction throughout. Cost complete, about \$300,000.

J. S. Burris, of St. Paul, who represents the C. H. Klein Brick Company, has taken the contract to furnish 6,000,000 brick to the P. M. Hennessy Construction Company, which has the general contract for the erection of the Roman Catholic Cathedral building in St. Paul. The foundations are completed and the superstructure walls are now under way.

Howard Kingston & Co., of St. Paul, have had plans prepared by Postle, Mahler & Denson, architects, for a two-story brick building, 77x55, to be erected on Minnesota street, between Ninth and Tenth. Cost, \$20,000.

The W. J. Hoy Construction Company, of St. Paul, received the general contract for the erection of the new Science Hall in St. Paul. Their bid was about \$40,000.

Purcell & Feick, architects, of Minneapolis, are preparing plans for a handsome new church for the Stewart Memorial Presbyterian congregation, of Minneapolis. It will be of brick and cut stone construction, 50x88. Cost, \$25,000. The Twin City Hebrew Society has been formed to erect a town and country club building to cost about \$50,000, adjacent to the Twin Cities.

Bids have been opened lately for the erection of the proposed ten-story building to be erected by Congressman John E. Andrus, of Yonkers, N. Y., at Sixth street and Hennepin avenue, Minneapolis. The work will total close to \$1,000,000. Long, Lamoreaux & Long, of Minneapolis, are the architects.

T. WIN.

TENEMENT HOUSE CONDITIONS.

According to the report of the building department of Greater New York, there are now 102,877 tenements in the greater city. Improvement in these tenements has been rapid since the tenement house law went into effect. Places with no light and similar violations of the statute are now extremely scarce, and are disappearing rapidly. In most instances it requires merely a notice. Occasionally it is necessary to post a notice on the walls.

Of the tenements now left, 69,958 are subject to structural inspection, and 9,024 are of doubtful occupancy. Only 101,117 dark rooms are left (by dark is meant those having no direct light), while formerly there were over 350,000. Orders have been issued against 22,892 during the year, and 77,064 will be cared for during next year and the following year.



THE BRICK BUSINESS NOT SO SIMPLE AS IT SEEMS.

A NOVICE WILL go into the clayworking business with the utmost confidence, and back his lack of knowledge with his good dollars.

As one man remarked, "In my business we have various troubles and losses, but in brickmaking all you have to do is to make the bricks, burn them and sell them," which he attempted to do with disastrous results.

An experienced man will approach even a discussion of the business with wholesome respect, and his respect is proportionate to his experience.

It is a good business, and, under proper management, gives fairly remunerative returns.

The basic material is practically constant in price and unlimited in quantity, while the selling price fluctuates with periods of depression and inflation, but within a smaller range than any other manufactured products.

The business trudged along generation after generation, following the footsteps of tradition, and it needed some competitive material to shake it out of its lethargy and put it on a higher plane.

There is no material that can take the place of bricks in durability, safety, beauty and cheapness of construction, and the business, once successfully established, is assured of a long life.

It is a business that requires conservative management; the market for the product, especially the commoner lines, is within a certain prescribed territory; the business is adapted for moderate capital, not for great corporations and trusts with watered stock. We need water in the business, but there should be none in the capital.

Failures may be traced to several causes, some of which are common to any business.

(1.) Lack of experience is the most frequent cause of failure, and it is strange that the brick business suffers more from this cause than any other. Many people seem to think that it is only necessary to "make the bricks, burn them and sell them." Many plants built by such people are ill-advised, unadapted and failures fore-ordained. Some of them are subsequently taken up by practical men and brought to success, while others are impossible.

(2.) Extravagance in construction often puts a burden upon the plant and the returns in per cents. are very meagre. Many small plants are built for \$1,000 per thousand bricks capacity, but such plants necessarily must omit many economical devices, and the returns, even when successful, are scarcely more than salaries for the managers of the plant. Large operations using scove kilns can be constructed at low cost per thousand unit product. For higher type of factories \$2,000 per unit of capacity is not an unusual figure, while \$4,000 per unit often goes into expensive construction, and this figure is even exceeded, but we think not legitimately.

(3.) Insufficient capital is often the cause of failure. Plants are started without knowledge of the cost and the funds are exhausted when the construction of the kilns is reached, and the operation limps along without sufficient kiln capacity. Overhead charges eat up the profits.

Whatever the capacity of the machine and power may be, the accessory equipment should take care of the full output of the machine.

We have always appreciated the remark of the German, who, with his finger on the tally board showing the day's run said, "What I want to know, did you make that many yesterday, today and tomorrow?"

(4.) Under this number numerous causes might be listed, but except bad management the most important cause is the clay itself. The clay must be exploited both as to quantity and quality before building a plant which sometimes is not done. We have seen and tested exposures of clay which were quite different under cover. In one instance a fine clay ran into a sand rock within a few feet, and an examination covering twenty miles of outcrop located several exposures of clay, every one of which ran out within a few feet in depth.

Many instances of the uncertainty of clay deposits might be cited, but one suffices.

The character of the clay is equally important. Is it short, lean, fat, sticky? Is it safe drying? Will it stand up under fire? What is the burning range, the color, the vitrification, the rattler loss, the salt-glazing possibility, etc.?

How many plants have been built to manufacture one product, only to meet with partial success on some other product in a plant not adapted to economical manufacture of the latter product, and how many plants have failed because no secondary product was available?

"Know thyself" is a good maxim, but in the brick business you should know thyself, know the clay and know the business.

There are many plants, as the writer knows by personal examination, which have in them the elements of a profitable business, but which are dragging along barely meeting expenses.

The following discussion is written as a sort of a review of our many investigations of such plants:

Cost Systems and Records.

Many plants are lacking in adequate systems of keeping the cost and records of the daily operation upon which to base a cost system are wanting.

We would like to impress upon every manufacturer the importance of keeping daily records of the operations of the plant, and making use of them.

If the manager is watching the powder consumption, the oil consumption, the timber used, the cost per ton of the haulage, of the mining, of the repairs, the foreman of the mine is also watching them, and the miner, the driver and the timberman is also watching them. If records are being made, nearly every man is interested in the results and takes pride in breaking the record, and setting a new high mark.

Occasionally a man is "agin the government," and the record system locates him and he is let out to drift into a plant where records are not kept. In the factory, records should be kept of the grinding. If a new screen plate is tried in the pan, the records show quickly the value of it. In the machine room should be counters attached to the

machines, showing the possible capacity. These counters may be attached to the bar of clay from the auger machine, and they show how many bricks came from the mouth of the die. The tally of the trucks or cars of bricks show what went into the dryer. These two records are sufficient inducement to every man to keep the discrepancy between bricks made and bricks saved as low as possible, and enables the foreman and manager to locate and eliminate the faults in the machine and cutter. The number of bricks set divided by the number of men in the crew and by the hours gives the setting per hour per man, and also in cents per thousand. It enables the foreman to determine whether single or double crews are best, how much time is lost in switching cars in and out of the kiln, and which type of kiln is the most rapid and economical. With records showing the daily runs, the good men will find some way of letting the foreman know who are the loafers.

The same system applies to the drawing.

The system leads to an esprit de corps which gives return in dollars and cents, besides giving opportunity to make intelligent changes in the machinery and equipment which increase the output and decreases the cost.

If an employe is simply one of the "hands" or a "gin hand," he has little inducement to good work except under the watchful eye of the foreman, but when a little dial is ticking off his work and that dial is going up to the manager to be entered on a record alongside that of Dick and Harry, he is going to keep awake on his job.

Kiln records are even more important, and give quick returns.

Have you ever noticed the difference in firemen on boilers; one man will keep up steam with half the fuel used by another, while the other with much labor barely keeps the steam to run the plant.

No man likes to be stalled and hooted at by every man on the job, but in pulling through the day he wastes a lot of your fuel. You quickly find out the best man for the place.

On the kilns the poor man may remain for months and not be found out, and even the good man lacks the gauge to show how his work is progressing.

You may keep the burner awake, but you have no information in regard to the value of his firing. We should have recording draft gauges and recording pyrometers on the kiln, and these not only will enable the foreman to select the best men, but will keep them at their best and will lead to development and improvement in the burning with beneficial effect upon the cost.

Clay Gathering.

The economy of the operation should begin in the clay pit. We have seen many operations in which there was an easy saving of a few cents to over a dollar a thousand, and it was inexplicable to us that some effort was not made to effect the saving.

To illustrate, on one yard a drum and incline was used to get the clay into the factory. From the foot of the incline to the clay pit was a distance of several hundred feet. When a car was loaded, it was hauled to the foot of the incline and hooked to the cable and the empty hauled back to the clay pit; meanwhile six to ten men were idle. Another car would have kept an empty in the clay pit and the men busy.

A clay ditching machine would have resulted in greater economy, reduced the labor, kept tracks, cars and machinery out of the mud, lessened the height of the lift, and insured a mixture of the clay not possible by the hand method.

On another yard eighteen men and three horses were used to get 220 tons of clay to the crushing machine.

An expenditure of \$300 would have cut out three men and two horses. A steam shovel would have reduced the force to six men, one horse and one ton of fuel.

On another yard four horses, carts and drivers were used to haul the clay from a pit a quarter of a mile away. A tramway, at our suggestion, reduced this to one horse and driver.

Is it any wonder that such work leads to failure?

You will say such cases are unusual, but not so. They

are the rule rather than the exception, but not in the same degree as the above instances.

Go out into the clay pit and study the situation. Wouldn't it pay to fill up those ruts and ballast that road, and give that horse less work hauling a ton and a half of clay where now he hauls one ton.

How about that semi-parallel system of twists, crooks, dips and humps called a track; wouldn't it pay to line it up and ballast it, so that mule could haul four or six tons instead of two. We have seen one horse regularly hauling sixteen tons, but not on a grape vine.

That place where the cars get off the track about twice a day, and the men are called from the pit to replace them on the track. Surely a new tie and some tamping would pay here.

Notice the men dipping up the clay with long-handled spoons.

With such a tool the pivot may be 2 feet from the fulcrum and the fulcrum 3 feet from the load—a ratio of 2 to 3. With short-handled tools the ratio will be 2 to 1.

Under such condition a man can lift three times as much with the short-handled tool as with the long-handled one, using the same force.

These are only minor items, but all count in the cost.

The matter of material importance is the system.

Clay winning naturally divides into two classes:

I. Open pit or surface work.

II. Underground mining.

Dredging might be added as a third class, since it is neither surface nor underground work, but that is not to be included in our discussion.

In the surface work we have:

1. Stripping.

2. Winning the clay.

The stripping can be:

(a) Hand labor, using pick, shovel and wheelbarrow.

(b) Team work with plow and scraper.

(c) Steam shovel work.

(d) Hydraulicking.

The method to be used will depend upon the amount of material to be removed, the character of it, and the distance from the dump.

The pick and shovel method will not be used except the stripping is very light. A man will shovel and wheel a short distance, from 15 to 20 yards per day, making the cost per yard 10 cents or more, to which must be added 2 or 3 cents per yard for the plowing. It is readily seen that this method is prohibitive where the cover is heavy.

The use of a cart for wasting is of no value until the distance exceeds 200 feet or there is a grade to pull.

If scrapers are used the cost can be kept down to 10 cents per yard.

With a steam shovel the cost will not exceed 5 cents per yard, and hydraulicking cost can be kept below 2 cents per yard.

It would pay many plants to put in a steam shovel and uncover several years' run of clay, and it would be still more economical to rig a hydraulic stripping plant, even though it be operated a short period each year.

The steam shovel would hardly be used except it also was used in winning the clay after the surface material was removed.

The method of winning the clay depends upon so many things that only a study of each operation will enable one to determine what average there will be in changing to a different method.

We can not do better than quote some figures from H. R. Straight's article published in *THE CLAY-WORKER* in April and May, 1907:

Picking and loading into wagons, 37.5 cents per ton; spading into cars, cable and drum haulage, 28.7 cents per ton; shoveling ploughed material into wagons, 17.8 cents to 22.2 cents per ton; drag scrapers, wagon bridge, wagon haulage, 9.87 cents to 17 cents per ton; drag scrapers, car bridge, drum and cable haulage, 4.8 cents to 10 cents per ton; wheel scraper, wagon bridge, wagon haulage, 7.1 cents to 11.9 cents per ton, and steam shovel, drum and cable haulage, 3.2 cents to 8.1 cents per ton.

The figures for the steam shovel are based on a capacity of 200 to 225 tons per day, while the other figures are based on various capacities from 40 tons to 200 tons.

The total daily cost for the shovel work was \$10.21 to \$16.28 per day, from which it will be seen that the steam shovel offers little advantage over some other system for small capacities.

There are other considerations which should be taken into account.

If the clay is alluvial and of several strata which should be mixed, then a shovel or ditcher has some advantage over any other method, though by working the clay on a slope the wheel or drag scraper and car bridge method can be used.

Where, however, the clay has to be lightly ploughed, then dried before hauling to the shed, the steam shovel is not applicable, and the wheelscraper, or rather an automatic filling and dumping clay gatherer should be used. Mr. Sraight's figures for handwork may be questioned by some, but we believe that if accurate records are kept of the total cost, his figures will be a fair average. We have lower figures, but conditions were favorable.

In one instance, a contract was made for 25 to 28 cents per thousand bricks, or about 9 cents per ton. In another instance we were told that the clay was ploughed and shoveled into carts at a cost of 7 cents per ton, which seems incredible.

point, and the life of the mine shortened. It is cheaper to keep up a mine than open a new one.

The cost of mining varies with the conditions and the extreme limits are much wider apart than in open pit work. In a drift mine with good roof permitting wide rooms and requiring little timbering, in a seam of sufficient thickness for economical work, the cost of mining and haulage should be less than 40 cents per ton and as low as 30 cents. In entry work the cost will be 50 to 60 cents per ton.

In shaft mines with bad roof, narrow rooms, etc., the cost may be easily double these figures.

(To be Continued.)

Written for THE CLAY-WORKER.

A VISIT TO INDIANA'S CLAY CENTER.

An Enjoyable Trip Through the Interesting Plant of the Brazil Clay Company.



OF ALL THE many cities and towns in Indiana boasting of clay manufactories, none is more important than Brazil, a city located in Clay county, one of the richest sections in the Hoosier State, abounding in high-grade clay and shale deposits. From a small beginning in 1893, it has developed into Indiana's most prosperous clay center.

Nine large plants are located either in or within close prox-



General View of Brazil Clay Company's Plant, Brazil, Ind.

In a shale material we have records of short runs in which the cost was 10 to 12½ cents per ton, but the average cost was higher. In one instance, a contract price of 16 cents per ton was made and the cost to the contractor was 11 cents, not counting his own time.

In shovel work we have often made the general statement that the shovel was not economical for capacities under 30,000 bricks per day, and we believe there are few situations in which some other system than a steam shovel will not be quite as economical in operation as the shovel.

Underground Mining.

A treatise could be written on this subject, but it would lead us into methods and away from our subject of "economies," and we will dismiss it with only a few suggestions.

Underground work should be in charge of a competent man. The mine should be properly drained and well aired. The haulage entries should be straight and the tracks lined up and ballasted.

There should be some method in the operations, and all the clay possible taken out as the work advances.

These things count for economy.

Neither men nor horses can do full work under bad conditions, and the conditions underground are bad enough at the best. If the work is left to the direction of the miner or contractor, the clay will be gouged here and there, entries enlarged, endangered and ruined, ribs cut out to the danger

imity of Brazil, all of which are busily engaged in turning out immense quantities of high-grade clay products. Of these fine plants one of the most interesting is that of the Brazil Clay Company, the infant factory of the nine.

Let us take an afternoon off and spend three or four hours inspecting this up-to-date face brick manufactory, for a half day's visit through this unusual plant is of great interest to the average clayworker, and a delightful experience not soon to be forgotten.

We leave the Hoosier capital either by steam or electric line and reach Brazil after a short, pleasant journey. Arriving at Brazil, we are escorted by one of the officials of the company to the plant, which is but one mile and a half from the center of Brazil. The first notable thing to attract our attention is an interesting exhibit of their various shades and sizes of bricks laid into a wall built around a large tree immediately in front of the office building. This wall is artistic in every sense, showing to good advantage the light and dark salt-glazed brick, dark mottled, grays, buffs and tans. Seeing this splendid exhibit, we naturally wish to know what the raw material is like and the method of working.

Under the guidance of the superintendent, we are led a short distance to the top of a shaft where, after the necessary signals, a cage shoots up to the ground level, the gate is lifted and we are instructed to walk in and hold fast to the rings. A signal from the superintendent and the cage

is lowered to the bottom of the shaft, which is 110 feet deep, 28x8 feet in dimensions, allowing ample room for the operation of the cages.

As we leave the car at the bottom of the shaft, we are introduced to the mine superintendent, Mr. James Skene, a sturdy and very hospitable Scotchman, who has been in the mining business over forty years, starting when but a lad of nine in a coal mine in Scotland. "Old Jim" is indeed glad to see anyone interested in the clay industry, and takes great pride in showing the visitors the many nooks and corners of this well laid out mine. So contagious is his cordiality that we feel interested from the start, and are anxious to penetrate the dark passageway ahead of us where hundreds of tons of fire clay have been taken from the immense vein, which averages from 9 to 17 feet in thickness, superimposed by a thin vein of coal, over which is a hard bed of rock, an excellent roof for the mine.

Each visitor is given a small lamp and we start down the long main entry which "Jim" explains is 350 yards long with 6x9 cross entries every 60 feet, the pillars being 60x40, leaving sufficient support for the strong rock roof. As we walk down this main entry, we can hear the men at work in some of the near chambers, where they are loading the cars or preparing to shoot.

An empty car drawn by a mule passes us, the man on

recently been torn from its bed by ninety sticks of dynamite. There are eighteen men employed here, all experienced miners, one of whom is in the Brazil Council, while another is the son of Mr. Skene. Over 120 tons of clay are mined daily, three mules being used in the hauling.

When we return to the cage after thoroughly inspecting the mine, our enthusiastic guide explains the method of air circulation. The main shaft forms the up-cast, while the air shaft is closed up near the main shaft, a Crawford McCrimmon fan being used to force the air down the latter and into the air courses, through which it travels to the several entries and finally reaches the main shaft through which it escapes.

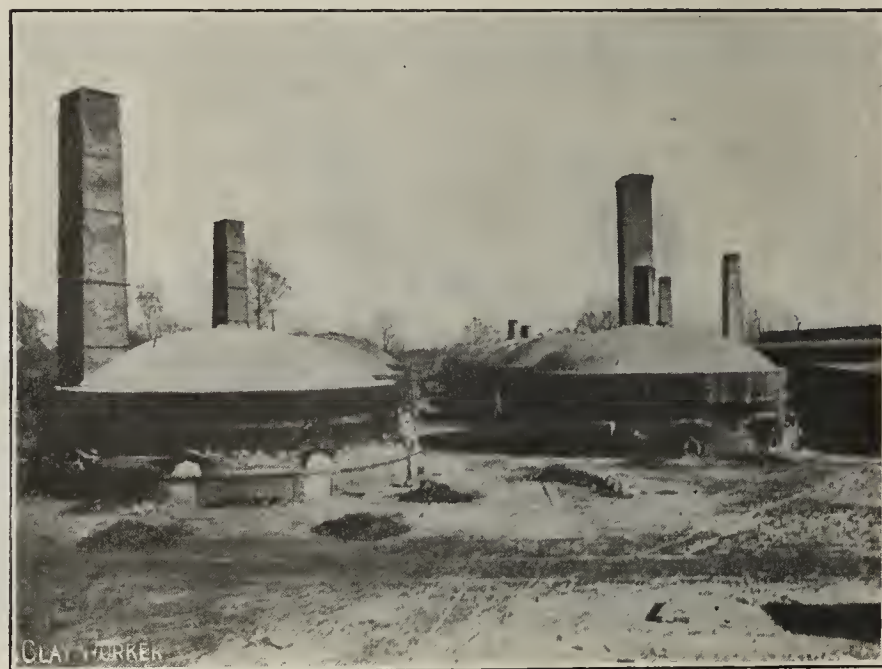
After paying our respects to the mine superintendent, we leave the mine and stand for a few moments on terra firma watching the cages with their loaded and empty cars going up and down. It is interesting to watch the loaded cars locked to the cages whiz past and on up to the top of the tower 50 feet above us, where the cars are automatically dumped.

The clay drops down a chute to a large hopper in which it is weighed and is then allowed to descend by gravity down a chute to a Champion No. 5 American Road Machine Company's crusher.

In our inspection of the plant proper, we watch the clay



A Glimpse of the Brazil Clay Company's Plant.



On the Kiln Yard.

the car paying little attention to the long-eared motive power. As they near a wooden door which blocks the passage the mule does not decrease his speed, but pushes the door with his nose. The door swings ahead and drops back into its former position as the car disappears beyond.

This is something new to most of us, being a clever invention of the old Scotchman. The door hangs on two bolts or hinges, one at the bottom on the left, while the other is fastened at the top and about a foot farther to the right than the lower, being fastened in a beam at the top of the door. This arrangement causes the door to swing to its natural position of its own accord. In other mines where doors are used for regulation of air circulation, boys called "trappers" are employed for opening and shutting same. With this type trappers are not needed and the workers are sure at all times that the door is closed after the car passes, and that the circulation of air in the chambers being worked will be sufficient for their needs.

In our excursion through this interesting mine we visit chambers entirely worked out to the property line of the company and chambers wherein the men are busily engaged boring holes and preparing the charges and fuses for the next shooting, chambers which have just been opened, some with several hundred tons of loose fire clay that has but

in its course through the factory. We see it conveyed by belts from the crusher to the two Bonnot 9-foot dry pans, from which it is conveyed by cup elevators to two screens, one Dunlap and one Bonnot. The screened clay is delivered to the large Bonnot pug mill by means of gravity and a belt conveyer. From the pug mill the prepared clay passes into the Bonnot brick machine and thence to the Bonnot automatic cutting table. All of the brick are repressed on three Bonnot represses and are then loaded onto Bonnot dryer cars of 600 capacity each, on which they are taken to the sixteen-track dryer. This is a waste heat dryer, and has a drying capacity of 240 cars, or 144,000 brick. The green brick are dried bone dry in thirty-six hours and are then taken to the kilns. The ware is burned in sixteen round down-draft kilns, each 30 feet in diameter. From 60,000 to 65,000 brick are set in each kiln. In the burning, trials are drawn at regular intervals, giving the burner the correct indication of the progress in the burning. Six of the kilns are used for making the lighter colored brick, while ten are used for making the dark and more vitrified ware. In these ten kilns the Boss system of burning is installed and has proven entirely satisfactory. In fact, the company declares it is the only way in which they can get the desired results for their dark brick. In the Boss system they use two

American Blower fans for forcing the air. Each fan is operated by a small engine. Two Crawford-McCrimmon fans are employed to draw out the waste heat from the cooling kilns to the dryer and disposing of the condensation. In burning with the Boss system slack is used entirely, while in other methods lump coal is used. It requires from ten to twelve days to burn the ware, after which the kiln is allowed to cool and then emptied, the brick being shipped immediately or stored away in the large stock shed, which is 175 feet long and 75 feet wide. The plant has excellent railroad facilities, depressed tracks being used to good advantage. The power of the plant is furnished by means of a large 250 h. p. engine and two large Erie boilers, 18x72 feet, 125 h. p. each. The plant has a complete lighting system, a small

Written for THE CLAY-WORKER.

KANSAS CITY BRICK AND BUILDING NEWS.



THE BUILDING figures for Kansas City for the first nine months of this year indicate that there has been an exceptionally fine increase in building operations, the total for the nine months being \$10,806,443, against \$8,295,983 the corresponding months of last year. This not only shows that an increase of nearly 25 per cent. has been made, but that the permits have been very largely for homes and also for new work, as out of the entire amount only \$999,243 was spent for miscellaneous work, which means repair work, while the repair work for the same period of last year amounted to \$999,706. This shows that instead of repairing old buildings during the past nine months there were more old ones torn down and new ones erected in their place than was the case the previous year.

Another thing which builders in various parts of the country should remember when they are looking over the building permits of this city is the fact that the size of the fee charged by the Superintendent of Buildings in this city is proportioned to the cost of the building, so it is perfectly



The Large Storage Shed



Dried Brick Ready to be Taken to Kiln.

Iron-ton engine running a direct dynamo. The officers of the company are Wm. M. Zeller, president; J. H. McClelland, vice-president; W. J. Snyder, secretary-treasurer, and Tom S. Rouse, manager.

Tenement factory buildings are the latest idea, and it sounds much better than tenement dwelling places, too. The tenement factory idea involves a central power equipment with a large apartment building, in which both floor space and power will be rented for manufacturing purposes. It probably wouldn't appeal to a brickyard man, but there are many classes of manufacturing which will find the idea good-provided it is practical in all details, and, incidentally, the brick man will find an increased call for brick and clay fireproofing material.



A Kiln of Fine Face Brick.

natural to expect that the real cost of all buildings is shaded to a greater or less degree.

The building operations here for October were far in excess of the same month of last year, the figures being \$1,239,445, as compared with \$856,700, or an increase of \$383,754. Across the line in Kansas City, Kans., there is a difference in the report, which says that eighty-nine permits were issued, of a total value of \$90,384, while in the same month of last year there were seventy-four permits issued of a total value of \$163,420.

The demand for all kinds of building material has been strong throughout the month, especially brick, and the prices have held up good and firm. According to reports from the Kansas gas-burning plants, there is going to be plenty of brick produced this winter, as they are promised a regular supply of gas by the big gas companies. If the supply is up to the promises there will be no advance in the price of brick this year. The local yards are very busy, and are now able to make all deliveries, as the yards who do not have their own teams are able to hire the hauling done with a reasonable degree of promptness, since teams are able to do more work in a day than in the hot weather.

The scarcity of cars is beginning to be felt by the jobbers of this city who are buying their brick in the Kansas gas belt. To the present time they have been able to get in

enough brick to supply their demand, but at the same time it has taken much hustling for cars at the shipping points, according to reports coming from the plants. This car shortage seems to be growing steadily in the various lines of traffic, and the fact that brick can be shipped in almost any kind of a car does not seem to be enough in their favor to make cars easy to get.

The price of good, hard red brick is now from \$8.00 to \$8.50, delivered on the job in this city, and the salmon brick from \$7.00 to \$7.50.

The Kansas City Hydraulic Pressed Brick Company is beginning to ship considerable quantities of its product into both Texas and Arkansas, and both these states are comparatively new territory for this company.

The Lumbermen's Portland Cement Company has not yet begun operating its brick plant on account of delay in receipt of the engines for the power plant. This plant is said to have plenty of gas and the plant has been built with a view to perfection, no expense being spared to make things right. When it begins marketing brick it will add materially to the production of the Kansas gas belt, although the making of brick is only a side issue of the company, as the big plant is for the manufacture of cement. One steam shovel will be used to load the material for both the brick and cement plants. The plant is located at Carlyle, Kans., five miles north of Iola.

The Kansas City Hydraulic Pressed Brick Company reports having secured the contract for the enamel brick with which the hospital kitchen is to be constructed at Ft. Leavenworth, Kans. The entire inside of the kitchen is to be of these enamel brick. The same company has just received an order for its gray mottled brick for a four-story business building being erected in Bartlesville, Okla., by Wallace Buford, and an order for their buff spotted brick to be used in a four-story business building, the Wills block, in Sapulpa, Okla.

The Eadie Building Supply Company reports that it is crowded with orders for brick, and during the month of October handled 250 carloads or about 2,500,000 brick of the face, paving and common varieties.

The Meek Brick and Tile Company, which is to maintain its executive offices in Chillicothe, Mo., has surveyed the location for its new plant in Utica, Mo. The ground space covered by this plant will be 60x300 feet, and it will have a daily capacity of 50,000 brick. It will manufacture both vitrified brick and tile, and it is expected to eventually double the capacity. Work is to begin at once on the manufacture of the brick for the construction of the plant itself.

The Barton Lumber and Brick Company, of Jonesboro, Ark., has found that it will not be necessary to rebuild its brick plant which was recently damaged by fire. Repairs will be all that will be needed. K. A. W.

CROP GROWING FOR PROFIT.

The growing of crops to profit is a certainty with the good husbandman if his land is sufficiently drained. He is in a great measure independent of the season. He may make his calculations with as much certainty as the capitalist makes his on gilt-edged bills receivable; in fact, with greater certainty, for the reason that a thoroughly tile-drained soil, cultivated in a good husbandlike manner, does not fail to give a satisfactory yield.

It is not so with the owner of wet, cold land. He may reap if the season is favorable, otherwise he is likely not to reap a satisfactory return for his labor and money invested. The season may be favorable or it may not. The clouds pour down water, the season is bad or the heavens above may look like brass, the season dry and the crops in either case suffer; the corn is dried up. It is not so with the good husbandman whose land is well tiled and tilled. His business is a certainty for profit.



SOME NOTABLE SUCCESSES IN FARM DRAINAGE.

MR. KELLEBREW, of Tennessee, says that a German gardener of New York leased ten acres of land for a term of ten years which proved to be boggy, and the first three years his crops, in spite of all the attention he could give them, barely paid the rent and supported him. He was advised to try draining the land, and although but seven years were left on his lease, he did it at a cost of \$500. The result fully justified the expense, for in the remaining seven years he made, over and above all expenses, \$12,000 from the farm he had drained, with which he purchased the land he drained. No land can produce well without the aid of heat and proper aeration.

Mr. James Gibson, of Story county, Iowa, reclaimed sixty acres by tiling it thoroughly. Before being drained it was little better than a swamp. Only here and there were patches of ground that could be cultivated in the dryest of weather. By laying a few hundred rods of tile, he was enabled to cultivate the whole field in time to set his crops. In addition thereto, the land has increased in value from \$10 to \$20 per acre. Thousands of acres in Story county, since Mr. Gibson's experience, have been reclaimed, making it one of the best counties in the state from an agricultural standpoint.

In a treatise of McFaulkner's, published about the year 1845, we find, on the estate of Lord Watherton, in Staffordshire, England, a tract of 467 acres of land was drained, and that it afforded a clear annual interest on the outlay of fully 37 per cent. There are thousands of acres in this country that would give a return of 25 or more per cent. on the investment, if thoroughly tile drained, to say nothing of the small waste places on many farms that would pay the cost of drainage in a single season, and reclaim land of unending fertility.

John Johnston, of Geneva, N. Y., after experimenting with tile drainage for thirty-five years, says that the results gave him, on a clay soil, twenty-nine bushels of wheat per acre, while six farms adjoining his, but undrained, produced only seven bushels per acre. That no matter whether the season be wet or dry, the certainty of a good crop was assured him, and he was thus enabled to rent his land for \$12 per acre cash each year.

In the same county and state is the 300-acre farm of Robert J. Swan, who says that he bought it for \$5 per acre and paid \$22 per acre to have it properly drained. Before draining it his wheat yield averaged five bushels per acre; when properly drained he threshed 2,200 bushels of wheat from fifty acres, or an average of forty-seven bushels per acre. His other crops were of like excellence.

W. I. Chamberlain tells of draining an eleven-acre field at a cost of \$23 per acre, which yielded him, after being drained, forty-six and one-half bushels per acre, machine measure, the best three acres yielding sixty-one bushels per acre. He says: "It is clear that the first wheat crop after being drained paid in gross more than twice the cost of draining."

IT IS NOT PHILANTHROPY.

After all, few farmers who have resorted to tile drainage have been moved to do it from purely philanthropic motives; that is, underdrain to improve the sanitary conditions of man and beast, as well as to lessen malarial and other diseases, or to prevent flood tides; but they do it to double their crop

yields, to increase their bank account, to grow a crop every season, to enable them to grow good crops with less labor, and to assure themselves of satisfactory profits in farming.

DRAINAGE OF LAND.

Does it pay? I answer emphatically, yes. Look at the experience of all the countries of Europe these last hundred years. The amount of drainage carried on in Great Britain, France and Holland is enormous, and in Great Britain it is done chiefly by tenants or occupiers of land under lease. In Scotland and England, fully one-fourth the drainage has been effected at the sole expense of tenants (not owners) of soil, and perhaps one-half of such operations at the joint expense of owners and occupiers. Ask the occupier of highly rented land (paying from \$15 to \$30 per annum per acre) if it pays to go to such expense in drainage, and he will invariably show you that were it not for good drainage he could not contract to pay such large rents. Sometimes the tenant undertakes to pay the whole money borrowed to do the drainage, with legal interest half yearly added on money so advanced, so satisfied is he that he gains far more by increased value of crops than he pays for drainage work.

Such is the belief on the other side of the Atlantic in thorough drainage of land, that you see even large outfalls made by tunneling under rivers to obtain a proper level to drain farming land. During the last fifty years all well-managed farms have been more or less tile-drained. In Holland, so enterprising and energetic have the land owners been that specially extensive drainage works have been carried out to reclaim land that is under the sea level at high tide. There, some of the richest pasture land is embanked from the sea, and inside and at the foot of these embankments are cut large canals, or water courses, for the retention of surface water of the adjacent lands till the sea ebbs to such a point that they can be emptied. The bottom of these canals are below low water (sea) mark, and to empty them, large engines and pumps are required to raise the water from the canal and discharge it into the sea at and near low water. It is on this once submerged, but now reclaimed, land that we obtain the famous milk, butter and beef breed of cows called Holsteins. And yet with all this expenditure of capital to keep back the sea and retain so much water from the enclosed land in these canals, the Dutch consider that the investment has paid well. Here in the United States we have no such depressed land below sea level, and no great embankments to keep out encroachments of the sea are needed. Ours is for the most part simply getting rid of ordinary undercurrents of water, and the surplus of surface moisture in times of rainfall.

Land that is thoroughly drained produces a finer grade, as well as a greater quantity, of wheat and other farm crops. It yields also finer and much superior grasses, and carries, consequently, more and more heavier cattle. For all uses that the farmer wants land, drained land is much superior to undrained. When drained, cold, subterranean surplus waters are removed, air and heat are promoted that facilitate the growth of all plants, crops ripen better and mature faster, and in certain seasons crops that would not ripen at all are fully developed. G. C. BUCE.

TILE DRAINAGE FOR FLOODED DISTRICT.

A Kansas City correspondent writes: "There is a vast area of land lying south of Kansas City, in Marias Descynges Valley, which overflows every year, sometimes oftener than others, but the yearly overflow always occurs. It would be of much interest to parties who are figuring on doing away with this flood to know what effect tiling will have on the crops which are flooded. Does it damage crops as badly when they are flooded if tiled as if not tiled? Does

the fact that the water immediately sinks down in the ground and runs away cause less damage to the crops?"

Tile drainage will serve to relieve the soil of the overflow water much sooner than if not tile drained. The water level in the soil will be carried down to a level with the drains. The size of the tile should be larger than those used on land not subject to overflow. The success of such a system of drainage will depend very much on the outlet, which should be open free as soon as the water in the stream falls, so as to relieve the soil of the water of complete saturation.—EDITOR.

THE BENEFITS OF DRAINAGE.

Underdrainage deepens the area for root pasturage.
Deepens the root system.
Increases resistance of drought.
Promotes aeration of soil.
Lengthens the growing season.
Promotes beneficial bacterial action.
Stops injurious bacterial work.
Makes manures more effective.
Improves the tilth of the soil.
Decreases surface washings.
Makes farm operations easier.
Increases fertility of the soil.
Improves quality of crop.
Aids germination of seed.
Permits greater variety of crops.
Makes the farm sanitary.
Doubles the profits of farming.

PROF. H. D. SCUDDER.

SWAMP RECLAIMED.

Mr. Homer Ferguson, of Rush County, Ind., gives the following as the result of draining a twenty-seven-acre swamp on his farm:

"The swamp was regarded as worthless by all of the neighbors, except for hunting grounds."

Mr. Ferguson determined to undertake the work of reclaiming it.

Cost of tile used for twenty-seven acres.....	\$544.87
Paid for digging ditch, laying tile, etc.....	88.00
Paid for clearing and grubbing.....	275.00

Total	\$907.87
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First crop, 2,530 bushels of corn, at 50 cents per bushel, \$1,265.00, leaving a net gain in one crop of \$357.13, which would go well towards paying all expenses of the crop. The more gratifying fact is that like, or even better profits, are to be realized in the years to come.

Conclusions.

Very few have realized the profits to be obtained by thoroughly draining and farming the land they possess. The desire to farm much land, instead of to farm well the land owned, to go around swamps, swales, and low, wet places, instead of taking time to make all good land for farming purposes, has been, and is today, a besetting trouble to good farming. Some farmers plan to buy out their neighbors, go in debt to extend their farming operations, while there is usually much unproductive land that could be made good for a small outlay of money and labor, by underdraining the wet places. They fail to see that these lands reclaimed by underdraining them is more profitable than land added by purchase; yet it is a fact.

Some plan to go west, where they can spread out by owning more acres, and broaden their business for themselves and their children, where, if they knew how to develop what they have, there is plenty of room for themselves and their children.

Written for THE CLAY-WORKER.

HANDY KNOTS FOR BRICKYARD MECHANICS.

BY THEO. RIZER.

PART II.



THE FOREGOING constitute the knots and bends most useful to the landsman for tying two ropes together and for making loops on the ends of ropes. The next to be considered are a few of the more important methods of fastening the ends of ropes to hooks, spars, rings and other objects.

We are constrained to pause here and point out one more time that there are but comparatively few men not nautically trained who have any considerable acquaintance with the proper methods of tying knots, or who are possessed of more than a perfunctory interest in the matter. Why this is as it is we can hardly formulate a tenable theory. Certain it is, knot-tying knowledge will prove very useful on land, even if not so essential as at sea.

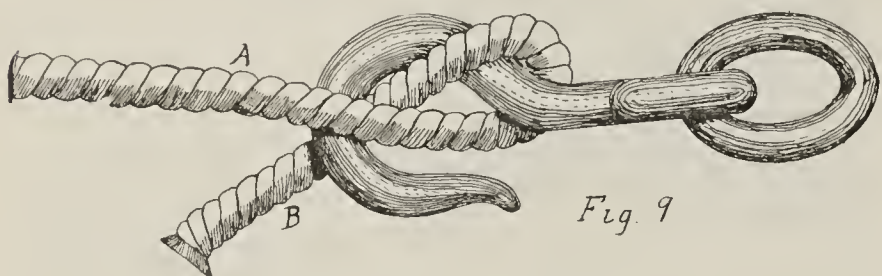


Fig. 9



Fig. 10

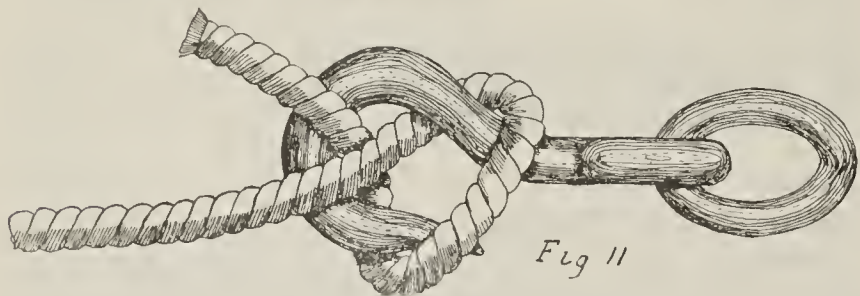


Fig. 11

The rope fastenings we are describing here are marvels of ingenuity in their fitness and simplicity, and have come down to us from the long-ago. Those who peruse this article and who are likely at any time now or hereafter to have to tie knots would, it would seem, recognize the vast utility of scientific knots and be glad to attempt the very simple task of learning how to do them. However, many will not, through either a sadly warped understanding or crass indifference. This observation, we trust, is not splenetic; it is meant only to be informative (begging indulgence for the conceit). Unpalatable, even erroneous it may be; rancorous, never. Man's failure to realize in time and opportunity for the advancement of himself and others is his greatest sin. Various ignoble qualities of mind and heart give rise to this neglect, but doubtless the most common of them all is laziness, the desire for rest not properly restrained. True, man has not attained that stage of evolution where he can work continuously. He must rest at intervals. But he overdoes it; grows apathetic, stupid, and opportunities go winging by as little heeded as the vagrant cloud shadows of sunlit days.

One of the problems over which the modern industrial

manager labors assiduously is to extract from this unwise creature, this machine, the greatest possible amount of energy at the least possible cost. The ideal striven for is to realize an infinitely large amount of energy at an infinitely small cost. The manager who most nearly approaches this ideal is the one, other things being equal, who most quickly mounts the ladder of fortune and fame. He it is to whom the money-mad miser entrusts his beloved shekels; visions of fat returns gilding all his day dreams.

Censure not the manager. He is in the grip of a force he could not stem if he would. Insubordination to it would mean only remanding to the ranks of the common herd with whom the wolf looms ever a grisly, menacing specter. Nor yet award too weighty a measure of blame to those who are acquainted with naught but the bottommost rungs of the ladder of success. They have had to combat their own natures plus the nefarious schemes to enthrall them. What wonder the struggle soddens them! The highest hopes of the human heart can only linger, fade and perish when the

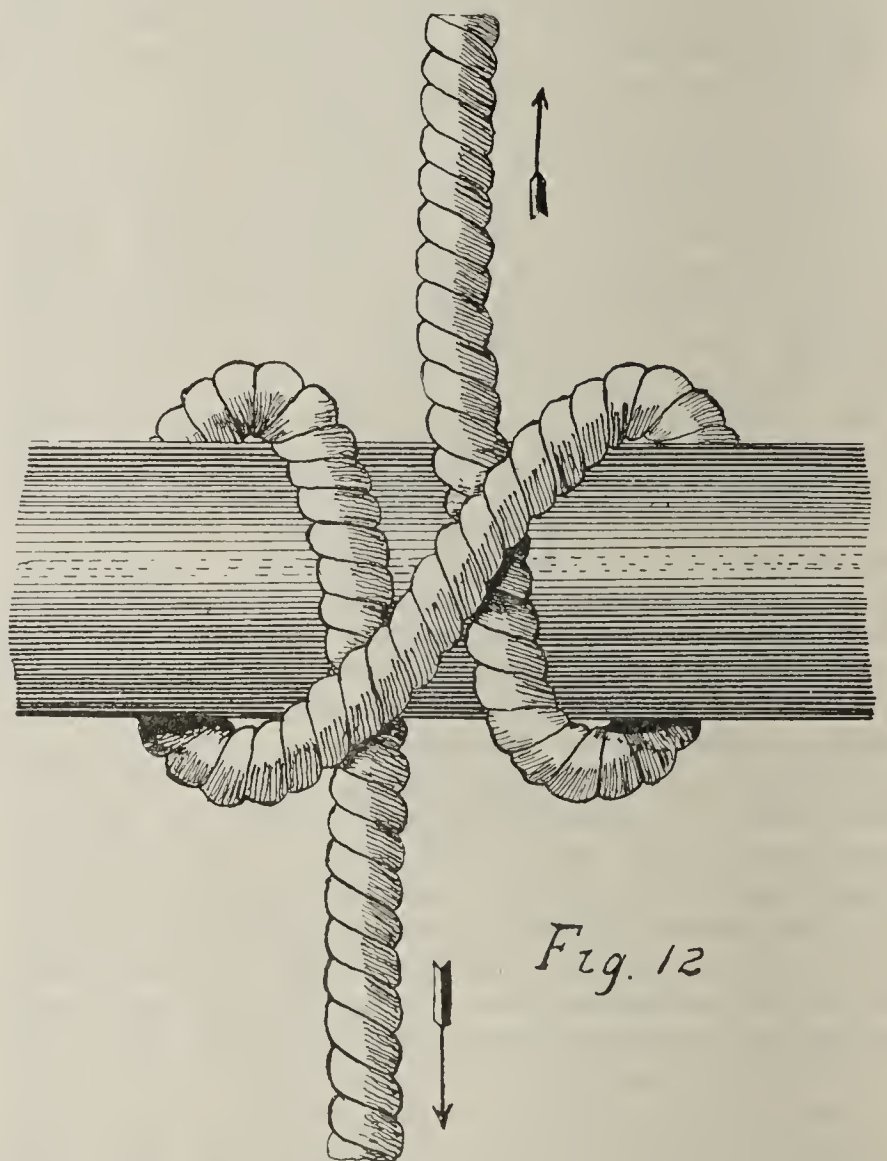


Fig. 12

pitiless factors, heredity, natural selection and chance unite in deadly assault upon them. No human courage ever yet had being that could survive for long in the unequal contest.

But we wander afar. To return to our subject ere it grows cold.

To attach a rope to the hook of a block or fall for making a lift or a pull, the Blackwall hitch, Fig. 9, has no equal for simplicity. So amazing is this feature that it requires long experience in its use before the novice knot-tier can overcome his preconceived distrust in its security. The tests of time and stress have, however, demonstrated its fitness to survive, and it is very reliable if the hook is of the right shape. For the tension on the standing part A of the rope wedges the end B in against the hook, and slipping is out of the question, since the harder the pull the greater the wedging action. When the load is released the hitch, one may say, simply falls loose, so that no effort or time is wasted in undoing it.

It may be in some cases that the face of the hook is so

rounded in shape that end B can not be gripped between A and the hook. In that event the rope may be given an extra turn about the hook, as shown by Fig. 10. In most cases, however, the midshipman's hitch, Fig. 11, will work satisfactorily where the Blackwall hitch can not be made to hold. It is scarcely more complicated than the Blackwall, and no less easily undone.

The clove hitch, Fig. 12, is another knot that will prove of the highest utility to the handy man. It may be used as shown in the figure to fasten a rope to a spar or to the middle, or standing, part of a second rope. The knot will sustain a load equally well in either direction as the arrows point, and will grip the pole or rope so as not to slip lengthwise in case the stress should have a component in that direction. Fig. 13 illustrates how this knot may be utilized in the construction of rope ladders. The ratlines of a ship, which constitute the steps by which the shrouds may be climbed, are made up in this way.

In Fig. 14 we have another application of the clove hitch

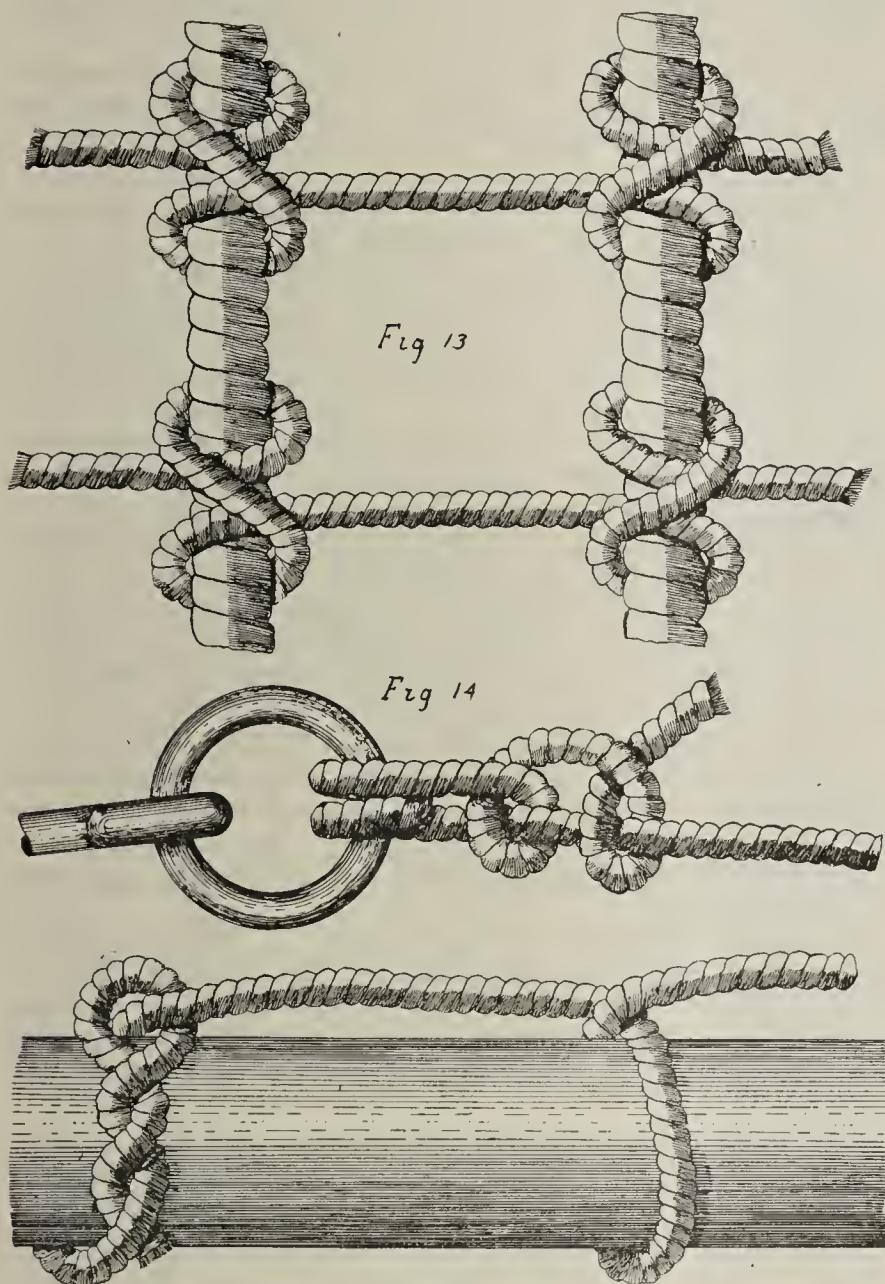


Fig. 16.

for fastening the end of a rope to a ring or hook. It is unsurpassed for use in mooring a boat or hitching a horse. No amount of pulling can cause it to slip, and its untying is never difficult, even after the greatest strain.

Fig. 15 shows the timber hitch. It is much in vogue among timber men. They find it thoroughly reliable, quickly tied, easily untied, and it doesn't slip endwise on the timber.

To hold a spar or pole in an upright or endwise position the timber hitch may be employed in conjunction with a half hitch, as Fig. 16 shows.

In Fig. 17 we have the sheep shank. No nautically-trained man will ever, except in the last extremity, consent to cut a rope when it is too long for the temporary purpose to which he wishes to put it; it is shortened by means of the sheep shank. It stands the tension without jamming and when the load is let go a slight shake of the slackened rope will undo the knot.

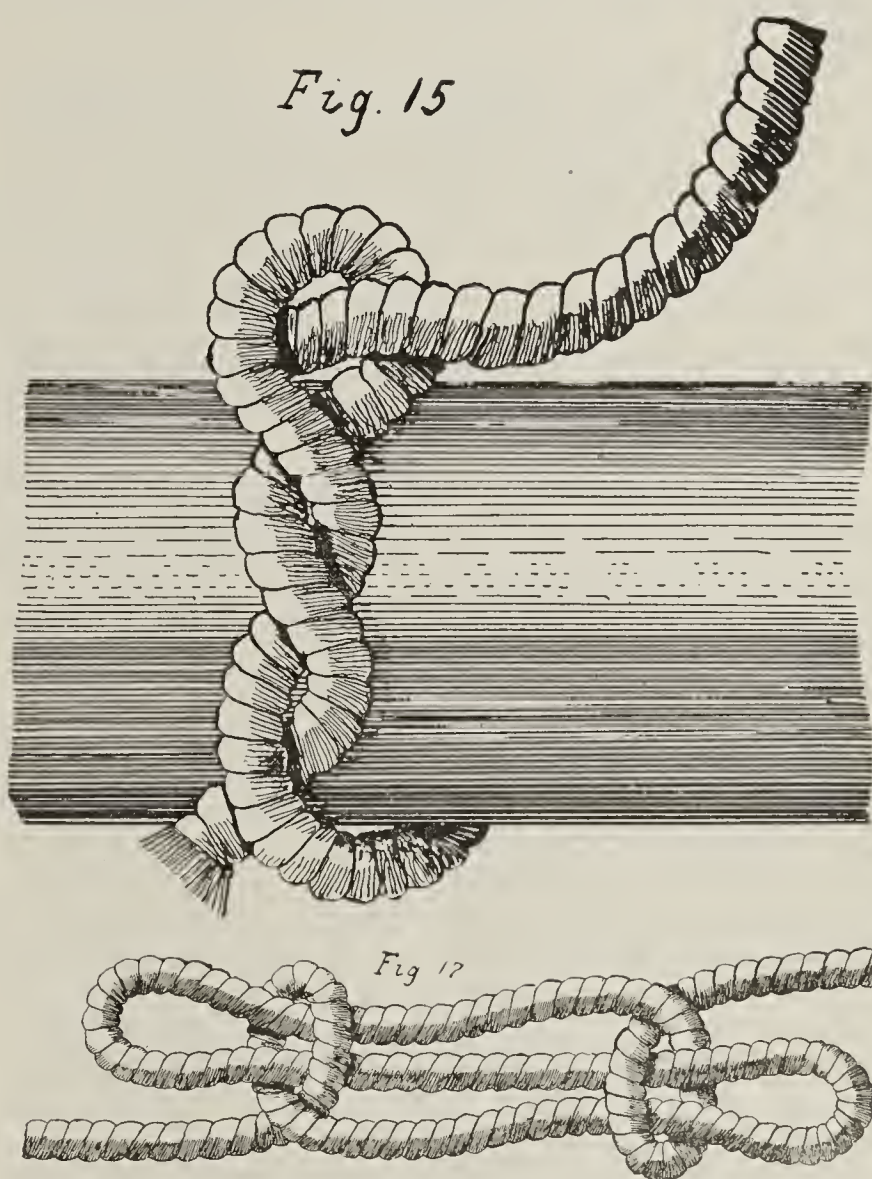
(The End.)

Written for THE CLAY-WORKER.

PACIFIC COAST NEWS.



THE BUILDING record for October shows some improvement over the preceding month, the total of permits amounting to \$1,969,008, about \$100,000 more than for September, but still is less than for August. The total of contracts let is somewhat greater, but is rather discouraging to the brick manufacturers. Heretofore the amount spent for brick buildings in this city has been at least equal to that for frame houses, but last month the frame contracts were \$1,153,440, compared with \$848,160 for brick. The only reason for this condition is the falling off in the demand for new business structures, accompanied by a marked increase of home building and other work outside the fire limits. The order to remove temporary shacks from within the fire limits is now being rapidly carried out, however, and is expected to bring an



increase of brick construction before many months. A recommendation has been made to change the building law, permitting Class C buildings to be built a few feet higher than is now allowed, making an extra story possible, which would no doubt encourage this class of building. The outlook for winter work, it must be admitted, is not highly encouraging, but the material business, on the whole, is in a better condition than a year ago.

The common brick market seems to be working into a little steadier position, though it is anything but strong. During the last month many of the manufacturers who had accumulated unwieldy stocks and were not in a position to carry them through the winter, have been selling brick considerably below the ruling quotation of \$7 per thousand, and have sold a large amount of material. As the prices were highly unprofitable to most manufacturers, a good many of the plants have closed for the season. The output is still

large and heavy stocks are held in the yards, but most of the present supplies are in strong hands and nothing is offered below the quoted price. There is no prospect of any advance until the resumption of building operations on a larger scale in the spring, when there may be a temporary scarcity.

Since the first of the year the local brick manufacturers have been carrying on a campaign of education, calculated to offset the extensive advertising of the cement interests. The work was interrupted for a time, owing to the disruption of the brickmakers' organization, but has been taken up again by the leading producers, and is bringing very beneficial results. The very high price of cement as compared with brick also tends to help matters somewhat.

Face brick of all kinds are held at steady prices, and while the market is rather quiet, some good contracts have been taken of late. Some novelties are being offered in the line of vitrified brick, which meet with considerable favor in the local market. Architectural terra cotta is in good demand, and some of the plants are increasing their capacity in expectation of a large expansion of the market in the future.

The United Material Company, which recently took over the agency for the Los Angeles Pressed Brick Company in this city, is introducing a new material which it styles "ruffled brick," a vitrified product of a light brownish color, having a ruffled surface. It is a product of the new plant of the Los Angeles Pressed Brick Company, at Richmond, Cal., and is getting a good demand for facing purposes. A large contract for it has been placed by the Olympic Club for its new building. A smooth vitrified brick made by the same company will be used for facing the new Children's hospital.

N. Clark & Sons report a number of good contracts for pressed brick and terra cotta. They are supplying the architectural terra cotta for the new Walter building, on Market street, and are making shipment for a large building at Salt Lake City, Utah, and for a bank at Tacoma, Wash. Since securing the Hall of Justice contract in this city they have been keeping their plant in full operation.

The Golden Gate Brick Company, C. F. Pratt, manager, which manufactures Golden Gate sand-lime brick, and took the agency for the Stockton Fire and Enamel Brick Company, of Stockton, Cal., about a month ago, has added to its agencies that of the Hartford-Faience Co., of Hartford, Conn. This company is highly gratified over a contract taken for facing the new electric power house of the Southern Pacific Railroad with its sand-lime brick. The building, located on Oakland estuary, will be 138x228 feet, and three stories in height. A contract has also been taken for light pressed brick for the twelve-story building of the First National Bank at San Jose, Cal.

The new plant of the Los Angeles Pressed Brick Company at Richmond, Cal., is in full operation, its principal output being red pressed brick. It has just completed deliveries on a large contract for face and common brick for buildings for the local military station.

Prof. Edw. Orton, secretary of the American Ceramic Society, was in California recently, and made a visit to the plant of Gladding, McBean & Co., at Lincoln, Cal., where several of his former pupils hold important positions. Gladding, McBean & Co. are now at work on a new terra cotta kiln, similar to the large one built last year.

The Golden Gate Tile Company has taken over the property of the Gray Bros. Crushed Rock Company at Telegraph Hill in this city, where a large excavation has been made. Both firms are controlled by Gray Bros.

The Los Angeles brick market is much stronger than in San Francisco. Common brick, which has ordinarily sold there at \$6 per thousand for several years, has advanced to \$7 or \$7.25, and lime is also higher than it was last summer.

The Great Western Brick Company, of Richmond, Cal., has greatly reduced its stock of common brick in the last month, and is now making large deliveries to many points along the line of the Southern Pacific.

The California Pressed Brick Company, of Niles, Cal., recently started work on a new continuous kiln, on which it is making rapid progress. It is to be ready for burning within the next month. Another improvement at this plant is a 125-foot chimney. The new kiln is arranged to burn coal, which, under present conditions, is expected to be cheaper than oil. Most of the plants erected in this vicinity in recent years have been oil burners.

F. W. Beardslee, of this city, who some time ago made a contract with the Vallejo Brick and Tile Consolidated to handle its entire output in this city, has secured an injunction to prevent the company from selling any brick in San Francisco except through his agency. The company, which started in the paving brick business last spring, has been dissatisfied with the financial returns, and has been making an effort to handle its output independently.

The Pure Clay Brick and Tile Company, which recently opened the old Hilton brickyard at Santa Rosa, Cal., has taken a contract for 200,000 brick for a new Masonic Temple at Sonoma, Cal.

Frank Wilson, formerly in the brick business in the east, has put up a new kiln at Etna, Cal.

The King City Brick and Enamel Works has secured a site of fourteen acres at King City, Cal., and will start work immediately on a plant with a daily capacity of 20,000 brick.

Plans for new sewer work are now being carried out all over the state. The district of Fitchburg, Cal., will open bids for its new sewer system November 9. Several towns around Niles, Cal., have combined on a sewer project which contemplates installing a complete system in the district, with an eight-mile main outlet to San Francisco Bay. Plans have been submitted for the Hunter's Point main sewer in this city, to cost about \$190,000. Another lot of bonds from the recent issue is to be sold before the end of the year for the carrying out of the San Francisco systems, on which an immense amount of work has already been accomplished.

An order for thirty carloads of tile for improvements at Porterville, Cal., has been divided between the Pacific Clay Manufacturing Company and the Corona Pressed Brick and Terra Cotta Company, both of Corona, Cal. The order includes 62,000 feet of 8-inch, 14,000 feet of 10-inch, and 8,825 feet of 12-inch tile.

Owing to extensive building activity in Imperial Valley this year, the Holtville brick plant at Holtville, Cal., is keeping very busy. The Simons Brick Company's new plant at El Centro, in the same district, is being rushed to completion, thirty carloads of machinery being now on hand waiting for installation.

The Tucson Pressed Brick Company, of Tucson, Ariz., will have a large exhibit at the territorial fair at Phoenix this month. The company is burning more brick than ever before, and has some large contracts on hand. SUNSET.

THE LOSING GAME.

It is not following in beaten paths for one publication to give free advertising to something printed in another, but for all that there has been a story running in the Saturday Evening Post called "The Losing Game," which we feel disposed to recommend as a study. There was, some time ago, a series of stories in this same publication in which the leading character was "Get-Rich-Quick-Wallingford," that told in picturesque and lively fashion of how promoters get rich on the people's money while leading the people to believe that they are going to get rich, and this of itself should have proven quite an eye-opener on the subject of stocks from institutions that we know not of. This later story, called "The Losing Game," paints in equally picturesque manner the operation of bucket shops, and one following the story carefully can not but be impressed with the fact that it is truly a losing game for every man who indulges in reckless speculation.

Written for THE CLAY-WORKER.

FIREPROOF FACTORY BUILDINGS.



WHAT IS OF probably as much importance to the clayworking industry as fireproof home and office building is a movement now gaining headway toward pretty general fireproof factory building. Present ideas in this connection are of a much wider scope and more general in character than anything heretofore, and includes fireproofing factories which in times gone by were thought impossible of such treatment. This fireproofing and fire prevention idea in connection with factory building is taking on two forms now, and whether it gains most in one direction or the other there is promise of an enormous gain in the aggregate, and out of it all should come enough increased demand for brick and other fireproofing clay products to within a few years double the present consumption. Therefore, it becomes a mighty important thing for clayworkers, one they should not only keep track of, but should get right in with and help promote; that is, help promote the factory fireproofing idea and at the same time direct it toward clay products for fireproofing, instead of letting it drift and be led toward the concrete idea too much.

There are buildings already up, both of the factory type and warehouses, that in seeking fireproof qualities have been tempted toward concrete, and one looking on is inclined to believe that a part of this is simply because those interested in clay products have not been keeping in a close enough touch and urging their products as they should among these new ideas of warehouses and factory construction. The fight has been concentrated too much on public and office buildings and other big structures of well-known character that generally involve fireproofing these days, whereas there is room for great progress in many other lines which heretofore have paid but little attention to fireproofing.

The insurance people have assisted materially in promoting the fireproofing idea, and some of the most striking results aimed at now are to be observed in connection with woodworking industries, where heretofore the fire hazard was so great that the insurance people would sometimes refuse the risk and at all times charge enormous premiums. The insurance people have been giving attention to the subject of how to make these woodworking institutions better risks, and they are now advising forms of construction to lessen the fire hazard. And after the idea had been started some of the factory people themselves carried it further and sought as near as possible absolute fireproofing. In this work brick enters, naturally, but it will probably not enter as much as it should, unless the brick manufacturers look after it, because the concrete people are persistently seeking just such things in pushing their products. One well-known insurance concern making a feature of lumber and woodworking risks has lately sketched out plans for planing mills to lessen the fire hazard which involve brick walls, but does include wooden floors and posts. Another form recommended is to use wherever practical, one-story buildings for woodworking institutions. Make walls of brick and use iron girders overhead and concrete floors, so that there is really nothing to burn but the material kept in the factory.

Another form, one coming into use among the sawmills, is to use steel construction with metal siding, with, of course, a brick fire wall around the boiler room. All these go to show that the tendency in the manufacturing trade is decidedly strong toward fireproofing, and it is not merely a few here and there, but practically every man these days who builds a factory of any kind seeks to lessen in so far as practical the danger of fire, and by so doing also reduce his insurance premiums. When we take into consideration the magnitude of factory industries and of their building opera-

tions as a whole, it is easy to understand the importance of this movement in connection with the clayworking industry, and also it does not require a microscope to see that if the clayworkers themselves are not active and diligent in pushing their material there will be a whole lot of concrete used where brick would be better.

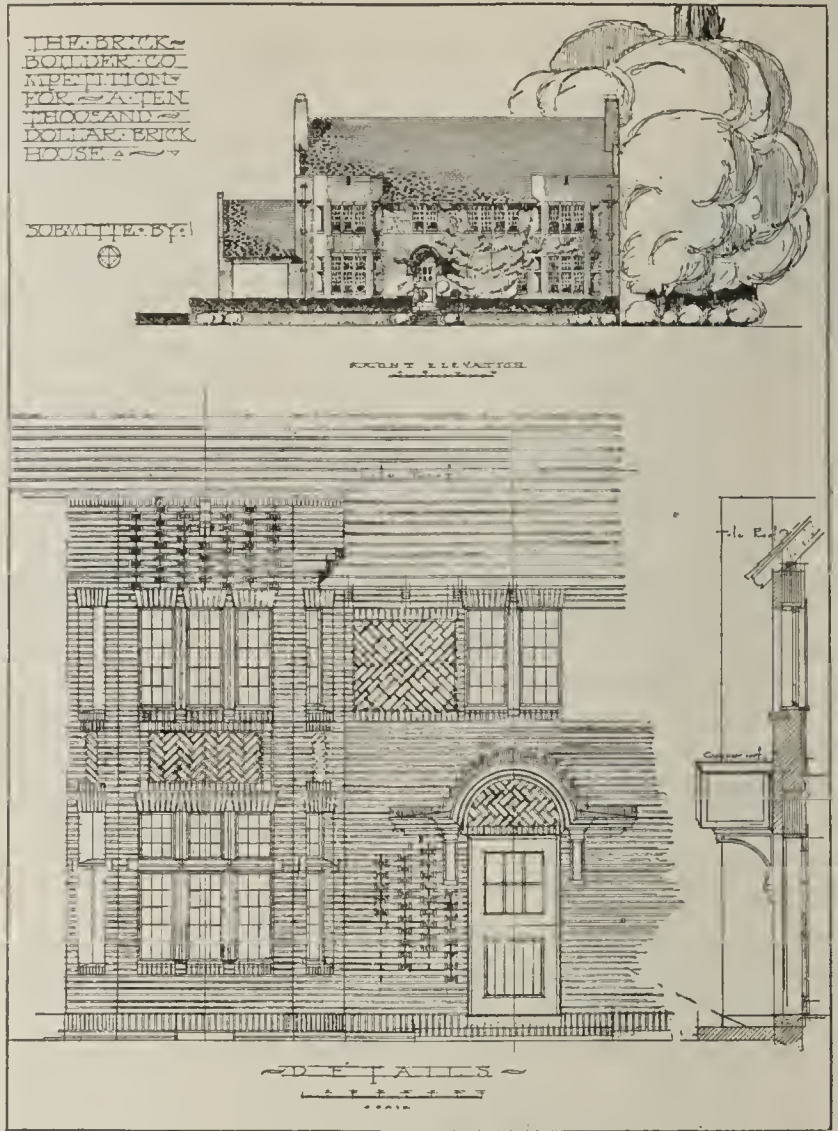
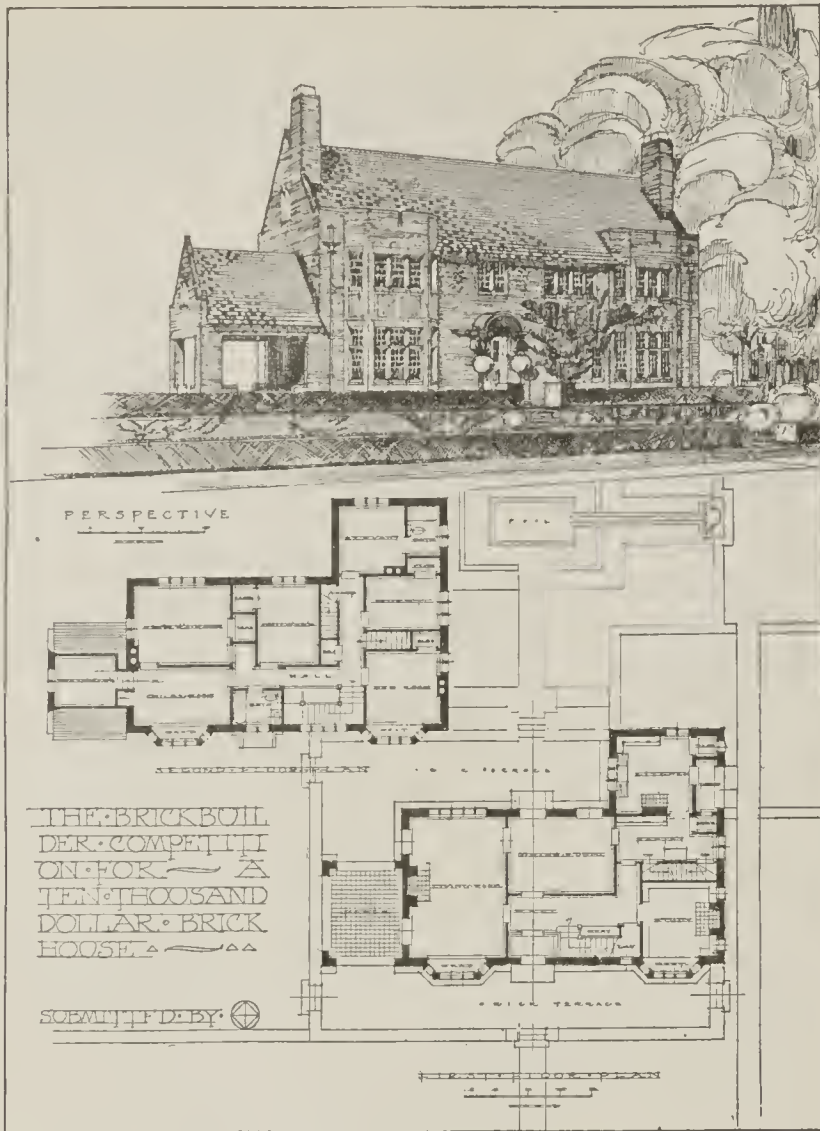
As stated above, this fireproofing idea in factory construction is taking on two forms; one is the general tendency to reduce the fire hazard in the individual structures, and the other is to concentrate certain factory interests in big cities in tenement buildings. There has been planned a building in the line of the new undertaking at Louisville, Ky. It is proposed to erect an eight-story building on the apartment style with a central power house, and have the apartments peculiarly adapted to manufacturing purposes and rent out both apartments and what power is needed to manufacturing enterprises. This idea involves concentrating many lines of manufacture downtown, and is made possible through the more general use of electricity for the power agent.

It is argued that such buildings can be erected and be the same ornament to a town that apartment houses and office buildings are, and by being provided with both passenger and freight elevators and other requirements of certain manufacturers can be made better adaptable to many lines of manufacturing than are individual plants which must seek the suburbs now and then to avoid being condemned as nuisances. Naturally, this new idea involving factory apartments or tenement buildings carries with it as a strong feature the fireproofing idea. One of the first essentials for such a building is safety from fire, the same regard, in fact, that is shown in the erection of the modern office building. Naturally, if this idea spreads and becomes popular and there is to be an epidemic or boom of building factory apartment buildings in the big cities, it would mean a whole lot not only to brick manufacturers, but particularly those clayworkers specializing in hollow clay blocks and other fireproofing material. This idea seems to be more or less in the experimental stage yet and it remains to be seen just how popular it will become, and its popularity, of course, will determine further development of the plan.

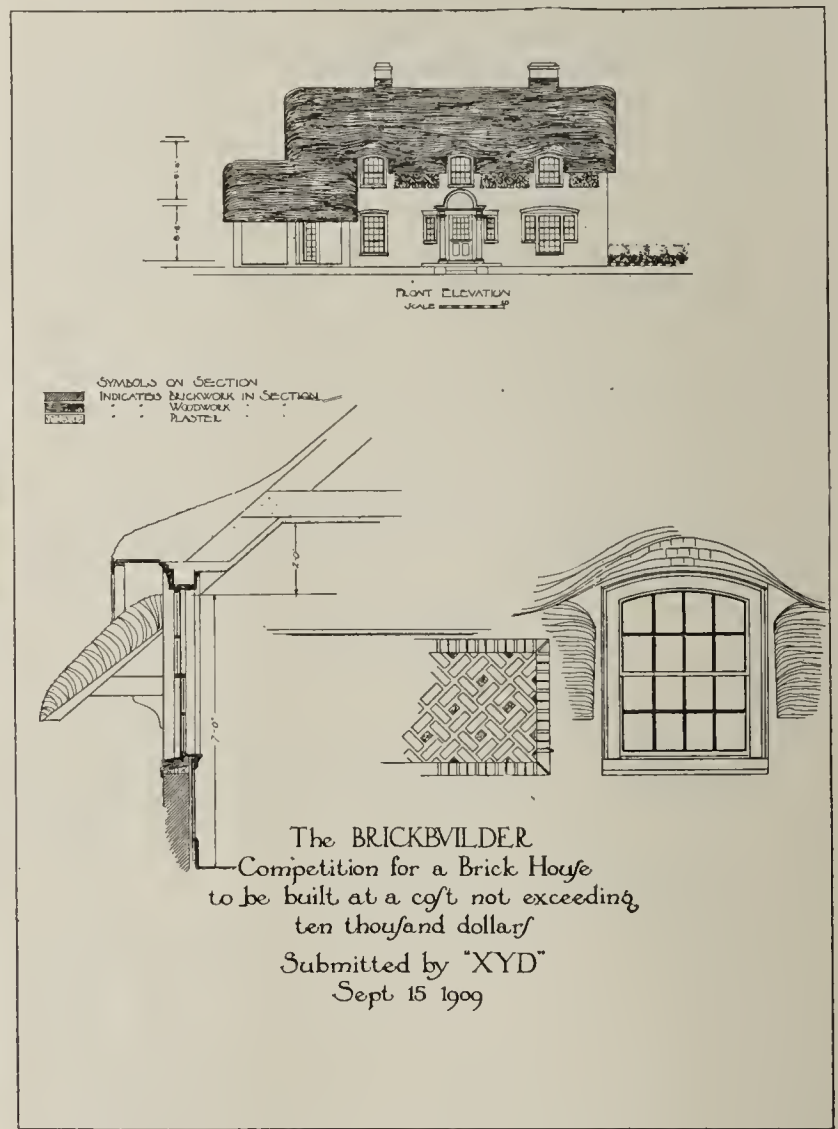
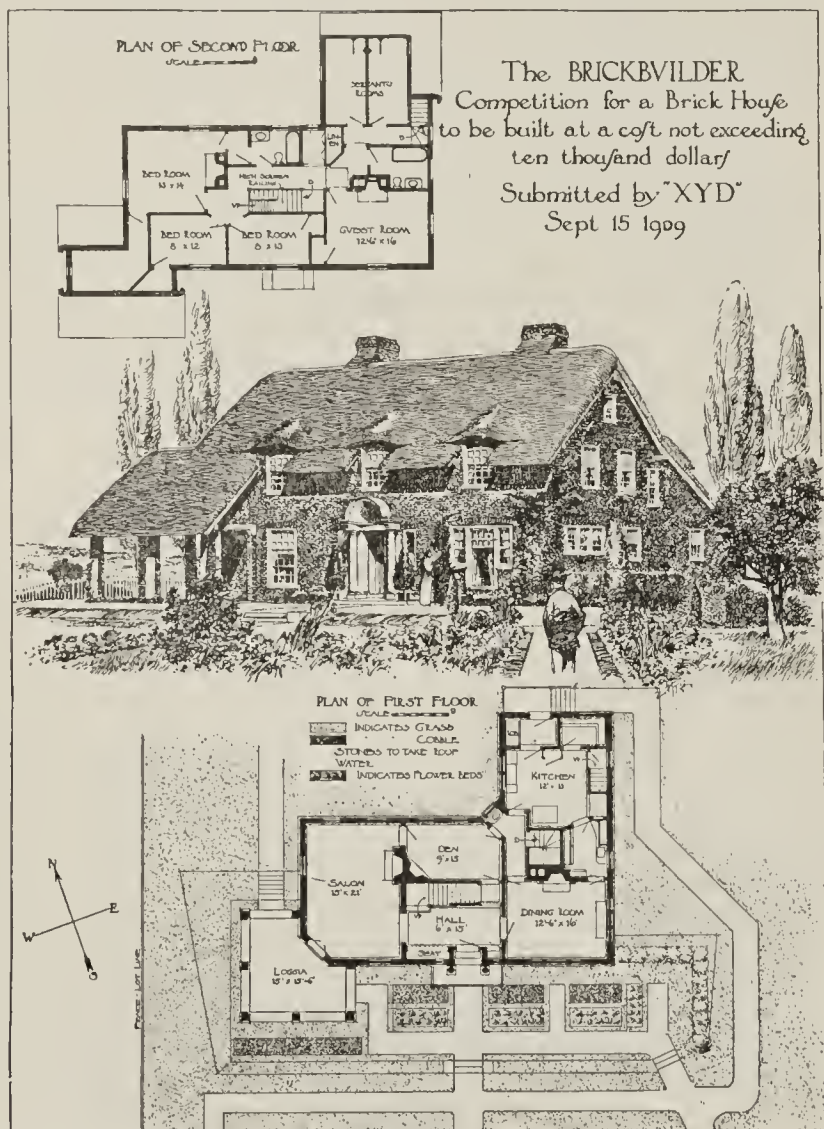
It is not much difference, however, which form the fireproofing idea takes. The most important fact to begin with is that manufacturing industries down to and even including woodworkers are seeking fireproof construction, and to erect buildings that at least have embodied in their makeup some features that will assist in preventing fires; so there is, either way we take it, a great future development in sight for fireproofing material and for clay products, if it is properly followed up.

The form it might take has some bearing on the particular class of material that may be called for more. If it is to be a downtown tenement or factory apartment building there will be a call for lots of ornamental clay products, as well as purely fireproofing material, and there will be a need for more of the hollow blocks for partitions, flooring, etc., than if the individual factory plan is continued as the strong feature. Indeed, it would seem that the factory apartment building idea will be the best for the clay products people, and it is one that they might well give attention to, studying with a view to assisting in its promotion. For it would involve more thorough fireproofing, whereas the individual factories will go in more for fire prevention than fireproofing, and use lots of steel framing and iron siding together with concrete floors. There may be involved, though, even in the individual factory construction, a great use for brick and fire walls and factory walls, and probably a little later on there will be embodied in the individual factories some fireproofing ideas in connection with flooring that will help out, too.

Do not let prosperity come knocking at your door next spring and find you unprepared.



FIRST PRIZE DESIGN THE BRICKBUILDER COMPETITION FOR A BRICK HOUSE
SUBMITTED BY ROBERT A. TAYLOR, CAMDEN, N. J.



SECOND PRIZE DESIGN. THE BRICKBUILDER COMPETITION FOR A BRICK HOUSE.
SUBMITTED BY WILLIAM D. AUSTIN, BOSTON, MASS.

COMPETITION FOR A BRICK HOUSE.

IN THE NOVEMBER number of the Brick Builder, the result of the competition for the \$10,000 brick house is given with interesting illustrations of the prize-winning plans and designs of the large number submitted to the jury of awards. This jury of awards, which consisted of J. Randolph Coolidge, Jr., J. Lovell Little, Jr., Guy Lowell and Herbert G. Ripley, was appointed by the Executive Committee of the Clay Products Association of America, a club formed at the last annual convention of the National Brick Manufacturers' Association.

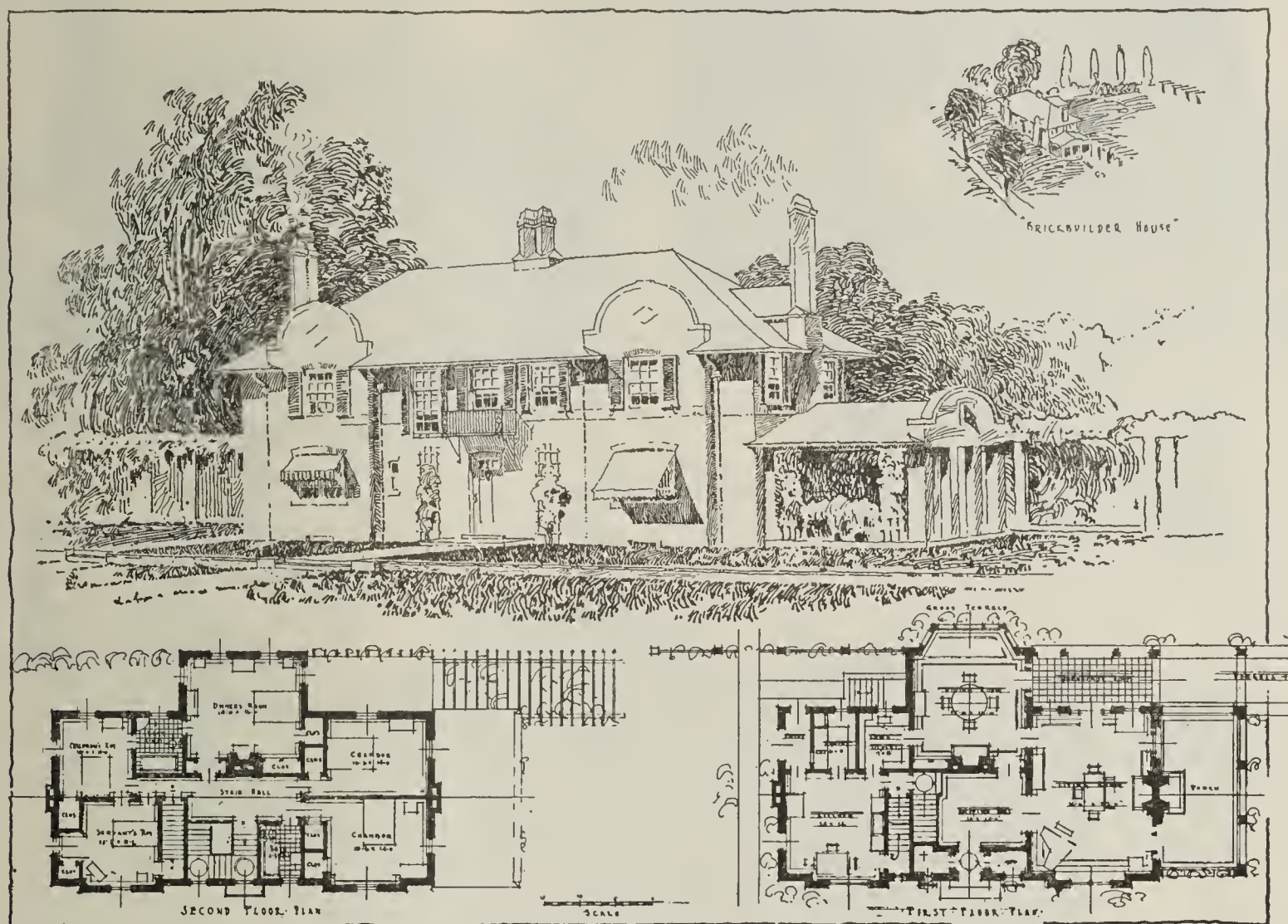
This club was the direct result of the efforts of the N. B. M. A. Publicity Committee, which, in its endeavor to promote the use of burned clay building materials through

of substantial cash prizes. Such a competition will stimulate the interest of thousands of architects in brick construction, which of itself can not fail to bring substantial returns.

Second.—To publish a book containing fifty or more of the best designs thus obtained, each representing a house in elevation and plan, accompanied, if possible, by a reliable estimate of the cost of construction; the whole prefaced by a few interesting articles as to the value and advantages of brick for such construction.

Third.—To advertise this book freely in the popular monthly magazines and some of the leading country life papers, for free distribution to interested parties.

Fourth.—To advise the members of this association from



Third Prize Design in the Brick Builder Competition for a Brick House. Submitted by Charles C. Clark, Boston, Mass.

publicity work, decided that the best means of reaching the desired end was through such an organization.

The movement met with the approval of the National Association, and a large number of prominent members gathered in the blue parlor of the Seneca hotel, Rochester, N. Y., Thursday evening, February 4th, 1909, immediately after the third session of the National Convention, and founded the new association, electing the following officers: President, R. G. Eisenhart, Horseheads, N. Y.; Vice-President, J. Howard Chambers, Philadelphia, Pa.; Secretary-Treasurer, J. Parker B. Fiske, New York City, and Executive Committee, W. M. Hodges, Bradford, Pa.; John W. Sibley, Birmingham, Ala., and Will P. Blair, Terre Haute, Ind.

The work the C. P. A. was to undertake and to which they asked every clayworker in the country to give his moral and financial support, was as follows:

First.—To conduct among the architects of the country a competition for the best design in brick, as applied to the moderate-priced, isolated house, offering therefor a series

time to time as to the name and address of parties who have requested this book, thereby furnishing advance information as to prospective building operations.

The Executive Committee of the association decided that the best medium for carrying out their scheme of the \$10,000 brick house competition would be the Brick Builder, one of the foremost architectural magazines in the country devoted entirely to the interests of brick builders and architects.

One thousand dollars was appropriated for this work, which was to be given as prizes in the competition, \$500 to be offered the architect furnishing the best design, \$250 to the second best, \$150 to the third, and \$100 to the fourth.

In announcing the competition, the following rules were made as to the limitations of the designs: The design was to be that of a brick house costing not to exceed \$10,000 (exclusive of land), including heating equipment complete; plumbing, including all fixtures; gas piping and electric wiring, with fixtures. The porches, verandas or piazzas could be in part or wholly of brick or wood. The plan should provide

accommodation for a family of five, three adults and two children and at least one servant, no restrictions being made on size, shape or style of house, except cost, nor size, shape or location of lot. The special desire was that the treatment of the exterior should show the possibilities in obtaining charming, but restrained effects by the use of bond and jointing and pattern. Certain requirements were made as to size and character of the drawings, which were to be signed by a non de plume or device, and the jury of awards was to take into account the fitness of the design in an artistic sense to the material employed, the adaptability of the design as shown by details to the practical constructive requirements, and the excellence of the plan.

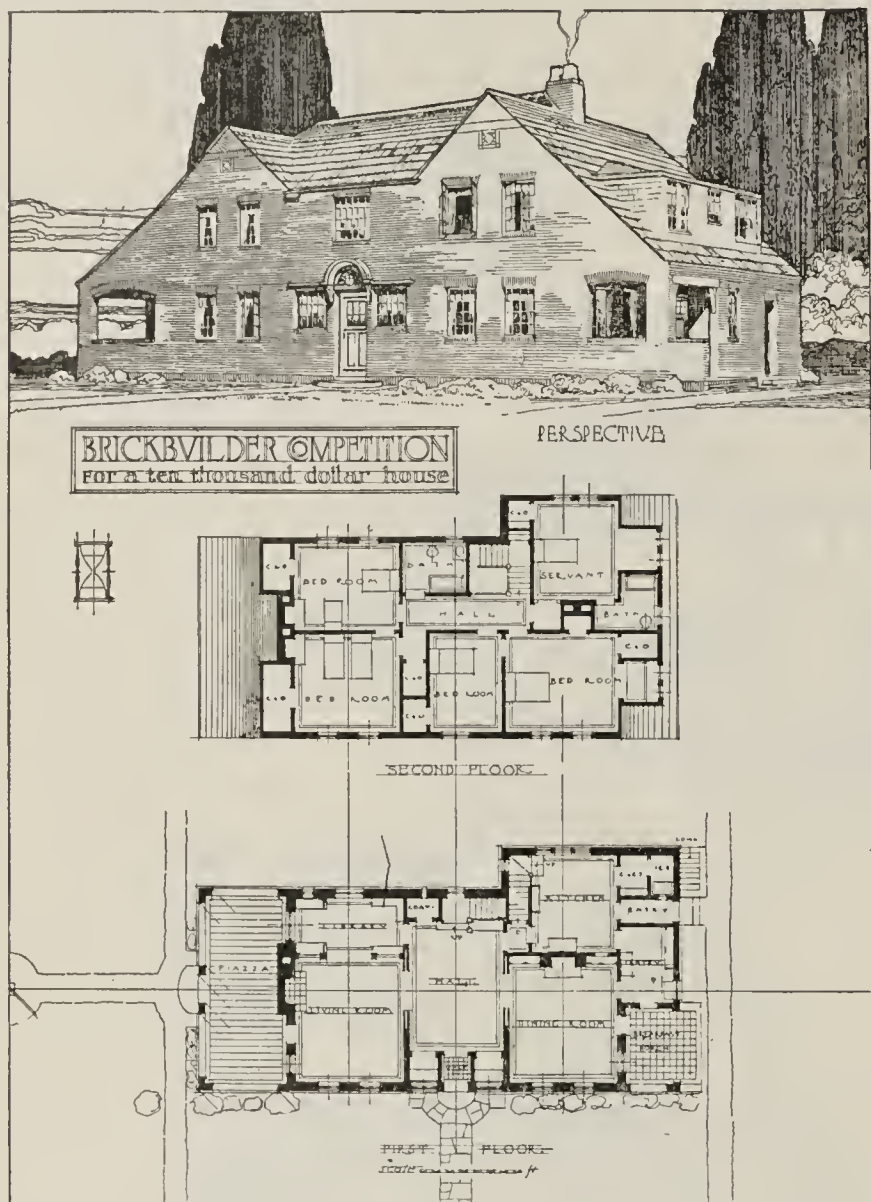
This competition was a decided success, 145 architects entering the contest. We publish a number of the winning

and includes good planning, good accessories, and an interesting use of brickwork.

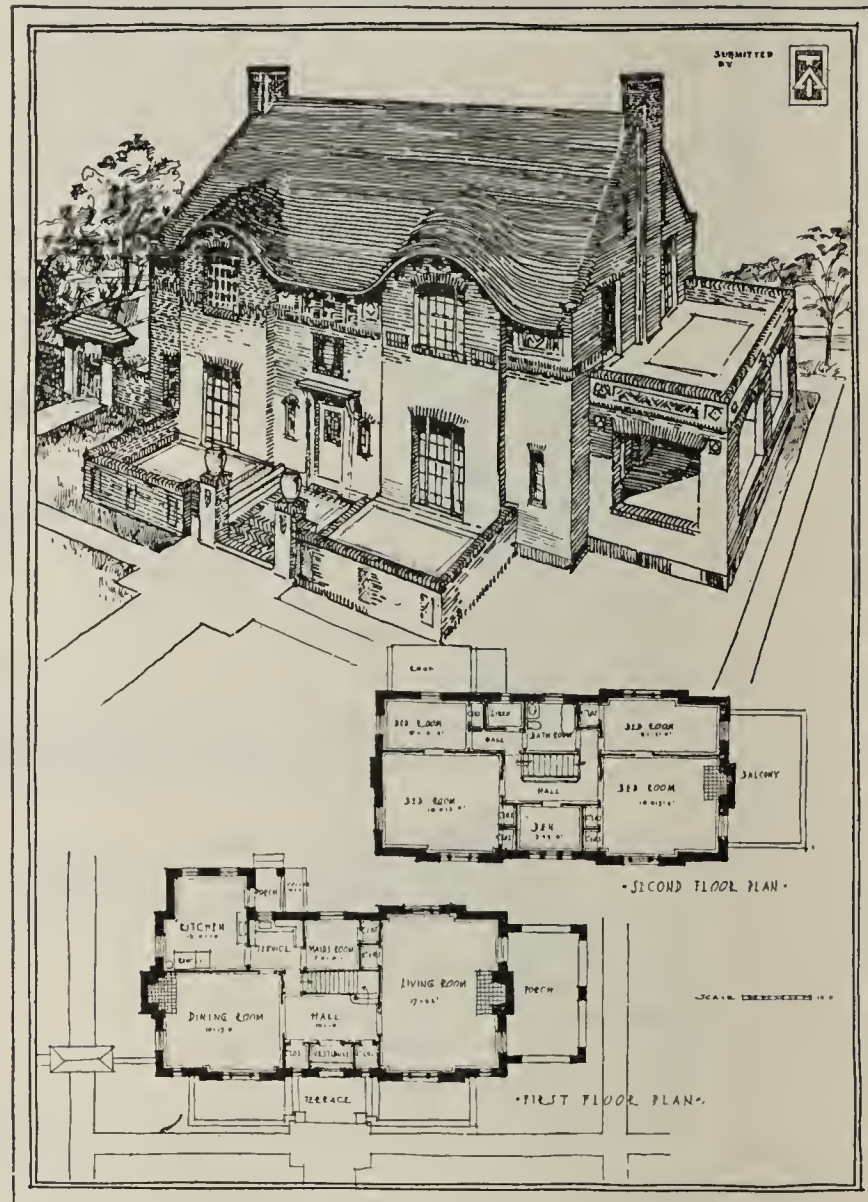
First Prize.—An able and characteristic brick design, with good plan, good mass, attractive "features," i. e., gables, chimneys, bays and roof, a well studied and convincing effort.

Second Prize.—A small and picturesque house, counting for far more than it would cost, a *multum in parvo* plan, simple mass, and modest but adequate details. The whole exterior depends for its effectiveness upon the color and texture of the brickwork, brought out by a somewhat daring contrast with shingled roofs. This effectiveness is almost unattainable in any other material.

Third Prize.—This is a good design for other materials than brick, but an excellent design in brick by reason of such touches as the rounded gables and the slender chimneys. The plan is compact, and has agreeable rooms and abundant con-



First Mention Design.



Third Mention Design.

designs and a few of those given honorary mention as they appeared in the Brick Builder.

The report of the jury of awards was as follows:

The program of this competition is summed up in the words, "A charming brick house of moderate cost," and the jury was glad to find among the 145 designs submitted to them so many that literally comply with these terms. Selection is made somewhat easier by the care with which was considered the item of cost. The charm readily speaks for itself. It is notorious among architects that published designs, especially in non-technical journals, can usually not be built for anywhere near the marvelous prices or estimates with which they are accompanied. Since the object of this completion was to present a convincing case for the wider use of brick in dwelling houses, it was essential that the \$10,000 limit should be understood by the jury in the light of their experience as practicing architects. The program to them implies simplicity, modesty, a "sweet reasonableness,"

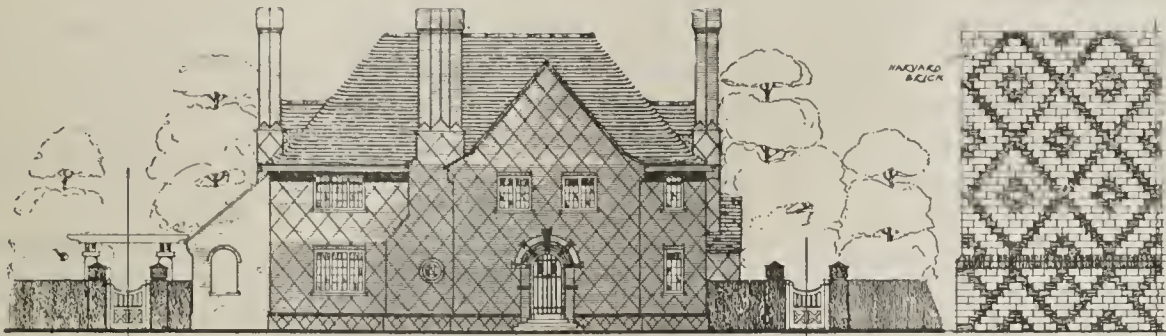
venient closets. It would build well. The detail of brickwork is rather uninteresting, but the proportions of the building are notably good.

Fourth Prize.—In this design the chief excellences of the first prize design are present in a different guise. Tall chimneys, strong gables, a high plain roof, and broad wall surfaces show the architect's skill in the use of the prescribed material. And if this were not enough, he has diapered his walls, as the scale details show, almost to the point of restlessness, an effect which is exaggerated, probably, by the rendering, for the design does not need to be carried out in red brick or yellow. The plan, though convenient, has some details unusual in this country. We do not serve meals from the kitchen through the back hall. The inglenook in the living room is an effective feature, both in plan and perspective. The bedrooms would be better for cross ventilation.

First Mention.—A simple and effective design, somewhat

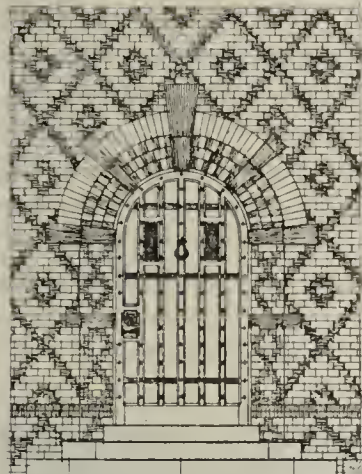
FOURTH
PRIZE
DESIGN.

BRICK
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A \$10,000
BRICK
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SUBMITTED
BY
C.P.K.

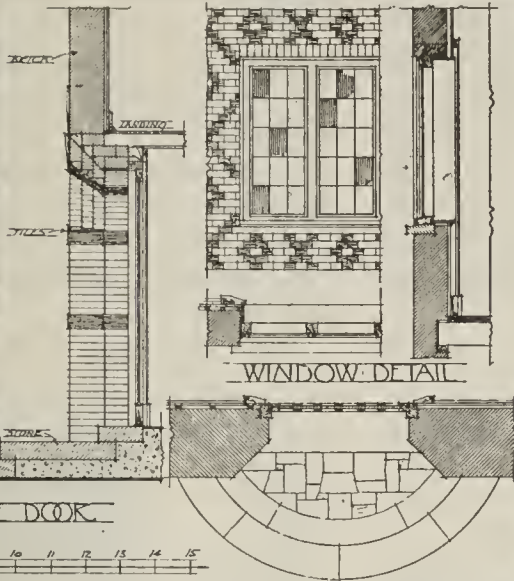


FRONT ELEVATION

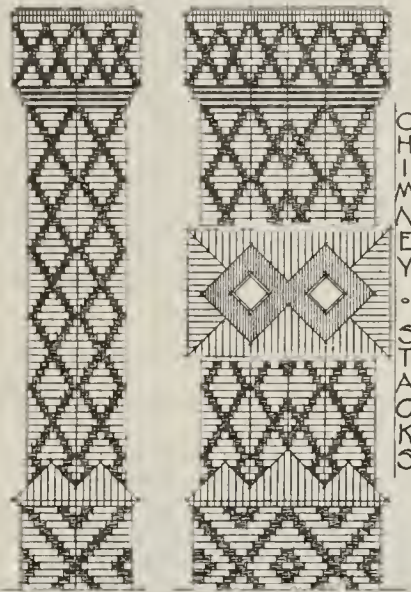
BRICK PATTERN



DETAIL OF ENTRANCE DOOR



WINDOW DETAIL



CHIMNEY STACKS

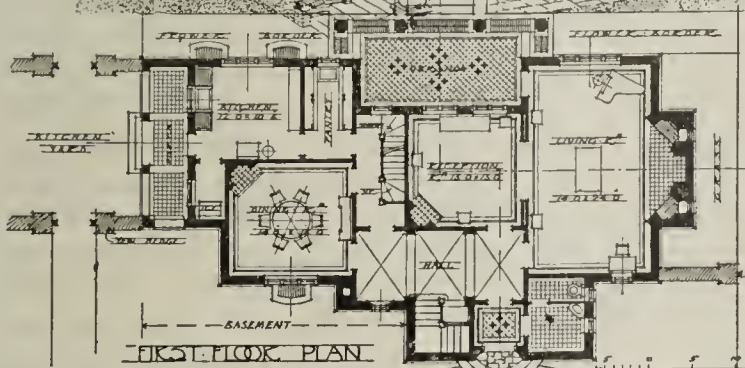
SCALE FOR DETAILS

SUBMITTED
BY
HAROLD J.
GRAVENOR,
MONTREAL,
CANADA.

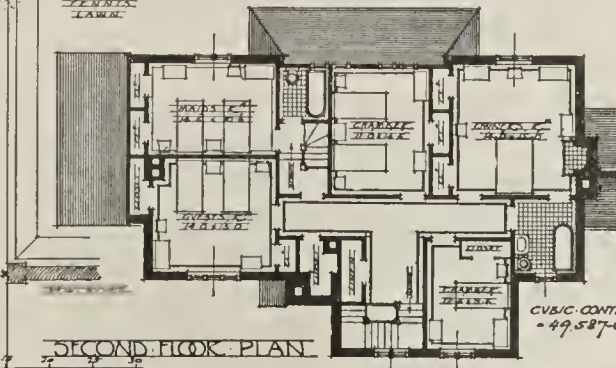
BRICK
BUILD-
ER'S
COMP-
ETITION
ON
A \$10,000
BRICK
HOUSE
SUBMITTED
BY
C.P.K.



VIEW
FROM GARDEN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

CUBIC CONTENTS
= 49,587-C.F.

THE BRICKBUILDER COMPETITION FOR A BRICK HOUSE.

reminiscent, clever details of brickwork, a pleasing perspective. The design as a whole too ambitious and dangerously near the limit of cost.

Second Mention.—A simple, pleasing design, somewhat fussily rendered. It is, however, an excellent example of the kind of house that this competition was expected to bring out, economical of space and materials, and lending itself to accessories of porch, terrace, planting, and approaches. Good at the outset, it can not fail to grow more beautiful with time.

Third Mention.—A design that appealed to the judges, in spite of its presentation in a bird's-eye view, which is deplorable. The elevation and details show excellent taste and training. The plan is not so good as many of the others.

Fourth Mention.—A design that, because of its assertive simplicity, can not be overlooked. The detail of the brickwork is most interesting, and redeems the somewhat uncompromising angular mass. The plan is fussy, and the servant's room and bath in the second story, five steps below the remainder of the floor, would not readily fit the elevation.

Fifth Mention.—The published drawing does not do justice to the design, which is carefully studied, and gives a well-proportioned picturesque exterior and very ample, perhaps too ample, accommodations on each floor. This and other designs show a servant's bedroom on the ground floor, a questionable arrangement in many localities.

Sixth Mention.—One of the very few attempts to design

inspect this light court. If some of the many dingy concrete finished light courts were veneered with this material, the increased light and beauty of such finish would demand better rents and more tenants, and prove a splendid investment to the owner.—Exchange.

Written for THE CLAY-WORKER.

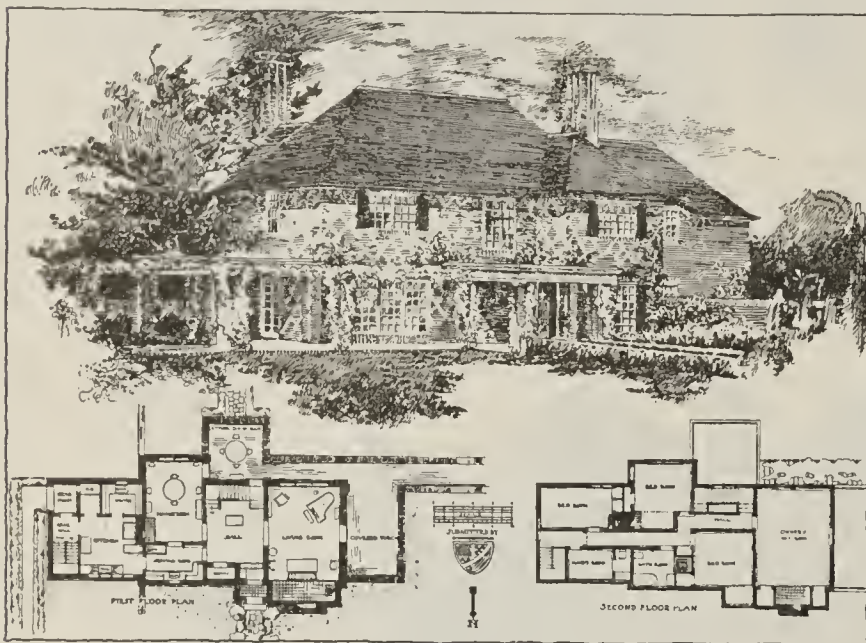
THE CHICAGO SITUATION.



ALL PREVIOUS building records for Chicago are not shattered when the final returns for A. D. 1909 come in next month, and a new record set up, with excellent chances that it, too, will be displaced within the twelvemonth following, there are many in the city who will be surprised.

There seems to be excellent grounds for making this prediction. The building activity for 1908 started out rather slowly owing to the financial stringency of the winter of 1907-1908, and it was the tremendous burst of building which started in during June and July and kept on more and more furiously to the very end of the year that brought the record ahead of any previous year in most respects. The fall building was phenomenal for Chicago.

The building department's data, week after week this



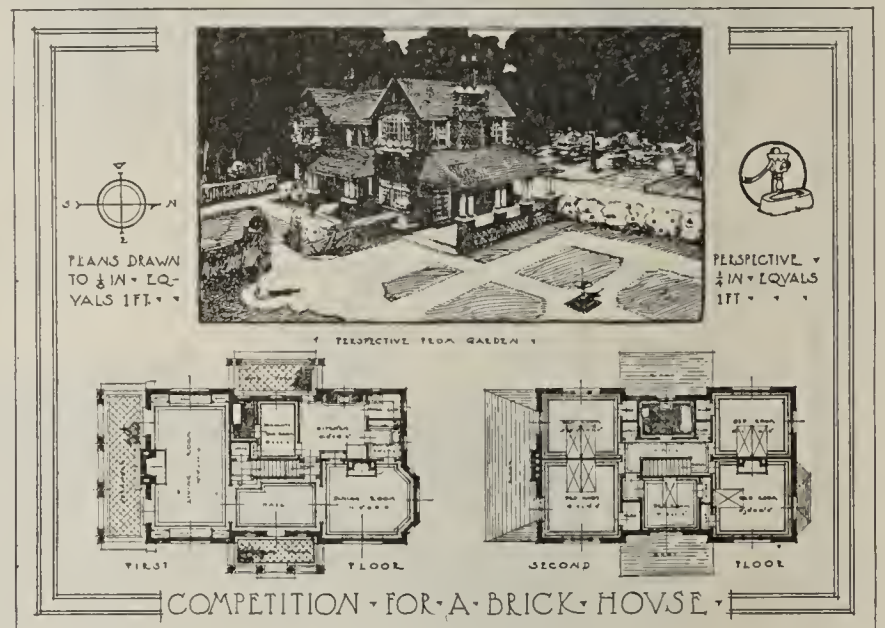
Second Mention Design.

a brick house with a flat roof, interesting in that respect and because of the detail of the brickwork, which vindicates a design that might also be worked out in concrete. Although simple in mass, the planning is so generous that this mention gives the designer the benefit of a very considerable doubt.

THE USE OF BRICK-TILE FOR VENEERING A LIGHT COURT.

The problem of finishing a light court seems to have been solved by the use of bright white glazed brick-tiles for a veneer. The Whitney building in San Francisco is one of a number of light courts that have been veneered with this excellent material and the result is extremely fine. The owners of the building say the light in the lowest inside rooms is so great that they do not find it any darker in the rooms on this floor than those on the top floor of the court, and, furthermore, they are practically as light as the outside exposures. The visual aspect of the court is most attractive also.

The brick-tiles are of such a beautiful glistening whiteness that there is a most striking contrast with a court veneered with the ordinary glazed brick or terra cotta. It would be well worth the while of any interested person to



Fifth Mention Design.

fall, has shown that more permits are being taken out than there were for corresponding weeks last year, and in most cases that the estimated amounts of investment represented are greater than they were a year ago. Considering that the early part of this year activities in the construction line were normal or even better, there seems to be ample ground for expecting the city to make a tremendous showing. Last year's phenomenal building record was chiefly due to the tremendous number of apartment buildings which were erected, something like \$30,000,000 being put into this class of construction. All last winter and during much of the present year up to very recently there have been plenty of apartments to rent in most parts of the city. The remarkable thing about the building of this year, however, in the face of predictions that apartment houses would not go up in large numbers for some time to come, is the fact that the falling off in this respect apparently is going to be exceedingly slight. In short, 1909 will about hold its own in apartment houses and individual dwellings, for which the year of 1908 was noted, and in addition will show great advance in erection of skyscrapers, mercantile and manufacturing plants, warehouses and the like.

There has been a run of especially open weather this fall, and this has been particularly favorable to late building, and

probably also has been conducive to the early maturing of many plans. Practically every material dealer in the city reports that last month was the best of the whole year, and that the whole year up to date has been exceedingly satisfactory. Most of the brick dealers, in fact, are troubled more in getting teams, in getting material shipped from plants to meet demand, in getting cars onto team tracks than they are in getting business, which just now is coming unsolicited. The teaming and unloading problem indeed has been no insignificant one this busy autumn and later summer. A great amount of street paving has been under way, and this has made bad hauling conditions. The importation of much street paving material, together with the disarrangement of some of the team tracks through track elevation work, has made long waits necessary between the date of the arrival of cars in the city and the time they can be put onto the team tracks for unloading.

Among the more remarkable building achievements of the year in the downtown district has been the erection of a number of skyscrapers, a few completed, and more begun or nearing completion. The Steger building, the first part of the gigantic new home for the People's Gas, Light and Coke Company, the McCormick Harvester building and the new City Hall are going up rapidly, and will be ready for occupancy within a few months more. Six stories have been added, or rather neatly inserted between the roof and the former top story of the Republic building, at State and Adams streets, without disturbing the occupants of the structure, and warehouses, wholesale buildings and wonderful residences and apartments have gone up in all parts of the city.

The outlook for the coming months is just as bright, if not brighter, according to experienced business men. Tentative plans for the construction of a new twenty-story building to cover the site of the present Methodist Episcopal block, at the southeast corner of Washington and Clark streets, which have been prepared, indicate the tendency toward rebuilding this oldest part of the city and replace the four, five and six-story structures with modern fireproof buildings. The cost of the proposed new skyscraper is estimated at about \$1,400,000. The new Sherman House, in this locality, at the northwest corner of Clark and Randolph streets, replacing the old landmark of the same name, will be one of the most important jobs which will near completion during the coming year. The work of wrecking and of sinking the caissons, which has gone on at the same time, is about completed.

One of the new high-class business structures now going up in the downtown district is the W. S. Kimball building, in LaSalle street, just south of Van Buren street. Its cost will be about \$125,000. Not connected with this is the plan of C. P. Kimball & Co., manufacturers of wagons, automobiles and the like, to enlarge their capacity by putting up a building of their own at the southwest corner of Thirty-ninth street and Michigan avenue. The building will be the largest of its kind in the west, and will cost about \$400,000.

Speaking of building on the North Side, a conspicuous addition to the buildings erected and planned for the St. Clair street manufacturing and warehouse district is the one to be put up shortly by Crerar, Adams & Co., at the southwest corner of Erie street and Fairbanks court. It will be faced on the front with red pressed brick and trimmed with Bedford stone. It is to cost about \$150,000. Work will be started this month, and the building is to be ready for occupancy by May 1, 1910.

Of course, the big building transaction of the year will be the new station for the Pennsylvania Railroad, the cost of which is calculated to run close to \$25,000,000, all-inclusive. It has been reasonably certain for some time that this development was coming, but official announcement has been made only within the month. It will practically go up on the site of the present Union passenger station at Canal and West Adams streets. Work on the big Northwestern Rail-

way station a couple of blocks north and west of this site is progressing rapidly.

A new clay products building material has made its appearance on the market. It is the "Campfield Raggle Block," handled here by the S. S. Kimbell Company, and already it has found a place in one of the big downtown jobs. Its use is declared to be a sure preventive and cure for leaky roofs at wall connections. It also is designed to fill the same function in step-flashing, gables, chimneys or waterproof floors, and is made in shapes and sizes to fit any desired shape of building, wall or roof. Briefly, it is a device for holding the end of the tar roofing paper securely in such a way as to prevent the possibility of rain or melting snow working its way under at the juncture of the roof and wall.

This building block or brick is made of fire clay, vitrified, salt-glazed and hard-burned. It absorbs little or no water. For fastening the roof to the wall, this block would be placed, embedded in the parapet wall a short distance above the roof. Instead of the roof flashings being secured by a lath at the juncture of wall and roof, the flashings are carried on up to an open notch in this Raggle block, which is exposed for the purpose, carried in over the edge of this slit in the wall, which is made by a series of the Raggle block in position, and there embedded and made fast with cement or oakum.

The shape of the block and the peak protecting this opening effectually prevents any water from getting in behind the flashings. Patent on this device has been applied for by Edwin M. Campfield, Richmond, Ind., the inventor. The primary object is to form an anchorage for the roofing which not only will hold the roofing in place firmly, but which also will prevent leakage between roof and building wall. In addition, it deflects the water away from the point of anchorage. The additional advantage is urged that there is no danger of workmen damaging the wall by chiselling out the mortar joints and letting sand, gravel and old roofing fall behind and beneath the roofing. It is believed that the advantages of the new device will be apparent to those skilled in roofing matters. Not only may it be used where the building wall extends above the roof, but as a cap or crown for a wall, being made in any size or shape, and, in addition, to make secure joints wherever chimneys arise from the roof.

The Harvester building probably will be the first of the Chicago buildings to use the new products. Five hundred feet have been ordered for this skyscraper.

The same company which is handling this new article in Chicago has the brick contracts for two stunning new apartment buildings. One is the Remy apartment up on Surf street, on the North Side. This will be laid in bond approximating the Flemish with the Purington Red Continentals as stretchers and the Brazil gun metals as headers. About 60,000 brick altogether will be used. Sam Crowen is the architect. A larger building is that being put up at Fifty-sixth street and East End avenue, for C. A. Carlson. In this 170,000 of the light McArthur Mission, the new wire-cut face brick which is gaining considerable vogue, will be used. *SCRIP.*

The Northern Michigan Brick and Tile Company has been organized by M. Van Orden, of Houghton, Mich., to succeed to the business of the Mass City Brick Company. The machinery has been transferred to St. Ignace, where the Northern Company has excellent clay beds. The Mass City beds were a failure and so the company deemed it best to sell its equipment rather than to continue the manufacture of an inferior brick. The new concern has a capital of \$50,000 and the officers are: President, M. Van Orden, vice-president, James J. Byers, Houghton; secretary, W. A. Bateman, Calumet; treasurer, C. E. L. Thomas, Calumet, and manager, E. A. Reavie, St. Ignace. A Raymond dryer with a capacity of 25,000 to 30,000 brick daily has been added to the equipment. Brick will be burned in both old style open up-draft and the new down-draft kilns. The clay will have to be mixed with sand, as it is too pure in its natural state. Later pressed brick and roofing tile will be manufactured.



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New Jersey's School for Clayworkers Well Equipped.

Editor THE CLAY-WORKER:

I take pleasure in reporting to you that I recently paid Professor Parmelee a visit at his ceramic school at New Brunswick, N. J. He was very courteous and showed me the various departments of the ceramic college and I am pleased to say that he has it equipped with a complete outfit of clayworking machinery, and any young man taking a course there can learn the principles of clayworking that will enable him to take up any of its branches from brick-making to pottery. Professor Parmelee gives personal attention to every department, giving his students instructions in practical work. He is one of the quiet kind, but rest assured he is doing excellent work, and the establishment will be heard from in the future. If these young men will take advantage of such a skillful training and apply themselves practically for a few years, clayworking will soon be on a much higher plane, rubbing elbows with the steel industry and others, and no longer surrounded with such mysteries and failures.

I can cheerfully recommend this institution of learning to any student wishing to improve his opportunities in the craft of a clayworker. Wishing them success and prosperity, long may live such institutions, which are on the march of progress, enlightening mankind in this most ancient craft.

Yours truly,
ALFRED YATES.

Will Purington Enjoying Florida Ozone.

MY DEAR RANDALL:

Your letter received and I should have written you before, but I have been so busy doing nothing I have not had time. This place sure is God's country, as far as climate is concerned. Out of the three weeks I have been here there has only been two cloudy days, the balance all alike, a balmy breeze all day, a little warm in the middle of the day, but cool enough for heavy clothes over you at night. The days are very clear, and the sunsets and moonlight nights are simply grand.

My first fishing was at Pass-a-Grille, about eighteen miles from here, where I caught thirty mackerel with the help of a friend. They weighed between three and four pounds each. Pass-a-Grille is reached by trolley and boat, and is an island facing the Gulf of Mexico. There are a great many "tarpon" caught here in their season—some time in the spring.

The sporty fishing at present is catching king fish from the pier. Here have seen them caught weighing from fifteen to thirty-six pounds. It takes some little time to land one and quite a lot of strength. I have not felt able so far to try it, but hope to do so soon as I am gaining some strength, owing to being able to sleep well. They claim here this climate will cure anything, and I believe they are correct.

I find the main street and some cross streets paved with brick blocks, with quite a large contract to be let soon. Their principal crop is the "tourist." This flourishes very well here in a good season, but I believe almost anything will grow in this state. While the soil is almost clear white sand, the raw vegetation gives one an idea of its value. The hotel where I am staying is surrounded with palm, palmetto, magnolia, camphor, pine and other trees, in which the

mocking bird and other songsters are singing almost constantly. Flowers and shrubs grow very large; oleanders are as large as our northern apple trees. The stories one hears of the money that can be made here by proper care and attention are wonderful. In one place, not far from here, a lady raised \$25,000 worth of celery on ten acres. Nearly all the state (to get the best results), requires fertilizers and irrigation, but water can be secured in abundance by going from 400 to 600 feet, and the water flows from the well in most instances.

I wish to thank you for recommending this place to me, and it would give me great pleasure to have you with me for a while. I can not tell how long I will remain, as I am anxious to get home as soon as my health will permit. Send me THE CLAY-WORKER, as I wish to keep up with the times.

With kindest regards to your family, I am

Yours,
W. S. PURINGTON.

Heard in New England.

Editor THE CLAY-WORKER:

Conditions in New England as the season closes are favorable. Prices have been well maintained throughout the year and the prospect for a favorable opening next spring is brilliant. Conditions in the allied industries are such that it looks as though the improvement which characterized last season will be continued, and that sales will increase rapidly through the first of the new season, at least. Whether they will last throughout is a question which can not be answered in advance.

In and about Boston the situation remains unchanged. The principal operations for the season are closing and nothing more of importance will be done. Winter is approaching and there is little use attempting to work in winter in any portion of New England. There is, however, a feeling that business will open with unusual activity, and that structural work will be upon a much broader and more profitable scale than ever before. The season of 1910 promises well in every sense.

A recent trip through a portion of New England disclosed the fact that business promises abundantly next year. Nearly all large towns are growing fast and the development of manufacturing interests requires additional factory space and increased building for dwellings. The necessity for erecting these houses is apparent when one goes through any of the manufacturing towns. There are no houses for anyone. The increase in population has taken practically every inch of available space in the different towns and cities.

Without going into details it may be said with confidence that brickmakers throughout New England will open the season next year with a confidence in the development of the business which will augur well for the future of the industry. The past season has been generally prosperous, and the surplus left at the close is not oppressive. The effect of this is to create a desirable feeling and to cause makers to prepare for increased and even more important development.

The growing scarcity of lumber suitable for buildings and the excessive cost of stone have compelled builders to accept brick as a substitute, and in all instances they are well satisfied after they have done so.

HIRAM.

Seen in New Jersey.

Editor THE CLAY-WORKER:

Yards along the Hackensack are gradually closing for the season, though each one still has more or less to burn. A few have brick still on the yards drying. So far no freezing weather has occurred, consequently it has been possible to keep the yards open and the men at work all through the fall. Brick sales have been normal of late with prices ranging about as they are in New York. During the first week of November there was a decline to \$6.00, but the second Monday prices were advanced to \$6.25 to \$6.50, and at the time this is written that price still holds good, with movement fair for the season and buyers looking forward to the spring. Some are anxious to place orders now because they

are fearful that there will be a rush for stock in the spring which will force prices up, and make the first construction work more or less expensive. Those who can obtain contracts now feel confident that they can dispose of their brick to good advantage in the spring. The first demand is always brisk and prices are generally high. The coming spring may see this condition emphasized because there will be a good many building operations ready to begin, and demand should increase in proportion.

The season along the Hackensack has been good. The Merhof Manufacturing Company, at Little Ferry, leads with an output approximating 20,000,000. The firm has been busy all the season and is now closing up with 125 arches to burn. Other firms have produced from 3,000,000 to 5,000,000, and the total output along the Hackensack is something like 50,000,000, the largest for a number of years.

When speaking with a representative of THE CLAY-WORKER a few days ago, a member of the Merhof firm said that the season had been unusually good and sales had been brisk all through the year. The close is quite as good as the opening, he said, and he expects to see business start in the spring with even greater promise of activity than has developed this year. He is confident that the next few years will see further development in the industry. Sales will be likely to increase, based upon the increase in structural work which is planned for New York and its environs in New Jersey during the coming few years.

A. L. B.

TRENTON TILE FOR JAPAN.

The Trenton Tile Company, of Trenton, has received an order for tile to be used in the palace of Viscount Kagawa, chief chamberlain of the court of the Empress of Japan. All the work is to be done in accord with Japanese ideas of art. Japanese drawings of the design desired were sent here with the contract. These drawings are now being reduced to such plans as required by the tilemakers. The plans will be reproduced in duplicate in water colors, and one set will be sent to the count in Japan. If he is satisfied the work is to be ordered by cable. The work will be among the most elaborate ever undertaken in this country.

NEW YORK'S BUILDING CODE.

The late elections have changed the complexion of things political in New York, and the fate of numerous Tammany measures is no longer in doubt. Unquestionably they will be relegated to the background or will be set aside and entirely forgotten. The fact that the Board of Estimate is in the hands of the reformers shuts Tammany out of the spoils completely, and will make a new deal imperative. The incoming Board of Estimate will control the expenditure of \$2,000,000,000, surely sufficient to make New York better to live in and a much better city in every way. What will be done about the new building code is a question which can not yet be decided. It will be remembered that because of the quarrel between the Tammany men and others Mayor McClellan remanded the code to the aldermen, with instructions to institute a thorough investigation and report at some future date. The investigation has been in progress and while no details of the discoveries have been allowed to be given out, it has been whispered a good many times that the engineers have been finding out a good many things which it will be well for builders to know.

It is certain that they will not find much in favor of concrete, excepting for foundations where nothing else is available. If, then, it is discovered that concrete is useless and positively dangerous for fireproofing, it is obvious that only one report can be rendered. They must say that fireproofing of clay is an essential feature of the construction of large buildings in New York. Whether Tammany controls the output of fireproofing or not does not matter now. Tammany is out of power and will be for four years. Meantime many structures will be erected all over New York, and it seems almost certain that they will be erected by the use of fireproofing, as outlined in previous articles in THE CLAY-WORKER.

Written for THE CLAY-WORKER.

TEXAS BRICK MANUFACTURERS MEET.

The annual convention of the Brick Manufacturers' Association of Texas, held at San Antonio, Texas, closed November 17. The attendance was large and an enjoyable time was had by all present. Much of the time of the delegates was spent in visiting points of interest about the city and in inspecting the local brickyards, as guests of the officers and representatives of those concerns. The business session of the association was held yesterday at the St. Anthony hotel. The morning session was devoted to the reading and discussion of a number of papers treating of various phases of the brickmaking industry.

The subject of the relative cost of burning brick with lignite, coal and oil in down-draft and open up-draft kilns was discussed by W. Green, of Seguin; W. J. Green, of Ferris, and A. S. Busby, of Rusk. Practical experiences were related by the men who participated in the discussion, and much benefit was derived from the interchange of views on the subject.

The "Economical Method of Clay Gathering" formed a topic which was ably treated by S. B. Marshall, of Mesquite, and S. S. Brady, of Houston.

"The Best Method of Handling Clay from Cars or Sheds to Pans, Presses or Disintegrators," afforded an interesting treatise by T. G. Cole, of Ferris. A. P. Jones, of St. Louis, Mo., discussed this subject in a way that was entertaining and valuable to those present.

John Butler, of Austin; Montague Staniforth, of Wichita Falls and others discussed the subject of the gains of down-draft over up-draft kilns and why.

A group of subjects under the headings of "What Fineness is Best to Produce High-Grade Pressed Brick?" "How Many Should be Made per Day on Four-Mold Presses, and Is It Necessary to Use Clay Mixers?" formed a consolidated topic for discussion by C. A. Meyers, of Dallas; M. J. Carlton, of Elgin, and Kal Schwarts, of Corsicana.

The discussion was continued during most of the Tuesday afternoon session of the convention.

The "Relative Difference Between the Use of Waste Heat on Open Up-Draft Kilns, Down-Drafts and Continuous with the Best Methods of Extracting Heat from the Kilns," was the subject of a discussion which was participated in by Ed Whittmer, of Thurber; M. K. Sacks, of Houston, and M. W. Staniforth, of Houston.

George Page, of Laredo; F. J. Carle, of D'Hanis, and A. L. Branson, of Marlin, discussed in a most entertaining way the question of the relative difference between handling labor on brick plants by task system and day labor. In the territory where Mexican labor is used it is said to be the custom of most of the brick manufacturing concerns to have the work performed by tasks.

Another subject that aroused much interest was "System of Handling Our Association Work." The discussion was participated in by C. A. Benton, of Corsicana; Thomas Harwood, of Gonzales, and W. E. Weatherford, of Ferris.

"What System of Sales is Best Suited to the Marketing of Brick?" was the last topic for discussion on the program. It was treated by Andrew Jackson, of Carrollton; E. C. Hoadley, of Ft. Worth, and J. W. Jones, of Beaumont.

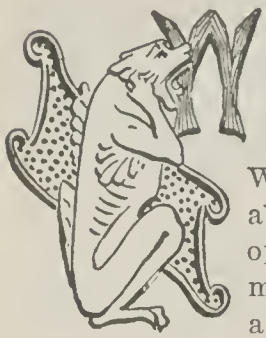
The following officers were elected for the ensuing year: President, John F. Butler, of Austin; first vice-president, W. E. Weatherford, of Ferris; second vice-president, S. N. Johnson, of Laredo; permanent secretary and treasurer, J. M. Harry, of Dallas, and recording secretary, Paul G. Meyer, of San Antonio.

It was voted to hold the next annual convention at Laredo sometime in June.

The delegates spent one day in having a good time. They were royally received and entertained by the local members of the association.

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



WISCONSIN CLAYWORKING plants are closing the season later than ever before because of the unusual demand for brick and other clay products by builders.

Weather conditions were so unusually favorable until late in the season that building operations were carried on until past the middle of November. The contractors got a rather late start, due to the uncertainty in the minds of some prospective builders as to the future. Paving in Milwaukee was started rather late, also due to a delay in bond issues, and aside from the fact that more brick contracts were awarded this season than for several years, this work is still being carried to completion during November.

The pressed brick business reached its greatest boom during the last season, the demand for use in big business and for fronting factories having never been exceeded. Reinforced concrete construction has not lessened the demand for brick; indeed, it has created a demand for the pressed product that has kept supply agents and those plants in Wisconsin that turn out this class of brick busy to produce enough. Most of the reinforced concrete type of buildings use as many brick as the steel skeleton type, and practically as many hollow tile, so there is hardly any difference noticeable. Concrete construction has not invaded the residence construction field to any appreciable extent, and brick are always in demand for this class of structure. Reinforced concrete construction is too expensive for use in the medium class of business buildings of two and three stories, and many of these have been erected in Milwaukee and cities of the interior this season.

Brick is the material selected by most of the smaller cities of Wisconsin for paving. The initial cost of brick paving may be a little higher than asphalt or other types, but in the long run the advantage is greatly in favor of brick. There are scores of small cities in Wisconsin that have laid brick pavements this summer and not a kick has been heard as to the cost, since the experience of sister cities with other kinds of paving was sought and found to be decidedly in favor of the clay product.

The city of Fond du Lac, Wis., has laid 16,564 feet of brick in the last few years. This season experiments were made with a new cement pavement to the extent of 26,435 feet, but it is now certain that the persons who are responsible for the choice of cement will hear harsh words before long. The cement pavement is cracking worse than old asphalt. Racine sent its city officials to Fond du Lac recently to investigate the cement paving, and they went home sadder and wiser men.

Ossian F. Bird, second vice-president of the Pennsylvania Coal and Supply Company, Caswell block, Milwaukee, one of the largest brick and building supply concerns in the northwest, died on November 10, following a sudden collapse while participating in the exercises of Past Master's night at Lafayette Lodge. Hemorrhage of the brain was the cause of death. He rose to the Thirty-second Degree in the Masonic Order and was widely known. His friends say he literally worked himself to death. There were few men in Milwaukee more popular.

On complaint of residents of Marinette, Wis., a party of city officials recently visited the plant of the Purington Brick Company, at Galesburg, Ill., and returned with nothing but high compliments for the big paving brick concern. Residents claimed that some of the brick were not up to standard, and that culls were used. This was proven entirely untrue, however. The Purington brick are used almost exclusively

for brick-paving in Wisconsin cities, Milwaukee being an especially big user of the Galesburg product. To make certain, the Marinette officials compared a street laid in Purington brick at Galesburg and one at Milwaukee with the street at Marinette which caused complaint, and it was the unanimous opinion that the Marinette brick were fully as good, if not better, than those laid in either of the other two cities.

The Barron (Wis.) Red Pressed Brick Company has increased its capital stock from \$5,000 to \$25,000. The company is growing fast and its product this season is greater than since it was established. The Barron brick is in excellent demand, and to keep up with orders the production will have to be increased.

The Manitowoc (Wis.) Clay Company is in high spirits over the fact that the Government has selected its product for use in the new Government building at Manistee, Mich. The company has started on the production of 500,000 brick for this purpose. A new Government building is to be erected at Manitowoc next year, and the Manitowoc Clay Company's brick will be selected.

James H. Cole has been elected sales manager for the five leading brickyards at Manitowoc, Wis., which last spring decided that it would be best to dispose of their product through one man. J. G. Johnson was appointed sales manager, but resigned recently because the agency conflicted with the selling of his other building materials.

The little city of Tomah, Wis., now owns three miles of brick pavement, much of this being boulevard. Nothing but brick has been used for paving, and, as a result, there has been no complaint. Several blocks were paved this summer.

The Excelsior Brick Company, of Menomonie, Wis., has closed operations for the season with a record of 6,000,000 brick, an increase of 600,000 over last year. Another record-breaker is the Wisconsin Red Pressed Brick Company, of Menomonie, which turned out 5,085,800 brick this season. Each plant employs about sixty-five men.

Tennis W. Saveland, a prominent resident of Milwaukee, best known as a dealer in brick and building supplies, died last month, aged forty-two years.

John Match, an Italian employed by John Braun, contractor for the Pennsylvania avenue brick paving at Sheboygan, Wis., this summer, is said to be the fastest paving brick layer in the west. His record is 41,250 brick a day. He draws 80 cents an hour.

A. BADGER.

NEW YORK BRICK MEN MEET.

A meeting of the Hudson River Brickmakers' Association was held at Newburgh, N. Y., not long ago. It was a closed meeting, no one but members being permitted inside.

It is understood that one of the objects of the meeting was to talk over the past season and discover, so far as possible, how the industry stands at the close, and what the prospects are for the coming season. It is said that a considerable proportion of the manufacturers reported conditions as having been favorable all the past season. They are uncertain about the season to come, but there seems to be no question about its favorable appearance now. Whether it will continue so is a question which time alone can determine.

This association, in which Hon. John B. Rose, of the John B. Rose Company, Roseton, is a moving spirit, has done much for the improvement of the brick industry along the Hudson. It is in position to help each individual dealer and manufacturer wherever there is trouble of any sort, and its good offices have been invoked in numerous instances where it looked bad for the manufacturer. The association is increasing in strength and promises to continue a potent influence in the upbuilding of the industry.

Was it real reform or love of excitement that has been responsible for the purifying storms of the past few seasons.

REMARKABLE GROWTH.

From a Log Cabin to a Twentieth Century Manufactory.

The accompanying views of the home of the Williams patent crushers and pulverizers in themselves tell an interesting story—a story of remarkable growth and success, due chiefly to the inventive genius and persistent energy of one man—Milton F. Williams. Beginning in an humble way, he has, by attending strictly to his own affairs and developing to the fullest the mechanical idea or principal of his pulverizer, achieved a most remarkable success which this year he signalized by building a new factory which covers nearly a city block, and which is equipped throughout, from boiler room or power house to the office, with modern machinery and appliances for the production of Williams crushers and

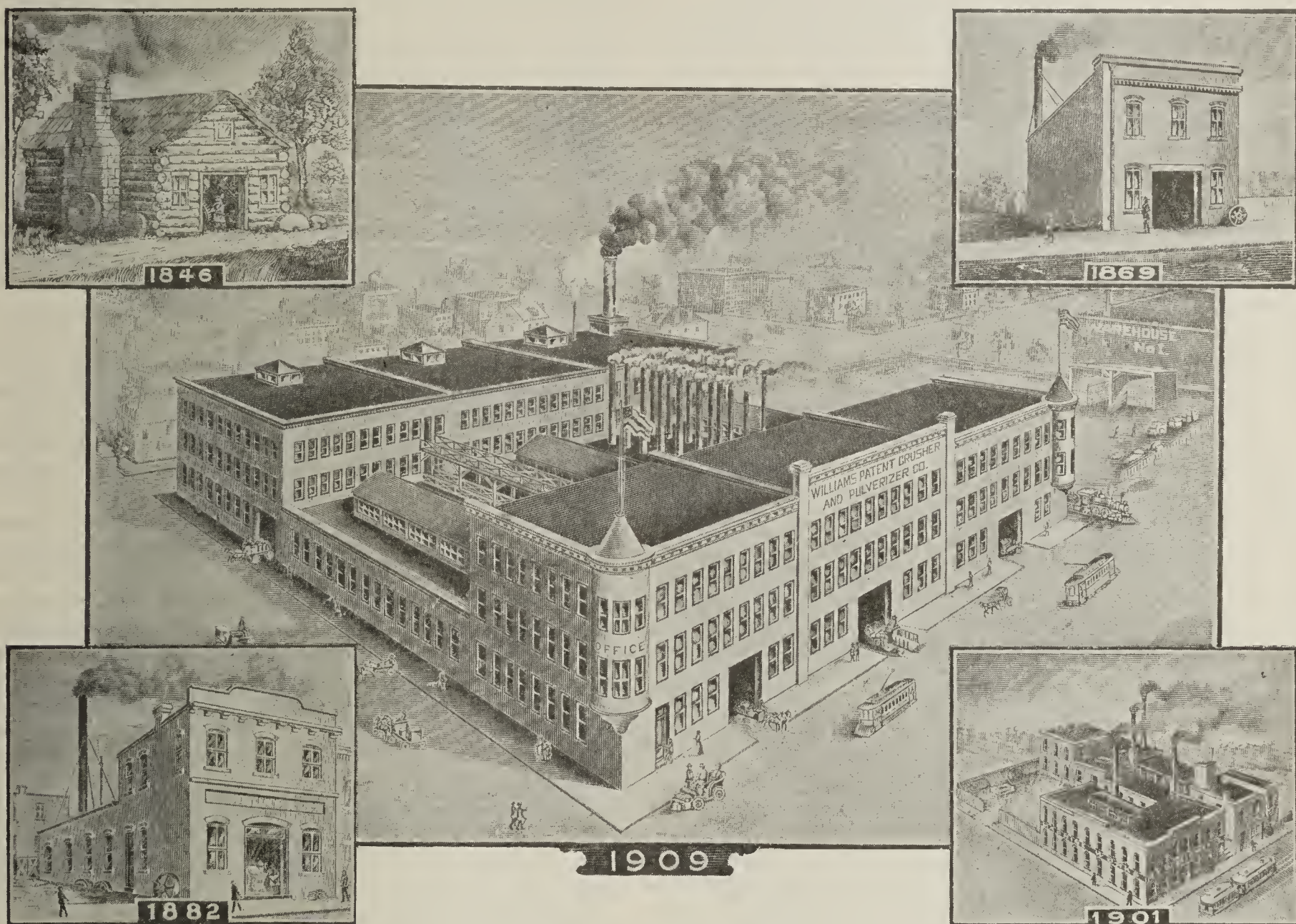
return from abroad, which he hopes to do in time for the coming N. B. M. A. Convention at Pittsburg.

Written for THE CLAY-WORKER.

SOUTHERN NEWS LETTER.

BUILDING at Memphis has been very active for the last sixty days. September was better than any previous September in the history of the city. October just completed rounded up well. The brick firms there and in neighboring towns give encouraging trade report.

It is assured now that a union depot for all but two or three lines will be built in Memphis, chiefly under the direction of Milton Smith, president of the Louisville and Nashville. Work has begun with Murch Brothers Construction Company, Porter building, Memphis, contractors on the eigh-



HOMES OF THE WILLIAMS PATENT CRUSHERS AND PULVERIZERS, ST. LOUIS, MO.

pulverizers. It is an achievement which entitles Mr. Williams to a niche in the hall of fame. The Williams Patent Crusher and Pulverizer Company is to be congratulated on having such a splendid factory, and even more on the success of their pulverizers, which are in such demand as to keep this great factory running full-handed.

DEMAND FOR DENNIS KILNS ACROSS THE WATER.

F. W. Dennis, of Norfolk, Va., sailed for England, November 17th, for the purpose of building a couple of his double-chamber, down-draft kilns at Rochester, Kent, England. Mr. Dennis says his business has been good the past year, that in fact the demand for his kilns is increasing steadily, and that a number of orders are awaiting attention until he can

teen-story Central Bank and Trust Company building. This will be of brick and terra cotta except the first three floors, which will be of marble.

Olsen and Lesh, Memphis, have been awarded the contract for the Young Men's Hebrew Association building and for the Rex Club. The contract price is \$75,000. The building will be three stories, brick and terra cotta. Jones and Furbringer, of Memphis, are the architects.

Nashville, Chattanooga, Knoxville, Birmingham and other southern points are active on construction work, and the brick industries share in the development.

Albert Herr, manager of the Holly Springs (Miss.) Stoneware and Fire Brick Company, has just returned from a five days' visit to the Agricultural and Mechanical College, at Starkville, Miss., where he went by invitation of Prof. W. N.

Logan, the geologist, to prepare models of various designs from the different kinds of clay from fifteen counties in Mississippi for exhibit at the state fair, soon to open at Jackson. Mr. Herr is an expert at modeling clays. He states that Mississippi abounds in great wealth in these clays. Mr. Herr claims much for the clays of his own Marshall county. The P. S. Allison Pottery Company operates there at Holly Springs as well as himself.

The Willpicoba Clay Works, built during the last year at Ragland, Ala., are doing a big business in the manufacture of paving brick. The present capacity is 25,000 brick per day. Work of doubling the plant and capacity has commenced.

The Chattanooga Pottery Company, with plants at Daisy, Tenn., near Chattanooga and Atlanta, Ga., and offices at Jacksonville, Fla., are getting out turpentine cups and gutters, the former much used in the turpentine district.

At Jonesboro, Ark., E. C. and W. R. Stuck have purchased the interest of the other stockholders of the Jonesboro Brick Company in that business and plant. This is one of the largest brick concerns in Arkansas.

The Hobart Brick Company, of Hobart, Okla., has been organized by E. S. Jones, W. W. Rowland and E. C. Murphy. A brick plant will be established with a capacity of 40,000 to 50,000 brick daily.

The Harley Pottery, of Nashville, is manufacturing a line of flower pots, water vessels and spittoons, vases, jugs and jars. They have recently extended their facilities.

Houck Bros., of Queenstown, Ala., will establish a plant for the manufacture of shale brick.

The Central Georgia Brick Company, at Macon, Ga., will rebuild their plant which was recently burned.

It is reported that E. A. Glousnitzer will erect a brick plant at Quannah, Texas, with 25,000 daily capacity.

The Wainwright Adamant Brick Company will establish a plant at Wainwright, Okla., for the manufacture of common brick. D. A. Skelton will be president; J. O. Brown, secretary, and L. W. Hampton, treasurer.

C. W. Pratt, of Martin, Tenn., is erecting a brick storehouse at Dresden, Tenn., for Lloyd & Co. At the same town he is manufacturing pressed brick with his Pratt brick press. This machine has attracted considerable attention from brick-makers. The machine has a splendid mode of feeding. The dirt is measured for each brick and pressed with top side open to allow the air to escape and then is passed into the die proper and pressed from both sides, making a brick firm and solid with good, square corners, from any clay that has body enough to make any kind of a mud brick.

X. B. Wickersham, long-time president of the Southern Brick and Tile Company, of Jackson, Tenn., has resigned from that office. The brick plant is doing a good business in Tennessee, Mississippi, Louisiana and Arkansas. Mr. Wickersham's successor has not been named at this writing.

DIXIE.

MAINE BRICKYARDS CLOSED FOR THE SEASON.

The Bangor brickmakers have finished work for the season with a total burn of 3,250,000 bricks. That is also the amount of sales of old and new brick for the past year, against about 5,000,000 last year. The number of new and competing yards is the cause for the falling off in business, also a slightly less demand. The prices here have not changed in the past year, still being \$11 for face brick and \$7 for "run of the kiln." The local brickmakers have used about 1,700 cords of wood, which cost them about \$5,950, and have given employment to about fifty men and twelve horses all summer. It has been an excellent brick season, the loss by wet weather having been only about 25,000 bricks. The use of horses will be done away with next year and electric motors will be used where possible.

CEMENT DRAIN TILE FAIL UNDER TEST.

An examination and test of the cement tile being used in Drainage District No. 43 of the State of Iowa, has resulted rather discouragingly to the manufacturers of that product. The board of supervisors had Professor Oker, of Ames College, out in the district recently, and according to his test the tile at Lone Rock came far short of the required standard. The test was made by placing the tile in a bed of sand and fitting a frame over the top of the tile and filling it with sand, so as to have an even pressure and then placing weights on top. Some of the 60-inch tile manufactured by the Ceylon Tile Company and being used in District No. 32, broke under a pressure of 1,050 pounds. It is claimed that a tile of this size should hold up a weight of from 3,000 to 4,000 pounds. A 14-inch tile made by the same company went down under a 1,900 pound pressure, which was considered very good. A 10-inch tile made by the Bancroft Tile Company broke under a pressure of 1,400 pounds.

What will be the result of this examination is hard to conjecture. The report is prevalent that in District 32 half a mile or more of the tile has been laid, the contractor, Waldmer Jensen, having gone on with the work after the engineer in charge had pronounced the tile O. K., and now the failure of the tile to stand the test has placed matters in an embarrassing situation in that district.

Written for THE CLAY-WORKER.

BUFFALO BRICK NEWS.

Buffalo brick and tile manufacturers and dealers are pleased with the present satisfactory condition of the trade, and report that the outlook is very promising. Several large buildings and big additions are being constructed here, and there is, therefore, a strong demand for the product which they handle.

"This is the most prosperous time in the history of our concern," said Albert W. Candee, secretary of the Lyth Tile Company, 666 Elicott square. "We are working overtime to keep pace with our orders. We have 300 men employed daily in our factory at Angola, N. Y. Our normal capacity is three cars daily, but we believe that with our improved lighting facilities our men will be able to fill many orders by night as well as by day, thereby complying with the demands of the trade. We will be able to increase our capacity to five cars daily. Our prospect for future business is exceedingly bright."

A representative of THE CLAY-WORKER called at the offices of the Queen City Brick Company and the John H. Black Brick Company, and at each of these places it was reported that business was in a satisfactory condition.

Brick for the Bethlehem Presbyterian Church being built in this city was supplied by the Rochester and Pittsburg Coal and Iron Company, located in the Prudential building. Harry Yates, general sales agent of the company, said: "Business is very prosperous with us at the present time. We have been filling a number of satisfactory contracts."

The McGreevey, McGuigan & Baum Paving Contracting Company, of Elmira, N. Y., which has laid a large amount of brick pavement in that city, is now completing a contract in Hornell, N. Y., to lay 10,000 yards of brick roadway.

According to a report from Elmira, N. Y., John Ryan, a former resident of that city, has been promoted to manager of a large brick and tile works at Ginger, Texas, where he has been located for the past year. He mastered ceramics at Alfred University and a few months ago secured a position with a Texas firm composed of former graduates of Alfred.

KNICKERBOCKER.

Encourage sewer building in your town or city. It not only promotes health, but it makes more demand for clay products, even if cement does butt in for a part of the work.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.



RICES IN THE market have remained generally steady and without quotable change. Sales have been principally for prompt delivery, and have been in most cases orders of considerable magnitude. For the past week or two, however, business has shown a disposition to decline, and apparently the winter dullness is approaching. The active season is practically over, and the coming winter will see business rather slack and operations confined to only actual requirements. Spot prices at this writing are: Front buffs, No. 1, \$32 per thousand; grays, shaded and specked, \$32; white, No. 1, \$32; Hudson river common, \$5.50@6.00; light hard, \$5.00@5.25; pale, \$4.00; No. 1 fire American, \$25; No. 2 fire American, \$20; Scotch, \$35.

Building projects in New York are promising and unless all signs fail the coming season will be the most important in the recent development of the city. Capitalists are seeking a profitable outlet for their money, and have acquired certain important holdings which they are intending to improve. Of course, nothing definite can be said about these projects more than that they will be taken up with the opening of spring and developed. Conditions in the financial world favor the investment of considerable capital in such enterprises and the growing prosperity, which increases the population, constitutes an important factor in the coming operations. While some parts of New York have been overbuilt other parts have not, and capitalists have not been slow to seize these opportunities and turn them into profits. Probably the improvement in the office building portion of the city will be relatively less, but elsewhere quite the contrary will prevail, and the conditions warrant steady growth in all these directions. With capital released and ready to be put into important enterprises of this character, the maker and dealer in brick may reasonably expect to obtain his share.

Up the river makers are busy closing up for the season, picking up, looking after the last burning, and otherwise preparing for the winter. It is impossible to say just what has been done this season because not everyone has got cleaned up yet, but the probability is that the season has been the most profitable in years and production has been the most liberal. It is pointed out that the yards along the Hudson have poured a steady stream of brick into New York and contiguous territory all summer, and is still doing it, even though fall and storms are at hand. Hundreds of millions have been made, shipped and are now in use in either buildings or other structural work. The surplus left unsold is practically nothing. Most buyers have cleared up their stock for the fall and are not trying to obtain more for the present.

BURTON.

ROCKEFELLER WILL PUT DOWN A MILE OF MODEL PAVEMENT.

William Rockefeller, according to local papers, will spend \$50,000 to repair Broadway from the North Tarrytown village line to the south line of Briarcliff. The road in front of Mr. Rockefeller's estate has been in bad condition all summer. Mr. Rockefeller rides back and forth to his office in New York every day in his automobile, and has been greatly inconvenienced by the condition of the road. The road to be repaired is more than a mile long. It is proposed to build a roadway 33 feet wide between gutters, and the central part to a width of 20 feet will be bricked with pavement blocks. On each hill a special block will be used. Mr. Rockefeller thinks this road will afford a model that will be followed by town authorities who are looking for a road to

stand up under the automobile traffic. Mr. Rockefeller was the first person in the county to apply oil to roads, and he is the first to try this kind of an automobile road in New York.

PULSOMETER PUMPS FOR CLAYWORKERS.

The Pulsometer Steam Pump Company, 17 Battery place, New York City, advise us that among recent shipments of their Pulsometer pumps to brick plants is a medium-sized pump to West Brothers Brick Company, Washington, D. C., and a repeat order of a No. 6 size Pulsometer pump to the Atlanta Mining and Clay Company, Macon, Ga. Both of these pumps are to be used for unwatering clay pits under rather trying conditions, work for which the Pulsometer is especially adapted. The Pulsometer Company find that trade is steadily improving.

A NEW DEVICE FOR HANDLING BRICK FROM MACHINE TO DRYING RACKS.

C. & A. Potts & Co. inform us that after years of experimenting they have completed a device for delivering the brick on pallets to the racks, where one or two men will place them in the racks. By this means all trucking is dispensed with, saving labor and its continual annoyance. After the brick are dry, they are again placed on this conveyer and delivered to the kiln, thus saving wheelers. As the distance which the brick are moved is always the same, two wheelers will do the same amount of work as formerly done by five men, or the brick may be delivered at the end of the rack where they can be loaded on cars or mule trucks and taken to the kiln. The empty pallets are returned to the machine by this same conveyer.

By the use of this system of conveyers, a saving of from four to eight men is made, this depending upon the amount of brick made per day.

There is no rack and pallet yard to which this conveyer can not be adjusted. As a labor-saving device, it compares with the car dryer, using just the same number of men required by the dryer. The principal argument for using a dryer is to save labor, and whatever labor is saved by using the dryer is overbalanced by the fuel account. With this conveyer all labor saved is clean gain for the brick manufacturer. C. & A. Potts & Co., Indianapolis, will be pleased to give any further information desired.

HIGHLY RECOMMENDS BLOWER COMPANY.

The efficiency of the A. B. C. blowers and dryer apparatus is pretty well known and appreciated by the clayworking trade generally. The accompanying letter, which is an unsolicited expression of favor, is interesting, and may be taken as a "straw" to indicate the right direction to take in looking for dryer apparatus. The A. B. C. Company (see their ad on page 490) solicit correspondence from all who have dryer troubles. Their experience and skill enables them to prescribe safe and sure remedies.

AMERICAN BRICK AND TILE COMPANY.

Manufacturers of Drain Tile and Hollow Building Brick and Blocks.

MASON CITY, Iowa, Nov. 9, 1909.

American Blower Company, Detroit, Mich.:

Gentlemen—Something over two years ago we installed two of your large blower fans to be used in connection with our dryer for bringing the waste heat from the kilns to the dryer, and exhausting the vapor-laden air. We find the apparatus that you furnished us to be very efficient and satisfactory in every particular. We are so well pleased with it that we do not hesitate to recommend it to anyone desiring the same or a similar outfit. Yours very truly,

AMERICAN BRICK AND TILE Co.,
Per GEO. E. WINTER, Sec'y.



OFFICIAL ANNOUNCEMENT.

TWENTY-FOURTH ANNUAL CONVENTION TO BE HELD
AT PITTSBURG, PA., FEBRUARY 7 to 12, 1910.

Fort Pitt Hotel, Headquarters.

THE QUESTION of time and place for our next National Convention has, after much careful consideration, been decided in favor of Pittsburg, Pa. The advantages and facilities offered by the various cities extending invitations were considered conscientiously, and, with a view of determining the city that would be most acceptable to a majority of the members, the Secretary asked for a vote. The result was not conclusive, owing to a large number of the members failing to respond, and the ballots of those who did vote were so evenly divided among the cities mentioned that no decided preference was manifest. New York City received the largest number of votes cast for any one city, with New Orleans a close second. Both of these cities are so far from the center of our membership that it seems best at this time to meet on neutral ground, as it were, so Pittsburg has been chosen.

PITTSBURG A GREAT CONVENTION CITY.—The advantages of the Smoky City are many. Geographically, it is neither North nor South, East nor West, but is, so to speak, the hub from which radiate the great trunk lines tapping almost every section of the country. No city can be reached more quickly or conveniently by a large majority of our members. Its attractions are many. In population, it is the fifth city in the nation, now boasting of a citizenship of over half a million. There are over two thousand manufacturing plants within its borders, the annual products of which are valued at more than \$500,000,000. There are many great clayworking plants in and about the city, most all of which are operated the year around, and these will afford an opportunity for inspection by those fancying that sort of thing.

THE U. S. GEOLOGICAL LABORATORIES.—One of the principal factors leading to the choice of Pittsburg is the fact that it is now the habitat of the Clayworking Department of the Technologic Branch of the United States Geological Survey. This Division is in charge of Professor Albert V. Bleining, an ex-President of the American Ceramic Society, who will welcome most cordially all who may care to visit the Laboratories which have been established on the grounds of the United States Arsenal, which is but a few minutes' trolley ride from the heart of the city. They are equipped with fine up-to-date apparatus for testing clays and other materials, and will afford a fine object-lesson of the modern scientific methods by which the superiority of burned clay as a structural material is fully demonstrated.

THE FORT PITT HOTEL, which will be headquarters during the convention, is a thoroughly modern hostelry. It is a great brick structure, fire-proof, and elegant in all its appointments, and affords every desirable facility in the way of convention and banquet halls, committee rooms, etc.

REDUCED RAILROAD RATES.—It is anticipated that reduced railroad rates will be granted as in former years, and in due time full particulars in regard to same will be announced,

together with the program of the sessions, entertainment features, etc.

To those who wish to mix pleasure with their convention trip, Pittsburg will appeal strongly. Its theaters and other amusement places are numerous, and are not surpassed by those in any of our larger cities.

The American Ceramic Society will meet Monday, Tuesday and Wednesday forenoon, the 6th, 7th and 8th, as in former years. The National Paving Brick Manufacturers' Association will meet Monday and Tuesday, as will also the National Clay Machinery Association. The N. B. M. A. sessions will begin Wednesday afternoon at 2 o'clock.

Those desiring to offer any suggestions relative to the make-up of the program, or who may desire further information on any feature of the convention, requisite of membership, etc., are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE.

LEMON PARKER, President.

THEO. A. RANDALL, Secretary.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its Twenty-ninth Annual Convention at Des Moines, January 12, 13 and 14. Members are requested to send the secretary, Mr. C. B. Platt, Van Meter, Iowa, any questions they desire to have discussed.

The Canadian Clay Products Manufacturers' Association will meet at Chatham, Ontario, date not yet announced. For information in regard to date, program, etc., address the secretary, D. O. McKinnon, Toronto, Ont.

The Thirty-second Annual Convention of the Illinois Clay Manufacturers' Association will be held at Champaign, Ill. George H. Hartwell, Chicago, Ill., secretary, will be pleased to give details as to date, etc.

The Wisconsin Clayworkers' Association will meet at Milwaukee, Wis. The date has not been announced, but it is probable the convention will be held about the middle of February. Prof. Samuel Weidman, Madison, Wis., is secretary, having succeeded Oscar Wilson, who has removed from the State.

BOILER CLEANING.

WHEN THE season's run is over the power plant equipment and especially the boilers should come in for a fair share of attention. It is the best time going for giving the boilers a thorough cleaning and inspecting, because the work can be done deliberately and thoroughly without the need of all the rush that is called for during the busy season.

There may be some difference of opinion as to where the work should begin, but some time or other, and probably the sooner the better, the boilers should be thoroughly cleaned out inside. Different engineers have varying ideas about the removing of scale and the cleansing of boilers. Some leave them open and let them dry out thoroughly, so that much of the sediment will crack loose in the form of scale and can be swept out. This is a good idea, too, but it does not always serve to loosen all the scale.

There is another good old-fashioned plan that involves the use of coal oil. Coal oil is pretty freely used when cleaning up and repairing, anyway, and is known as a good thing to loosen up nuts on rusted bolts and pulleys from shafting, consequently it is but natural to use it more or less in loosening the scale from the interior of the boiler. There are varying ideas about its use, however, probably one good plan is to open up the boiler, let it get thoroughly dry, then get inside with a coal oil can and a swab or sponge and carefully saturate all the interior.

This will loosen up much of the scale and sediment that may have been clinging to the metal, especially if given time to soak in so that much of it will then come off and may be swept out. If this does not serve to thoroughly clean the inside try a second round of it or pour some oil in the boilers, fill them with water, and then close up the boiler

and raise a little steam. Do this with a slow fire and as soon as you have a light pressure that will do good blowing, blow off the boilers and work out the loosened particles of scale. It is claimed by some that the oil penetrates through the scale and gets between it and the shell, so that when the boiler is heated up it expands and thus loosens the scale. No matter, however, just what the technical explanation would be, it is a good plan if you can not clean out all of the scale by sweeping, pounding and swabbing with coal oil, try filling the boiler with water and heating it, after which it may be emptied again, and then one should be able to remove either all or practically all of the scale. Another good plan might be to make one cleaning by swabbing and sweeping, and then if the boiler is not needed for use let it stand open for several days until all the oil in it has been either evaporated or absorbed and then give it another round the same way.

It may be that you or your engineer have a pet method of cleaning the boilers, and if you have all right. It may be even better than that suggested here. The one main point after all is that the boiler should have a thorough cleaning during the winter shutdown and the safety plugs should be scraped and probably renewed, the boiler carefully hammer-tested all over, and then sometime before starting test with hydrostatic pressure to say one and a half times the regular working pressure, so as to make sure there are no weak points that may give way and cause delay, if not explosion, during the next season.

OBITUARY.

F. E. Frey, a Charter Member of N. B. M. A. Dies at Cleveland.

IN THE death of Frederick E. Frey, October 22, there passed to the silent majority one of the pioneer clay machinery inventors of America. Mr. Frey was born in Baden, Germany, February 25, 1837, and consequently was nearing his seventy-third birthday. He came to America at the age of fifteen and located at Plymouth, Ohio. A few years later he moved to Bucyrus, where he found employment in a local machine shop. He had a special aptitude for mechanics, was of an inventive turn of mind, and, becoming interested in clayworking machinery, devoted the major part of his life to designing and manufacturing brickmaking machinery. He was the senior member of the firm of the Frey-Sheckler Co., established in 1861, and his name is intimately associated with the early history of the brick machinery business. Though he retired from active business some ten years ago, he never lost interest in the business to which he devoted the best years of his life, but up to the last took an active interest in the clayworking magazines and occasionally sent voluntary offerings for our pages, among the last of which was the following poem:

COAL AND EVOLUTION.

This Earth had once an atmosphere
Strongly with carbon gas combined;
Tree ferns and mosses flourished here,
Where now the mineral coal is mined.

The tepid waters held the host
Of living creatures in its fold;
It covered all the Earth, almost,
And mosses grew to live and mould.

Peat bogs were forming where we find
The coal beds and the oily shale;
Of creeping creatures many kind
Were swarming in the sea and swale.

The Earth a chaos moved apace
To fit itself for man and beast;
It put the coal beds into place
To furnish fuel for great and least.

Before the air was fit for man,
In water was abundant life;
As we look back we see the plan—
Creative work and Nature's strife.

The carbon stored, the air was pure,
The Saurians came from their confines;
The drying Earth to them a lure,
As coal to man, within the mines.

They took it first by gentle whiffs
(As man will do of noxious gas),
While resting on the sands and cliffs
As on the shores amongst the grass.

As time progressed, some could endure
To breathe the air and live on land;
With lungs equipped, they could abjure
The sea and all their aqueous band.

As in the air they lived and grew,
Mighty changes then took place;
Original forms retained a few,
While most made Evolution's race.

In course of time some changed to apes,
Diverse and puzzling to the sage;
While modes of life would change their shapes,
Vast changes came from age to age.

Great birds with feathers flew the air,
While in the caves an abject brood
Of Troglodytes found there their lair,
To issue forth and hunt for food.

The evolute man, a hairy ape—
Degrading thought! But science claims
That he it was—of manlike shape,
With all our strivings and our aims.



The Late Frederick E. Frey.

As time went by he gained in strength
Of intellect and manly form,
So that he found he could at length
Rule all below, from ape to worm.

For many years he strove to gain
The upper hand of fellow men—
Invented arms and used his brain
To subjugate and use them then.

But now he is a man of peace,
He discards arms and forms combines—
Makes common men pay heavy fees
For food and fuel, as he inclines.

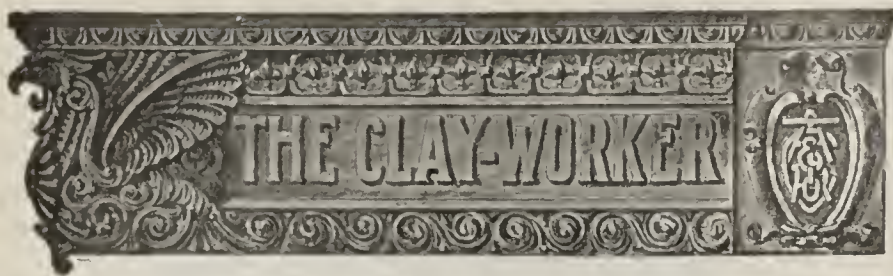
The few have brains, most have the brawn;
The poor must work; the rich enjoy
The fruits of toil. Will this go on,
Or will they rise—those they employ?

God save the day that peace prevails!
Spoils may blind and surely send
The day of wrath. Where foresight fails
The Golden Rule keeps man content.

F. E. FREY.

NEW OFFICE OF BONNOT COMPANY'S WESTERN REPRESENTATIVE.

Roy G. Smith, western representative of the Bonnot Company, Canton, Ohio, advises that he has moved his offices to 931 New York Life building, Kansas City, Mo. Clayworkers visiting Kansas City will always find a cordial welcome if they will pull Mr. Smith's latchstring.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LII.

NOVEMBER, 1909.

No. 5.

CURRENT COMMENT.

Pittsburg is a happy choice and the clayworkers who gather there February 7 to 12 will have a happy time.

* * *

Electric transmission for clayworking machinery is a good subject to look into and study up on this winter.

* * *

We admit that enthusiasm is the mainspring of business, and believe that association meetings are the greatest stimulant to enthusiasm.

* * *

From the way some of the municipal elections went this fall, we might assume that reform is going to take a little nap after its spell of sweeping.

* * *

The cranberry crop is abundant and promises to be cheap, so maybe we can make up for the shortage and high price of turkeys with an extra measure of cranberry sauce.

* * *

When they get that hookworm killed off, our medical experts might try their skill in finding and exterminating the germ of dissension that causes trouble at times in the industrial world.

* * *

When you shut down for the winter do not wait until too near starting time in the spring to make repairs, alterations and additions to the plant. Get at it early that you may have time to do a thorough job and be good and ready, for the signs are good for busy times next year.

* * *

There are two kinds of waste to be guarded against in brickmaking; one is absolute loss and the other is in the lowering of the grade of brick by poor work, either in making or burning. This latter is probably the more insidious form of waste, because it is not so readily perceived except by those who make a close study of the business. Watch for

it; there may be just as much money in saving the grade on some brick as saving the whole brick on others.

* * *

Next year ought to be an excellent one for tile drainage, and every fellow in the business can help make it so by a little effort this winter.

* * *

The man that doesn't get his money's worth from subscribing to his trade paper either doesn't read it, or does not take heed of the advice offered nor the things advertised.

* * *

Architects are arbitrary, but the good ones are also progressive and are always keen after new things that are worth while, so it pays to cultivate them and develop new ideas in the use of clay products.

* * *

One of the best signs of the times from the agricultural district is in the fact that the drain tile industry flourished in 1908, notwithstanding the general depression throughout the country. The drain tile industry showed an increase of over 26 per cent., as compared to 1907.

* * *

Little old Cuba, which is most famous for cigars and for revolutions in the past, is making steady progress in supplying this country with iron ore. Its production last year is up pretty close to the million mark, and the majority of it was taken over by this country along with their sugar plantation and tobacco field product.

PRACTICAL EDUCATION.

Business men are more vitally interested in this phase of education than they are in any other, and apparently the time is ripe for its introduction almost everywhere. Substantially all large cities have introduced it in some form more or less elaborate, and they will do more in the next few years. It is only beginning now. As soon as its utility is understood by the masses, they will raise a clamor for it which will compel its adoption everywhere.

The brick men are interested in practical education, particularly those branches which teach or develop building work. Anything structural may use brick, hence the vital interest with which they should regard this phase of education, and the continuous necessity of educating boys to be good mechanics rather than indifferent clerks or other inside employees.

The theoretic has ruled long enough in educational processes and development. It is time that the practical, the bread and butter end, should be considered, and it is a healthful and hopeful indication that so many men are devoting their attention to the development of the practical branches which are calculated to make citizens useful alike to their communities and themselves far beyond what they are likely to become under the present curriculums.

THANKSGIVING.

If the Pilgrim fathers could look down on us at dinner Thursday, November 25th, 1909, they might be able to recognize the occasion as one having something familiar about it, because we have preserved many of the early practices of Thanksgiving dinner until they have become a sort of tradition, like the doings of Christmas. They might find, however, quite a change in the sentiment marking the occasion, and they would undoubtedly discover so much difference in the surroundings in the industrial and agricultural world that it would be hard for them to recognize the place or the country. In that early day when Thanksgiving was founded as a sort of annual day for observance in this country, it was specifically to give thanks for the earth hav-

ing yielded enough in the way of farm products to insure freedom from want during the winter. For this reason the day was set at the end of the harvest season, after all the crops had been gathered, and part of the good things, especially the later crops, were cooked and served together with meats, usually wild turkey and other game that were quite plentiful in the woods.

Today, while we have farm products of enormous quantities compared to those early days, and while they are still what sustains life in us, they are overshadowed in the point of monetary value by manufactured products and materials of manufacture. A report of the Department of Commerce and Labor at hand states that three-fourths of the commerce of the United States today is conducted for and on the behalf of the manufacturing industries. That is, manufactures and manufacturers' materials when combined formed in the fiscal year 1909, 74.14 per cent. of the imports of the country, 72.78 per cent. of the exports, while food stuffs and miscellaneous materials formed but 25.86 per cent. of the imports and 27.22 per cent. of the exports.

While the figures are not available at this writing, we might also state that the manufacturing industries are the dependence of probably three-fourths of the people of the country for sustenance, notwithstanding the fact that we all have to go back to food stuffs to live. This, of course, is a strong contrast with the earlier days when nearly everyone was engaged in farming of some kind, and the other occupations were merely incidental or side issues. With this change in occupation there has naturally come also more or less change of sentiment in regard to Thanksgiving. There are occasions when the crop is bountiful and when times in the industrial line were rather dull, and under such conditions probably more than half of the population of the country feel that they have no special cause for thankfulness, if prosperity is to be used as a basis.

Those of religious trend feel that a form of thankfulness is due, regardless of what the year has been as compared to others, and in good years feel especially inclined not only toward thankfulness, but toward contributing a share of their harvest for the year in thank offerings to others, especially to the orphans and to what is termed charity. Too many, however, make Thanksgiving merely a holiday, a day on which we may cease work and celebrate in any way we may feel inclined. This is what makes the most striking difference between the Thanksgiving observance as it is today and as we are taught that it was in the early days when the Pilgrim fathers first instituted the day.

We are inclined to make too much of a holiday or a day for celebration out of both Thanksgiving and Christmas, and we need some path or road pointed out to us by which we can get around to a feeling more akin to that which actuated the early settlers in this country, so that we may count our blessings and feel especially thankful for liberty and for the fact that there is enough that we may not suffer during the winter months. The sentiment is as good as it ever was, though times are materially changed, and this year is a very appropriate one for striving to get back to the original sentiment because we seemingly, after having passed through some very trying times in the financial and industrial world, have reached the point where there are better days before not only the agricultural people, but all those engaged in manufacture, directly or indirectly.

LOCAL MANUFACTURERS SHOULD PULL TOGETHER.

Other things may cause it, of course, but quite frequently when we find the brick market in bad shape in a given locality, and asphalt doing more paving than brick, we also find a lack of enterprise and of pulling well together on the part of the brick men in that locality. In other words, the welfare of

the industry depends directly and quite largely on the men in the business themselves.

INNOVATIONS WANTED.

What is wanted in connection with the front brick business to give more zest to the market is new things in face tone, innovations we might say. It is seldom that anything freakish in the way of a face brick amounts to a great deal and it is really not freak effects that are sought, but even some freaks would be better than doing nothing and going ahead with the same old colors and effects. Architects are continually looking for something new, something that will give a different effect in distinguishing a new building from others. In fact, they are eagerly looking for new things and take keen interest in everything offered that gives promise of furnishing some artistic effect that is a departure from the old brick faces. Some take up with difference in color, others with rustic and drapery effects in front brick, some with one thing and some with another, but everywhere practically all architects seem anxious to find something that is different.

We have had some appeals heretofore along this line, appeals for more color effects, more variety, and more strength in color, and now it seems time not only to give attention to more color, but to new things in face effects. Moreover, there is nothing else connected with the brick business that gives greater promise of better return for effort spent than in developing some new things of this kind. It is a subject that manufacturers of front brick may well give special attention to this winter. Try experiments and see how many different kinds of colors, shapes and effects can be made. In short, conduct a long series of experiments with this object in view, then select those that look good, look like they might find favor, and get them before the architects. That they will receive attention goes without saying, because the architects are always glad to find some new offering. Just what favor they will attain depends, of course, on how they appeal to the architects. Sometimes a brick with a color which may not appeal to the average man may find strong favor with an architect, because he sees possibilities of combining it with certain trimmings and getting a beautiful effect that is so distinct and different from other buildings that it will be noticeable and have strong individuality.

We have had some examples of this the past two years. Some examples of strong favor toward brick which probably ten years ago would hardly have been looked at twice for front brick. We have adhered to the standard faces and colors so long that, notwithstanding they have much of beauty to commend them, there is a natural desire for changes in some of the parts. We can get relief in new effects and this desire is so strong that the man bringing out new things that are worth while will have the best show in the trade for the coming season at least, and those who stick to old-time colors and faces will frequently find themselves handicapped when seeking favor for their product among architects. Apparently we have reached the point where there is need for just as serious attention to face effects as has been given by brick manufacturers to the scientific and technical problems involved in brick manufacture. And there is before the trade a fruitful field for research in this line—research that may be conducted either individually by the different manufacturers or by co-operation, so that there may not be too much competition in some one style of face. The method of taking the matter up and handling it is not so important right now as the matter of getting interested and taking it up. Brick manufacturers must be up and doing if they will keep in the lead, for many other things are competing for place in architectural favor, and it is time for stirring around among the brick manufacturers with a view to bringing out enough new and striking effects in color and face that architects may be able to find anything they want without going further than brick and terra cotta products.

TRADE LITERATURE.

THE C. W. RAYMOND COMPANY, Dayton, Ohio, has recently issued to the trade two very artistic pocket booklets which live up in every way to the high reputation the Raymonds enjoy for attractive advertising literature. These two booklets appeal to the average clayworker in a way that makes the reading of their contents almost a certainty. One is entitled "An Industrial Waste," and contains an interesting article on the merits of the Youngren Producer Gas Fired Continuous Kiln, for which the C. W. Raymond Company is the exclusive agent. The other booklet, "Progress in Brick Drying," is a classy trade publication bearing the imprint of the Roycroft Press East Aurora, N. Y. The cover design is conventional in detail in green and red. The booklet contains an interesting article on the evolution of drying which is well worth reading.

H. W. CALDWELL & SON CO., of Chicago, Ill., has recently mailed a new catalogue styled No. 34, and which is very complete, containing 847 pages of illustrated and descriptive matter pertaining to their many and various machines and supplies for elevating, conveying and power transmission. The first illustrations in the catalogue show to good advantage their new plant, including views of the foundry and machine shop, shipping and receiving warehouse, shipping room, engine and boiler rooms, assembling floor and conveying department. The 847 pages are full of interesting information, describing in detail their elevators, conveyers, hangers, collars, couplings, linings, boxes, driving ends, bearing ends, supports, gears, gates, buckets, bolts, elevator boots, casings, fans, bins, chutes, hopper bottoms, distributors, friction hoists, conveyer rolls, trippers, pulleys, wheels, link belting, etc. The catalogue also contains complete price lists on all materials they manufacture. All the necessary articles for equipping plants with complete elevating and conveying systems are made by this well-known firm. Anyone wishing information along this line should write the H. W. Caldwell & Son Co., Chicago, Ill.

THINKS BRICK SUPERIOR TO CONCRETE.

The good old brick, which has been shoved back to second place as building material since the advent of reinforced concrete and tiles, has a vigorous champion in T. J. A. Tiedemann, who addressed the Fire Underwriters of the Pacific on building construction and rates at a meeting some time since. As fire-resisting material Tiedemann gives brick first place and produces the evidence to prove it. In consequence he believes that in the fixing of rates, buildings with brick walls should be given a more favorable premium than tile or reinforced concrete. As it is, there is no difference in the rates.

In this connection Tiedemann expressed the belief that a brick foundation could be as good as or better than concrete and gives instances of foundations recently dislodged which were perfect, although in wet ground for over forty years.

The cause of the appalling increase in fire losses in this country he attributes to poor wiring. "Boys and novices put in the wires in the most haphazard way," he said, "and the inspecting is a joke. Our construction laws in this regard, as in others, are too often lax and are practically never enforced properly. Our losses in this country, in spite of our flimsy construction, could be lessened 50 per cent. if the building laws were properly enforced."—Architect and Engineer.

A MOVING TALE.

There was a dachshund once, so long,
 You haven't any notion
 The time it took to notify
 His tail of his emotion.
 And thus it happened, while his eyes
 Would weep with woe and sadness,
 His tail would still be wagging on
 Because of previous gladness.

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"GETTING THE MOST FOR A DOLLAR"

has been given as a definition of good engineering such as is done by

**The Richardson-Lovejoy
 Engineering Company.**

[See page 577.]

WANTED, FOR SALE, ETC.

FOR SALE—Complete modern brickmaking plant in good, live city. Excellent opportunity for right parties. Can be sold on reasonable terms. Address Box 11-S, care CLAY-WORKER.

FOR SALE.

A brand new dry press, never been converted. Cost at factory, \$3,500. Decided not to go into this branch of business. If interested it can be bought right.

H. W. RABER,
 11 1 cm Parsons, Kans.

FOR SALE.

Stock in a good, up-to-date brick plant in western Kentucky, equipped with first-class dry press machinery and down-draft kilns. Good locality, and is a paying proposition to the man who understands the business. Address LOCK BOX 271, 10 3 cm Keyser, W. Va.

For Sale, Wanted, Etc., Ads Continued on
 Pages 567-569.

Written for THE CLAY-WORKER.

NEWS FROM KENTUCKY'S METROPOLIS.



CONSIDERING THE season, the demand for brick is much more active than has been known in some years in this locality. This has been augmented by the fact that the building operations, including a number of large structures, have been increasing with a very pleasing progress. The activity has been somewhat late in arriving, but it was not unwelcome on that account, and there is a good indication that the business will continue for at least a time yet.

The building permits for the month of October show a very decided increase in the amount expended in this way, and the gain is 75 per cent. greater than shown last year in the same month. The number of permits was 221 and the amount represented was \$428,964. There are a number of large structures to be erected herein within a short time, including the First Christian Church, to cost about \$125,000; a power building to be erected on Market street by the Snead Manufacturing and Building Company, being an eight-story brick building; the plant of the Louisville Furniture Manufacturing Company; a three-story brick dormitory building at Barbourville, Ky., for the Barbourville Institute, and numerous structures that will demand a large number of brick and other clay commodities. There is also talk of another large power building to be erected here.

The recent organization of the West Virginia Clay Products Company by a number of local men is one of the additions that will soon be operating. The headquarters of the company will be at Charlestown, W. Va., though considerable of the output of the plant will be marketed in this city and locality. The capacity stock is \$200,000, and a bond issue of \$100,000 will be issued at once in order that the erection of the plant may proceed without delay. The organizers of the company intend to do business on a large scale. They will manufacture terra cotta, tile and fancy brick. Operations will begin just as soon as the plants can be put in condition.

The Cannellton Sewer Pipe Company, at Cannellton, Ind., which has just turned out its first kiln of sewer pipe, is largely capitalized by local men. The quality of the pipe, some of which has been received here, is said to be very fine, and the indications are that there will be a big business in sight for this concern. The capital stock of the company is \$150,000, and the officers are: President, John Meyer, New Albany, Ind.; vice-president, Henry Bosquet, Louisville, Ky.; secretary, Henry Clements, and treasurer, Anthony Clements, both of Cannellton, Ind. A number of local parties have stock in the company. They have just completed the building of seven 30-foot down-draft kilns, and will soon build seven more. One building, 60x200 feet, has been erected, and another will be erected in the near future. The plant is located on the Ohio river and the Southern Railway, and they expect to ship to all sections. With a clay bank of 2,000 acres right at their door, they are in a position to operate for a long period without the fear of having to haul clay from a distance. Fuel is also handy and they look for a pleasing future in their operations.

The Hydraulic Brick Company say that they are now more actively engaged than they have been in several years at this season. They have on hand a number of nice orders and are keeping things moving along nicely, with an outlook that is good.

The Southern Brick and Tile Company are about as busy as they can be now, and are pleased to find the demand for brick holding up so well. The outlook for drain tile is very good and they count on a nice business in this line in the future. They are keeping things in full operation.

The Latonia Brick Company, at Covington, Ky., has gone

into the hands of a receiver. Attorney Frank Hanlon is the receiver for the concern. The liabilities are about \$20,000.

The Louisville Brick Company are very busy; in fact, they have refused orders lately on account of their inability to fill them. One of the recent orders received by them is that of the Louisville Furniture Manufacturing Company, calling for 290,000 brick.

The West Point Brick and Lumber Company, at West Point, Ky., report that there has been little change in the situation with them. When they close down for the winter months they will not have a brick on hand, as they are sold up to their output. During the cold months they will make a number of improvements in their plant, installing a dry kiln and other additions.

The P. Bannon Sewer Pipe Company are so busy that they are having difficulty in filling orders. This is partly due to the fact that they are unable to get as much help as they need in their plant.

Thos. J. McCullom & Co. are pleased with the continued demand for brick, and say that the situation looks very promising to them. They are operating full and have every indication of a pleasing demand in the future.

The Louisville Sewer Pipe Company has been incorporated here with a capital stock of \$5,000, with the following stockholders: Robert E. Brandies, twenty-five shares; L. Frankel, thirteen shares, and F. B. Moss, twelve shares. They will do a general building supply business. Office in the Lincoln Bank building.

The Kentucky Vitified Brick Company are about as active as they have been in the past several months. There has been but little improvement in the general situation with them, though they are counting on a more active demand later.

The Louisville Pottery Company say that there has been a decline in the demand for fruit jars, the season being over for this line, but find an increase in the call for jugs, with the indications very pleasing for the future in this way.

The Louisville Fire Brick Works, at Highland Park, Ky., are noting some increase in the demand for fire brick and other fire clay commodities that makes the situation look better for them. They feel now that there will be a nice demand for their output in the future, and see a favorable change in the demand.

C. O. Smith, the well-known brick man, is not as well as he might be, though he is at his office for a short period nearly every day.

The Burrell & Walker Clay Manufacturing Company find the situation to be improving with them. The general outlook now is very much more pleasing, and they hope for a nice demand.

C. O. L.



OUTRAGED.

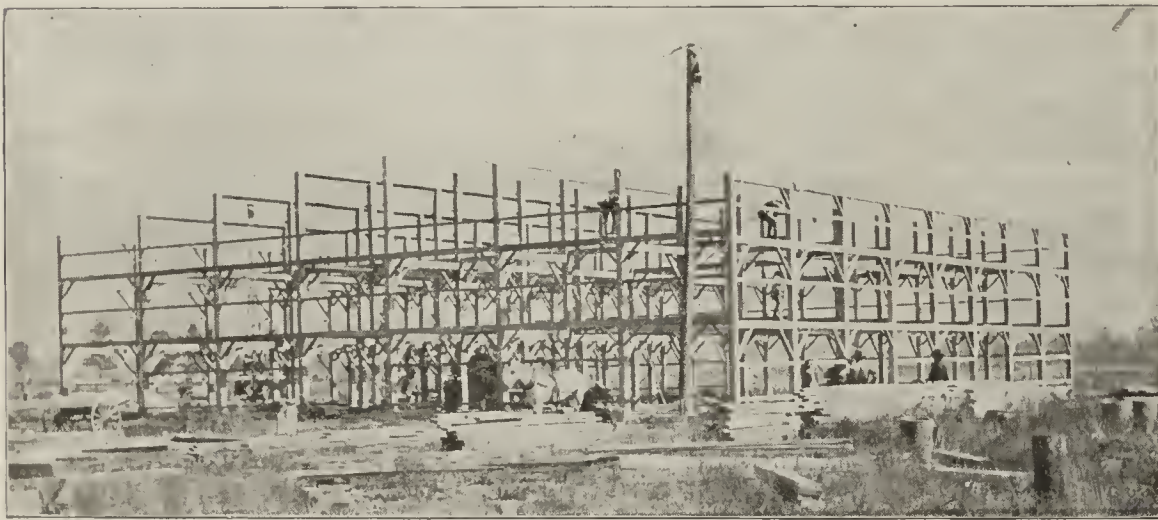
'Rastus (indignantly)—"De way sum people shet up deir chickens, wif not a single winder open fo' ventilation, am simply outrageous cruelty ter animals!"—Judge

P. L. & H. S. SIMPSON JOIN THE AMERICAN CLAY MACHINERY COMPANY'S FORCE.

The National Brick Machinery Company is no more, and its founder, P. L. Simpson, and his son, H. S. Simpson, who has been in charge of the office work, have associated themselves with the American Clay Machinery Company, of Bucyrus, Ohio. The latter company has purchased the business outright, including all the Simpson patents, good will, etc. The Messrs Simpson will have their headquarters in the Chicago office of the A. C. M. Co., at 814 Chamber of Commerce Building, where they will welcome their old friends and any of the patrons of the American Clay Machinery Company who may find it convenient to call.

A MODEL TILE PLANT.

The Larue Tile Co. is building an up-to-date plant for the manufacture of tile and hollow block at Larue, O. As will be seen by the accompanying view of the framework of the new plant, it is the policy of the company to build and equip the plant in the best possible manner. The frame work is most substantially built of heavy hard-wood timber, pinned together with oak pins, and the buildings are of ample proportions. The equipment is furnished throughout by The American Clay Machinery Co., and includes a No. 41 auger machine, automatic tile cutter, No. 51 pug mill, 14-inch dis-



Plant of the Larue Tile Company in Course of Construction.

integrator, No 1 winding drum and three steel bottom dump cars. The material to be worked is of excellent quality and makes first-class ware, as shown by tests made in the testing department of The American Clay Machinery Co. The clay supply is practically inexhaustible. Thoroughly up-to-date down-draft kilns, constructed in accordance with the ideas of Mr. Shipley, will be used.

The management of this plant and the excellence of the clay and equipment insure the success of the Larue Tile Co. The management includes such successful men as Messrs. Ship and McCallister, of the Richwood Clay Products Co., Richwood, O.; Mr. Van Cleve, of the Van Cleve Clay Products Co., West Mansfield, O.; and Mr. Henry Raub, of Larue, O. These men are among the most successful and aggressive tile men of the country.

BRICKYARD LAW UNCONSTITUTIONAL.

"Drastic, radical and extreme municipal law," is the term the Supreme Court, in an opinion by Justice Bailey, applied to the ordinance of Denver forbidding brickyards to operate within 1,200 feet of a residence or schoolhouse. The court holds the city's law to be unconstitutional in deciding the case of Denver vs. Patrick Rogers in favor of Rogers. The opinion says that brickmaking is "one of the most necessary industries known to business life," and says that the Denver

ordinance attempts "to arbitrarily drive it beyond the city limits."

Rogers is a brickmaker who was fined in police court for operating a brickyard near a residence. In the county court the judgment was reversed, and it is this judgment that the Supreme Court has affirmed. The city ordinance provides for a fine against the operator of the prohibited brickyard and defines the yard as a nuisance.

1910 LOOMS BIG FOR BUILDERS.

A leading builder says that he thinks the coming season is going to be the most important in structural work in and about New York that has been known in years. Everything, he declares, points to a development of the use of brick and clay in structural work of all classes hitherto only hinted at. He is confident that brick will be wanted in larger quantities than ever before, and he is equally confident that the growth in the use of brick has only begun. While he can not, nor does he attempt to, give specified statements regarding the probable increase in the demand for brick, he says that he can see already what is coming in the near future. He is a man, too, of wide experience, and he should know more about it than the average dealer or the builder who has had no such opportunities as his for observation and comparison.

The Board of Estimate has authorized the construction of the new Fourth avenue subway, and work will begin very shortly. It is impossible to say how many brick will be used in construction, but it will be millions.

The Pennsylvania Railroad Company is going to construct upon some of its property adjacent to its new station, one of the largest hotels in the world. It is to be partially, or wholly of brick, and will be trimmed in part, at least, with clay trimmings of some sort, depending upon the architect.

An immense amount of flat and apartment house construction will be developed in the Bronx the coming year or two. The new Fourth avenue subway will open up a new region to development, and the population may be expected to begin growing within a few months.

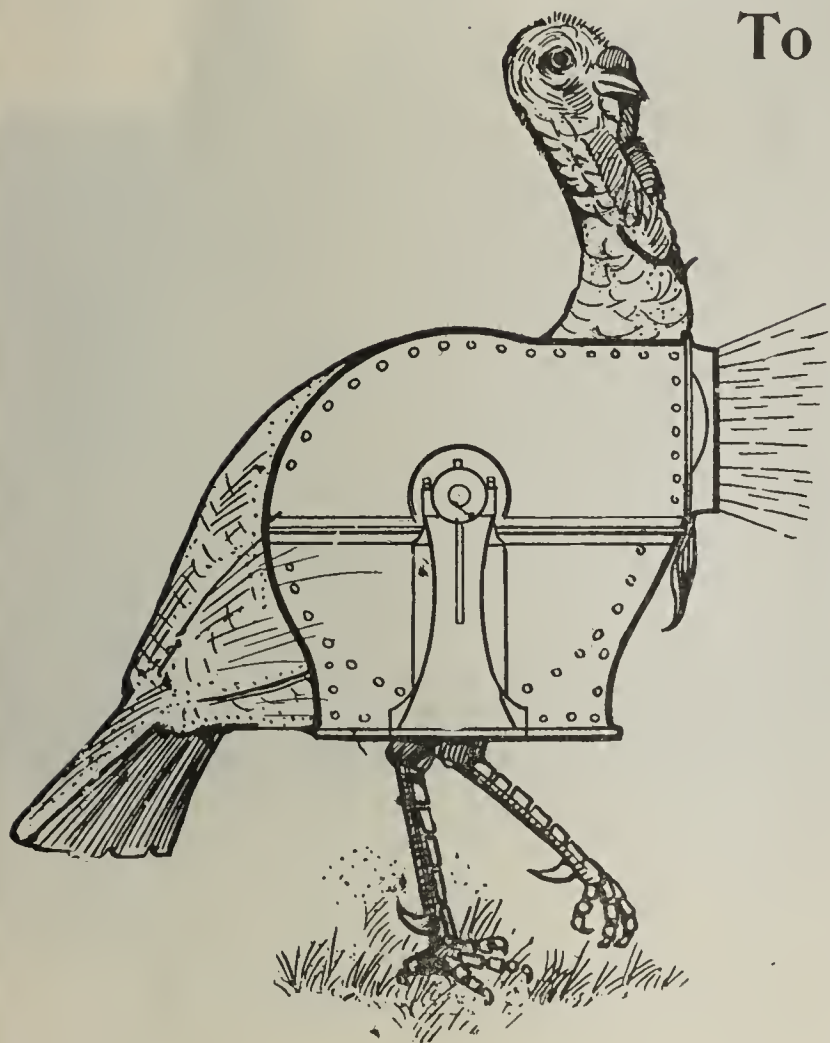
THE ENGLISHMAN'S TOAST.

Five men met on board a trans-Atlantic liner, having previously been strangers to each other. One was an American, one English, one Russian, one French, and one Turk. The acquaintance was agreeable to all, and the evening before the voyage was ended they had a champagne supper. They agreed that each should toast his own country, and that the man giving the best toast should be at no expense for the wine. Here are the toasts: The Russian—"Here's to the stars and bars of Russia that were never pulled down." The Turk—"Here's to the Moors of Turkey, whose wings were never clipped." The Frenchman—"Here's to the cock of France, whose wings were never picked." The American—"Here's to the Stars and Stripes of the United States of America, that never trailed in defeat." The Englishman—"Here's to the rampin', roarin' lion of Great Britain, that tore down the stars and bars of Russia, clipped the wings of Turkey, picked the feathers off the cock of France, and ran like hell from the Stars and Stripes." The Englishman did not pay for the drinks.—Exchange.

The Legg Brick Company, Calhoun, Ga., is in the market for a 9-foot dry pan and side-cut machine of 60,000 daily capacity. Second-hand machinery preferred, if in good condition.

Let Us Talk "Turkey"

To You on The Blower Dryer Question.....



November is the month for Thanksgiving and Turkey. In November a day of thanksgiving is set aside. In November you return thanks for the blessings of the past year. Incidentally you discuss turkey.

In November it will be a good time for you to let us "Talk Turkey" to you about our Blower Dryer. If our talk results in our selling you a dryer equipment you will have something additional to be thankful for next November. Our Blower Dryers are perfect dryers. They are built

throughout in our own factory and we can guarantee their quality and operation. We can dry more of your output in less time with less cost and less fuel than can be done with any other dryer. But that is not all. We will give you a better quality of product with less spoilage than can any other dryer.

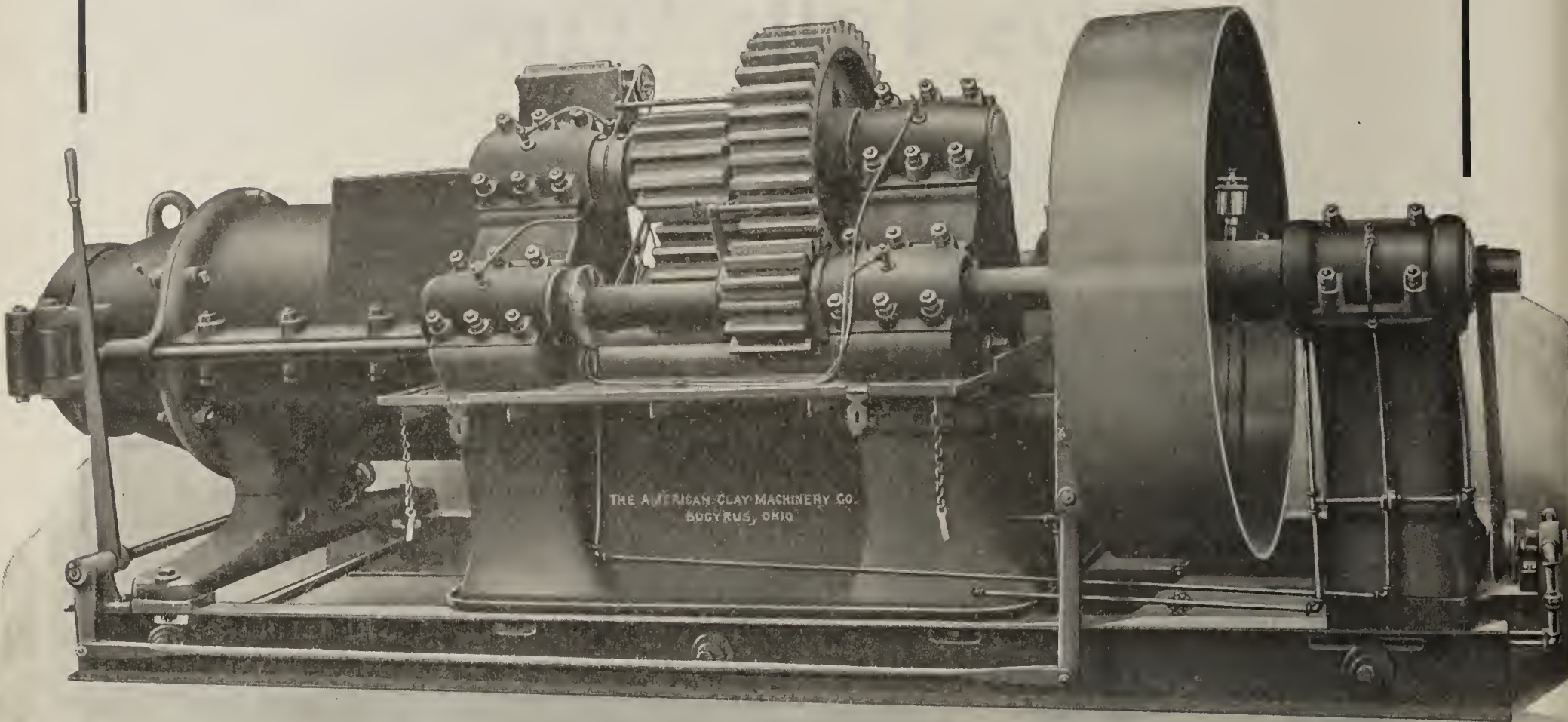
If your clay has peculiar qualities which make it particularly hard to handle through a dryer of one kind we can supply you with some other system of drying as we build all kinds of dryer systems. Let us take up the Dryer question with you. It costs nothing to talk it over.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



FORCE FEED OILING SYSTEM FOR CLAYWORKING MACHINERY.



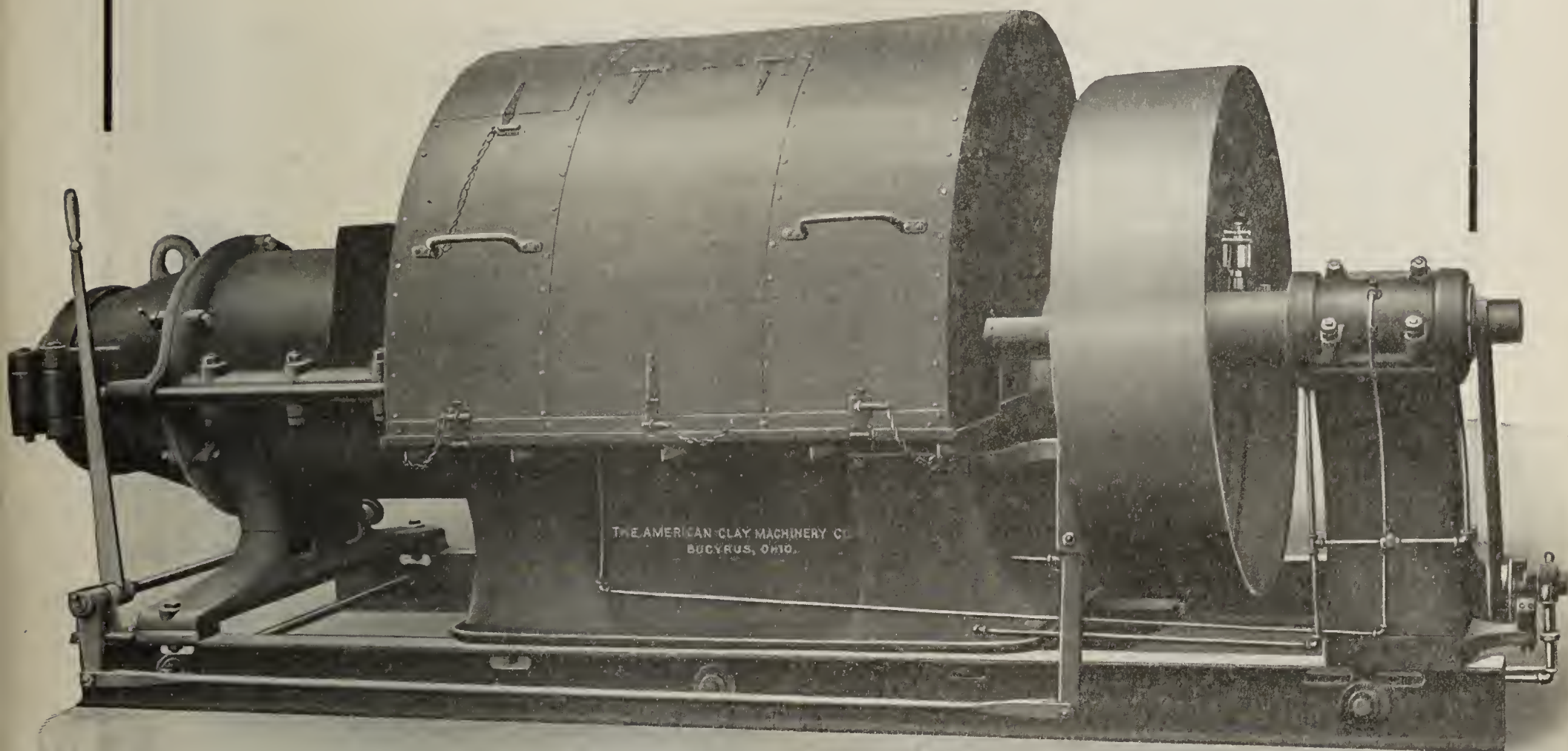
No. 65 Auger Brick Machine Showing Force Feed Oiling System. Housing Removed.

If your engineer persisted in forgetting to oil his engine you would get a new engineer. Our clay-working machinery is built as carefully as your engine and is entitled to as careful attention. We have been frequently blamed for inferior machinery when the trouble was entirely due to the failure to oil the machine. Our machinery is "Built Right" and will "Run Right," but it will not continue to run right without oil. In order to insure an adequate supply of oil and at the same time prevent a waste of lubricant, we have brought out a force feed oiling system which is here shown attached to our massive No. 65 Auger Brick Machine. The oiling system consists of a force sight feed pump device driven by either belt or ratchet. Each bearing is connected by a pipe leading from the force pump and each bearing has its individual sight feed so that any one can see that each bearing is receiving the proper amount of oil. A catch pan which is made a part of the base of the auger machine receives all drip and the oil thus collected is saved. While this is a source of oil economy it is far more economical in saving bearings and gearings.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



FORCE FEED OILING SYSTEM FOR CLAYWORKING MACHINERY.



No. 65 Auger Brick Machine Showing Force Feed Oiling System and Housing.

The illustration shows our improved central oiling device for thrust bearings. By this improvement thrusts are oiled from the center instead of trying to get the oil to run from the periphery of the thrust plates to the center. The gravitation on a revolving plate or disc is from the center and not toward it, consequently by the old system there was no assurance that thrust plates received the proper amount of oil. Our new method of applying the oil by force feed to the center of the plates insures plenty of oil and freedom from repairs.

The second illustration shows the No. 65 Auger Brick Machine and Force Feed Oiler housed with a dust-proof cover to protect the oiling system and the machine from dust and to protect the workmen. The housing is arranged with hinged doors so that the gearing and bearings can be inspected at all times. The illustration also shows the No. 65 machine equipped with cut steel gearing. While this is an ideal equipment the oiling system can be applied to standard iron gearing.

This Force Feed Sight Oiling System can be applied to any of our clayworking machinery. Correspondence solicited.

We build every machine and appliance needed for making clay products by all processes.



The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.

All to the Good in Screening Clay.

Since bringing out our Centrifugal Screen a few months ago we have sold twenty-five of them. Not one of the lot has failed to give perfect satisfaction, and each one seems to bring in more orders, which is a gratifying testimonial of their excellence. We are building twenty more of these screens now and your order will get prompt attention if received soon.

This screen breaks away from a vibratory motion, and is centrifugal, which makes it easier running and less liable to break.

As the accompanying cut shows, the screen is made up of two hoppers substantially mounted on a steel frame. The screen plate is circular with large screening surface. It is supported by spiders in a horizontal position. The spiders are keyed to the vertical shaft which is connected to the driving shaft by a pair of bevel gears.

Just beneath the screen plate is a steam coil heater arranged to heat the screen plate to prevent damp clay from clogging the perforations in the plate.

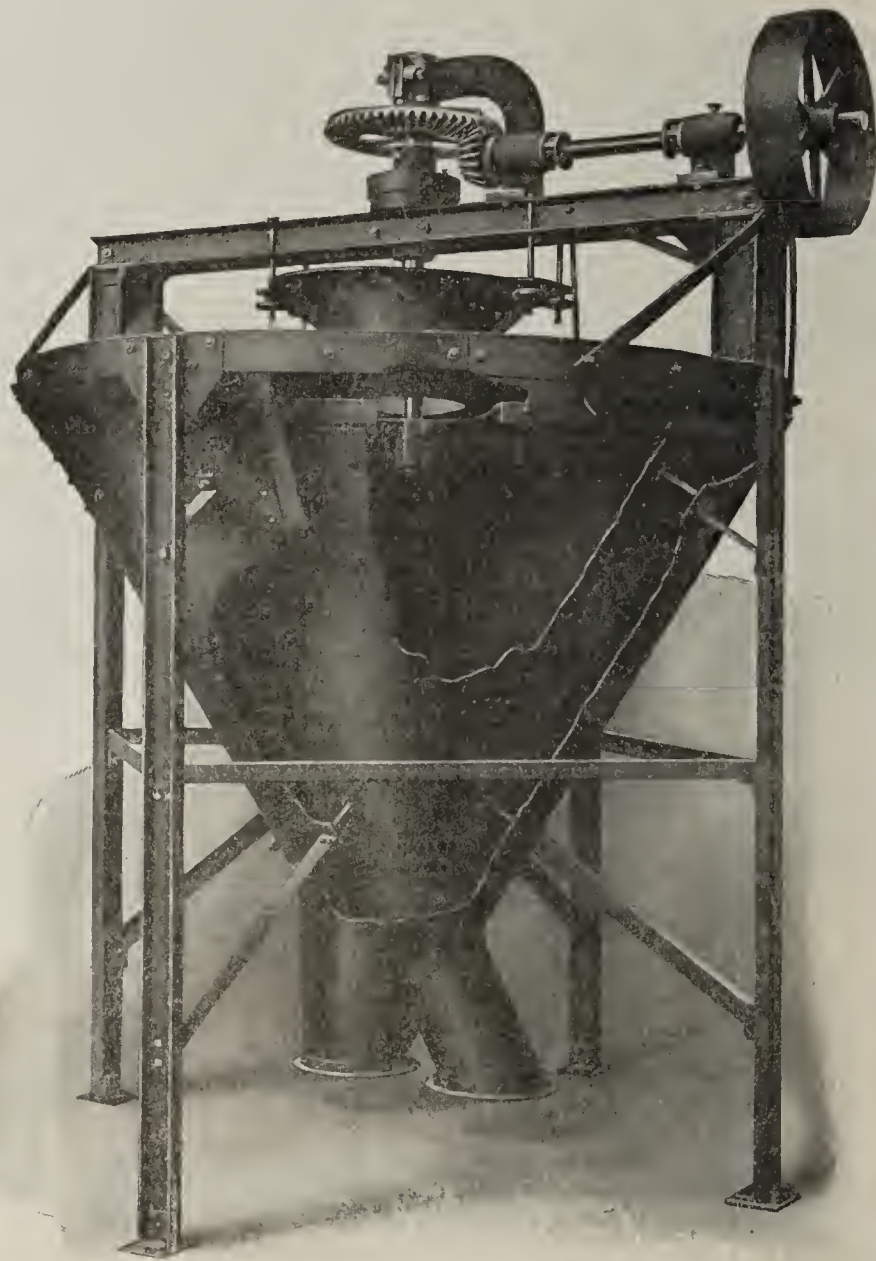
Surrounding the vertical shaft is a cast iron hopper or spout through which the clay is fed to the screen plate. This hopper can be raised or lowered to regulate the flow of clay on the screen. The hopper being always full of clay keeps an even flow to the screen. The screen as it revolves throws the clay from the center to the outside of the screen plate, the flow being even and regular. The larger particles of clay, too large to pass through the perforations, pass over the screen plate to the outside and fall through the outer housing to a spout conveying them to the grinding pan for regrinding. The fine particles of clay sift through the screen plate into the inner housing or hopper and pass to a conveyor and into the clay bin.

The whole operation is rapid and thorough and the principle insures great capacity and freedom from trouble. Many of these screens have been installed and are giving universal satisfaction.

In actual operation the No. 147 Screen, which has a screen plate six feet in diameter, is screening equal to the capacity of two nine foot dry pans. We also build this screen with a four foot screen which will handle clay to the capacity of one pan.

Full particulars as to the construction and operation of this screen will be sent upon request.

We build every machine and appliance required for the manufacture of every class of clay products by all processes. We are much the largest manufacturers of Clayworking Machinery in the world. Manufacturing as we do every machine and appliance right in our own factories, we are better prepared to serve you at a saving in time and money than others.



CENTRIFUGAL CLAY SCREEN.
Patented and Patents Pending.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.





NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

“Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed.”

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

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Written for THE CLAY-WORKER.

CLEVELAND BRICK NEWS.



FIGURES COMPILED BY the Building Inspector for the first ten months of 1909 show a startling increase in the building record for the year. What is more to the point, the tabulations show an increase of 76 per cent. in brick buildings as against only 2 per cent. in frame structures, indicating that incombustible structures are coming more and more into favor in the big cities of the country. The increase for the first ten months is 41 per cent., which is considered unusual even in Cleveland, a city which has been doing a large amount of building in the past decade.

The total estimated valuation of buildings erected for the ten months of 1908 was \$8,092,388, as against \$11,411,139 for the same period this year. City Building Inspector Lougee attributes in part the great increase in brick buildings to the extension of the fire limits, which now include most of the business sections of the entire city. There is a tendency, too, he says, to erect more substantial buildings than formerly. Cleveland has always been noted for its large number of frame houses. A great receiving port for lumber from the upper lakes district, much of it has been used for dwellings. Now the use of brick is becoming more general, for builders find that wooden houses are expensive to maintain, and that in the end there is little economy in their construction.

The total number of frame buildings erected this year so far was 2,274, costing \$3,590,576. The number of brick buildings was 635, costing \$6,379,575. There were also 3,152 additions and alterations, making a total of 6,061 permits issued. This year's total was made up entirely of moderate-priced structures, ranging from \$1,000 dwellings to \$500,000 office buildings.

It is confidently believed by the city authorities that the total of buildings this year will exceed \$12,000,000. As buildings are seldom listed in the permits for more than half of their real value, because of the fear of subsequent taxation, the amount spent in the building industry in Cleveland will be in the vicinity of \$20,000,000.

Mathew Noble & Son, contractors for the new Elk's Temple on Huron road, are making good progress on the new five-story building which is to be completed by next summer.

The excavating is done and the foundation is being set. Brick and terra cotta for the job has been ordered, and work will be in full swing as long as the weather will permit.

Workmen started setting the terra cotta and enamel tile on the new fourteen-story building for the Brotherhood of Engineers during the past month. Most of the steel work is in place and it will be completed before the cold weather closes the building season. The new building is expected to be one of the handsomest in the downtown business section, being entirely of the white tile, which can be easily cleansed of dirt and smoke stains.

The new residence for Caleb Gowan, costing 25,000, which is being erected on Magnolia Drive, is nearing completion. It is of hollow brick tile with stucco finish. Not a stone's throw away, F. K. Glidden is expending \$50,000 for a new brick residence, being erected from plans prepared by a nephew, E. H. Glidden, of Baltimore. The contract for the Glidden home is being executed by the Reaugh Construction Company. Out near Mentor, a few miles from Cleveland and on the lake shore, Thomas P. Ballard is spending \$40,000 on a new home of fireproof construction. It will have brick exterior walls with floors of reinforced concrete and hollow tile. Plans for the building have been prepared by Bohnard & Parsons. T. Lucas, manager of the Cleveland Frog and Crossing Company, will build a new \$25,000 home on the lake shore near Willoughby, beginning next spring.

Permits for \$280,000 worth of public schools were taken out during the month. One was for the \$175,000 normal school on University Circle, work on which has been in progress for some weeks. Another was for a \$65,000 annex to the Willard school, and a third for a \$40,000 addition to the Boys' school on the West Side. All three jobs are in brick.

East Cleveland, at the recent municipal election, authorized the issuing of \$100,000 for new schools for the village. Two new buildings and two annexes will be built with the money. Plans are to be prepared and work is to start early in the new year.

M. A. Bradley, Cleveland millionaire, who has been erecting a new large building each year, has about reached his land limit. He has just started a new building on the last vacant lot he owns in the business section of the city. It is to be a three-story brick building, 263 feet long and 81 feet deep on Bolivar road, near East Seventh street. Mr. Bradley is just completing a six-story brick building on Hamilton avenue, near Ontario street. He owns more large business buildings in Cleveland than any other man.

About eight new apartment and tenement buildings are being started in Cleveland each week. They range all the way from \$5,000 to \$50,000 in cost. Ground was broken a few days ago for a new apartment building for G. A. Schneider, secretary for the Cleveland Athletic Club, from plans prepared by Searles, Hirsch & Gavin. It will be of pressed brick and cost about \$25,000. It is being built on Euclid avenue, near Lockwood avenue. A \$20,000 apartment is being built for Johnny Ray, the actor, on Lexington avenue, near Addison road. Many other four, six and eight-suite apartments are going up all over the city.

Henry Watterson has been awarded the contract for the new tile roof for the West Side Market House. His bid of \$16,420 was the lowest of a number submitted. The roof contains about 15,000 square feet. Work will begin early in the new year, when the walls are completed.

Every one of the 161 paving jobs let by the Board of Public Service will be completed before the season ends, according to officials who are supervising the work. Of the 161 contracts, 144 have been finished, and the rest will be within the next month. This will make over thirty miles of brick pavement laid this year, breaking all previous records. Two years ago nearly thirty miles were laid, but this year will beat it by nearly a mile. During the next year it is planned to pave at least 140 streets. The city's share of the cost will be \$502,820, while the cost to property owners will be \$1,437,528.

The county officials are rushing their rural road pavements as much as possible. It is evident, however, that a number of contracts will not be completed before work is tied up. The county has also broken all paving records. Brick has established itself more firmly, if possible, than it has ever done before.

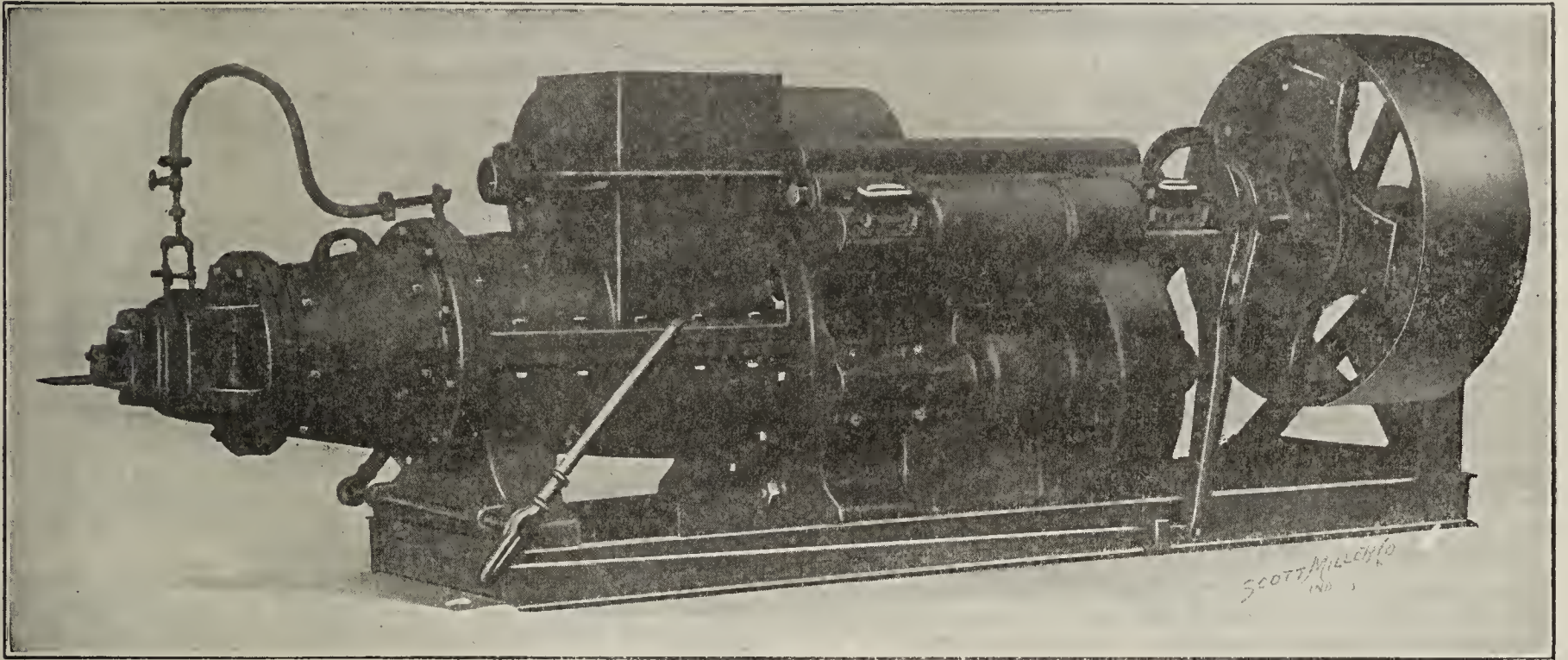
Following several disastrous fires in the downtown business section during the past month, a movement is under way to compel the erection of fireproof buildings in the business portions of the city. Hitherto people have been allowed to build what are known as sixth-class buildings, consisting of brick walls and joist construction. These are said to be very inflammable, much more so than mill construction. It is aimed to amend, if possible, the building code, permitting only the erection of third-class buildings, making the use of brick and reinforced tile floors compulsory. It is hoped that the change can be made during the coming winter. It is maintained by the Building Inspector that it costs only 5 per cent. more to erect fireproof buildings than when mill construction is used and 20 per cent. more when joist construction is used. The different in the cost of maintenance and insurance, however, soon eliminates this extra initial cost.

R. C. Penfield, son of Raymond Penfield, manager of the American Clay Machinery Company, is seriously ill in New York with appendicitis. A prominent Cleveland physician, Dr. H. F. Biggar, who is John D. Rockefeller's doctor, was called to New York to consult with physicians there over young Penfield's condition. It is hoped, however, that he will recover.

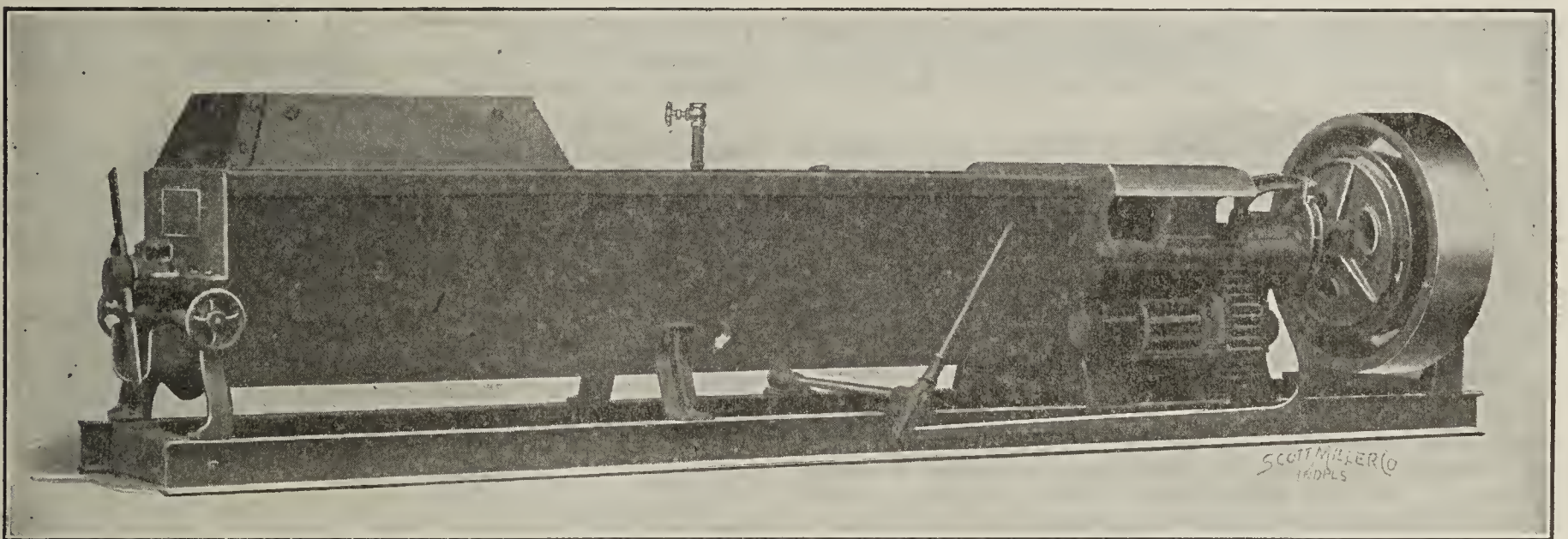
On November 17 the Cleveland Builders' Exchange held its annual meeting, at which reports for the year were submitted by Secretary E. A. Roberts. A vote was also taken for members of the board of directors. The exchange, under Mr. Roberts's expert guidance, is now one of the most flourishing institutions in Cleveland, and has a cash surplus in its treasury of nearly \$25,000. There is some talk of the exchange purchasing property and erecting a new building in the downtown business section for its use, and to rent to building companies of various kinds.

BUCKEYE.

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



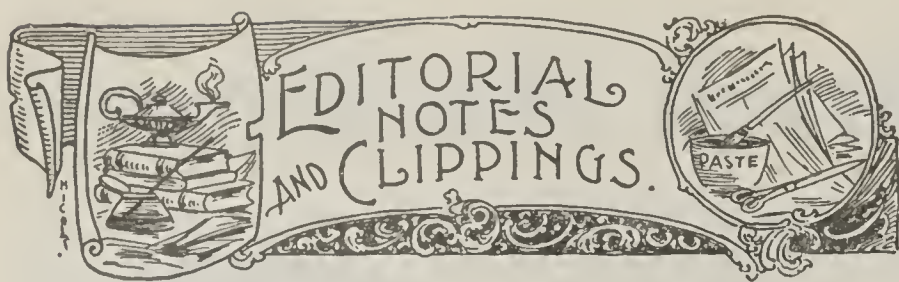
We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

Galion, Ohio.

(Mention The Clay-Worker.)

See ads on pages 602 and 603.



The plant of the Corwith (Iowa) tile factory is to be rebuilt, and a company is now being organized for that purpose.

Joseph Rash has purchased the brickyard at Dover, Pa., together with thirty-eight acres of land. He will operate the plant.

The main building of the Pearl Clay Products Company, at Kushequa, Pa., was destroyed by fire November 12th. It will be rebuilt at once.

The Bagley-McDonnell Brick Company has been incorporated to manufacture brick at Meriden, Conn. The incorporators are E. S. Bagley and J. J. and A. McDonnell, all of Meriden.

The brick plant operated by Fred Brockett, at North Haven, Conn., was damaged to the extent of \$500 by fire which started from an overheated kiln. The plant is owned by Captain Samuel Craft.

J. S. Bone, manager of the Oconee Brick and Tile Company, Milledgeville, Ga., announces that the plant will be enlarged for the purpose of enabling them to manufacture partition tile, as well as drain tile.

Articles of incorporation have been filed by the John C. Boss Company, of Elkhart, Ind. John C. Boss, well-known as the inventor of the Boss system of burning, Anna B. and Edward A. Boss are the directors of the concern.

The Little Falls Brick Company, of Tacoma, Wash., will build a plant of 55,000 daily capacity. The order for the entire outfit, including machinery, kilns, dryer, etc., has been given to the C. W. Raymond Company, of Dayton, Ohio.

Bernard Shackelford, son of J. E. Shackelford, owner of the Shackelford Brick Company's plant at Des Moines, Iowa, had his left arm crushed in a brickmaking machine recently. The arm was so badly crushed that amputation was necessary.

St. Louis is a splendid location for big pottery industries, according to a statement made by F. H. Blankenmeister, president of the Blankenmeister Glass Company, and he believes efforts should be made to get pottery factories for St. Louis.

The Washington Brick, Lime and Sewer Pipe Company, of Spokane, Wash., owners of the big lime deposits one mile north of Springdale, are having their holdings prospected for silver, the recent find of that mineral on the Gillingham place being responsible for this move.

J. E. Suhrheinrich, for many years a prominent brick manufacturer of Evansville, Ind., died at his home there October 30th. Several years ago Mr. Suhrheinrich suffered a stroke of apoplexy and was compelled to retire from active business. A wife and three children survive.

The Norwalk (Ohio) Brick Company will put in an equipment for the manufacture of drain tile this winter and have same ready for operation early in the spring. Mr. Herman Koester, the former manager of the company, who has been in California for a year or more, has resumed management of the plant.

The Sayre & Fisher Co. shut down the manufacturing end of their plant along the Raritan river at Sayreville, N. J. November 1, after one of the busiest summer and falls it has had in many years. Even now, sales continue good in small quantities, all the company's boats being in service making deliveries in the city and vicinity.

The plant of the Central Georgia Brick Company, one mile out of Mason City, Ga., on the Macon, Dublin & Savannah Railway, was destroyed by fire recently. The loss to the owners will be \$10,000 above the fire insurance. The value of the plant is placed at \$25,000, and the buildings covered nearly a block. The flames started early in one of the dry houses, spreading so rapidly that the laborers about the place could not check it. A tram and cars under the shed were destroyed. The plant was a new one and was in full operation, with a large daily output. The owners are Dr. J. F.

Farnham, J. Freeman Hart and Brad Wall. They will rebuild at once.

Clifford Long, of Washington, Iowa, has purchased the brick and tile factory of G. W. Oakes at Columbus Junction, Iowa.

The Acme Brick Company, of Lumberton, N. C., has been incorporated by G. G. French, J. G. Blackman and A. K. Morrison, with \$125,000 capital stock.

The Minnesota Farmers' Brick and Tile Company will build a \$100,000 plant at Austin, Minn. A large force of men were put to work on the preliminary work the first of the month.

The Mayer Brothers Brick Company's new plant at Frostburg, Md., is rapidly nearing completion and before long they will be ready to manufacture building and paving brick. The machinery is now being placed in position.

The Drury Brick and Tile Company, of Essex Junction, Vt., has booked an order for 1,500,000 brick for the new mills of the American Woolen Company, which are to be erected at Winooski, Vt. The shipments are to be rushed at once.

The Peerless Tile and Manufacturing Company, of Union City, Ind., has been incorporated for the purpose of manufacturing building tile. The officers of the company are J. J. Downing, president; A. Steele, vice-president; J. R. Moffett, secretary, and J. A. Shockney, treasurer.

The Ft. Smith Vitrified Brick Company has completed another mammoth kiln with a capacity of 450,000 bricks. The other kilns have been turning out 65,000 brick each day for the past four weeks. The company recently booked orders for a quarter million brick to be shipped to outside points.

A number of improvements will be made in the plant of the Audubon Brick and Tile Works, at Audubon, Iowa, including the building of a number of kilns and the installation of a steam dryer. The plant will be moved to a site just north of town, and when remodeled will be modern in every respect.

D. N. Lanyon, of Hillsdale, Ind., has sold his interests in the Hillsdale Brick and Clay Works to the W. L. Raynes Company, which will operate the plant in the future. Mr. Lanyon will proceed to build an up-to-date fire brick works at Worth, four miles south of Newport, on the Chicago & Eastern Illinois Railroad.

Mrs. Frank C. Jones, wife of the president of the W. A. Underhill Brick Company, was run over by an automobile bus on Fifth avenue, New York City, and received injuries from which she died almost instantly. The streets were badly crowded, and it is thought that Mrs. Jones became confused by the stream of traffic. A husband and three children survive.

Daniel P. DeLong, the well-known brick manufacturer of Glens Falls, N. Y., was recently elected a member of the New York State Legislature on the Democratic ticket. Mr. DeLong's popularity is evidenced by the fact that he led his ticket in his district. If our friend DeLong makes laws as well as he makes brick, he will be a valuable addition to the legislature of the Empire State.

The capital stock of the Crawfordsville Shale Brick Company has been increased from \$25,000 to \$50,000, the additional \$25,000 to be used to improve the plant, which will include doubling the capacity of the dryer, extending the siding. The company contemplates the manufacture of enamel brick during the coming winter. At a recent meeting of the stockholders of the company, a dividend of 10 per cent. was declared.

The Duffney Brick Company, of Mechanicsville, N. Y., was recently organized by Mr. W. H. Duffney, who for twelve years has been general manager of the Champlain Brick Company, of Mechanicsville. The company will at once erect a modern plant which will be equipped throughout with machinery from the shops of C. & A. Potts & Co., Indianapolis. The plant of the Champlain Brick Company is equipped with Potts machinery, and his experience with same during his twelve years with this company was such that there was no hesitation on the part of Mr. Duffney when ordering machinery for his new plant. With Mr. Duffney's knowledge of the business, there is no question about the success of his new enterprise. The directors are William H. Duffney, William H. Duffney, Jr., Dr. J. M. Purcell, John L. Short and Stephen Lee. The company has purchased sixty-three acres

(Continued on page 566.)



AUGER BRICK MACHINES

Chambers Brothers Co., Philadelphia, Pa.

END-CUT STREET PAVERS.

HILLSIDE BRICK AND BLOCK
SIDEWALK BRICK
CROSSING BRICK
FOUNDATION BRICK
SEWER BRICK
BUILDING BRICK
CRUSHED BRICK

CAPITAL PAVING BRICK AND BLOCK

AND

IMPERVIOUS FACE BRICK

MANUFACTURED BY

The Barber Asphalt Paving Company

Des Moines, Iowa Oct. 27th, 1909.

ADDRESS ALL MAIL TO
P. O. Box 563

Chambers Bros. Co.

Philadelphia, Pa.

Dear Sirs:

We made 57,600 block on your machine the first day it was in operation. We are making block this morning at the rate of 9600 per hour, this being the second day of operation.

Very truly yours,

THE BARBER ASPHALT PAVING COMPANY

Paul Beer
Manager.

The machine referred to by Mr. Beer in his letter is our extra heavy End-Cut Auger Brick Machine fitted with block dies and with the

Indenting Round Corner Cutter.

CHAMBERS BROTHERS COMPANY,

PHILADELPHIA AND CHICAGO.

EDITORIAL NOTES AND CLIPPINGS—Continued.

of land just north of the Champlain Brick Company's property.

The Wiley Clay, Brick and Tile Company, of Wiley, Colo., has been organized by H. O. Hamline, P. N. Schroeder and J. R. Pearson.

An overheated dryer at the plant of the Baltimore Brick Company, Baltimore, Md., caused a fire which resulted in a \$200 loss, October 19th.

John Devlin, of Iola, Kans., contemplates establishing a brick plant at Dewey, Okla. G. W. Harrel, of Dewey, is interested in the movement.

James Lincoln, of Berlin, Conn, has purchased the plant of the Johnson Brick Company, at Middletown. The business has been in the Johnson family for three generations.

The Bauman Brick Company will install new machinery at its plant at Beach, N. D., and be ready for business in earnest in the spring. Judging from present indications next season will be a busy one.

The work on the new plant of the Tendick Brick Company, at Jacksonville, Ill., is being pushed as rapidly as possible, and it is expected to have the plant ready for operation before the beginning of the new year.

Patrick Nolan was recently awarded \$6,000 in his suit against the Ferris Brick Company, at Mechanicsville, N. Y. Nolan was caught in the shafting of the brick plant and whirled about until he sustained injuries which crippled him for life.

Work on the new plant of the Alliance Brick Company, at Alliance, Ohio, is being pushed as rapidly as possible. A. Hoover, of Axline, an experienced brick man has charge of the construction of the plant, and will be general manager when same is ready for operation.

Anyone looking for a well-established soft-mud brick plant will do well to correspond with the Pouncey Brick and Manufacturing Company, of Helena, Ark., who are advertising for sale a 40,000 daily capacity plant. Further particulars in regard to the plant are given in their ad on page 568.

The Michigan Vitrified Brick Company will build new kilns, put in a new dryer, and double the capacity of its plant at Bay City, Mich., during the winter, and be ready to manufacture building brick, as well as pavers. W. F. Jennison was elected president and J. Barnett secretary of the company at a recent stockholders' meeting.

New buildings and equipment to the extent of \$50,000 are being completed at the plant of the Ohio Valley Clay Company, at Steubenville, Ohio. The new buildings provide for immense storage sheds with a capacity of close to 1,000 tons of clay. The plant has been equipped throughout with electric power, and all machinery will in the future be operated by electricity.

The Eureka Fire Brick Company is preparing to increase its capacity at the Mt. Braddock (Pa.) plant 10,000 per day by putting in a new shape floor. The floor is to be 50x75 feet and the construction is now almost completed. The order hooks are well filled at the plant, the company having advance orders with the increased capacity that will carry them along at least three months.

Buffalo Center, Iowa, according to a news item from that place, with some of the best clay in Iowa for making tile and brick, is a splendid field for another tile factory. The one there does not begin to meet the local demand for tile in its output as shown of late. Upon opening a fresh-burned kiln recently, there were forty-three teams in line waiting to get tile hot from the kiln and "fights" were narrowly averted, so anxious were the farmers to get what tile they wanted. More tiling is being done this year than ever before, and there will not be a single piece of this product left in the yards when the factory closes down for winter.

Attorney Frank Hanlon has been appointed receiver of the Latonia (Ky.) Brick Company. This company has filed suit against the Covington Savings Bank and Trust Company and ten other creditors, asking for an order restraining the creditors from foreclosing mortgages on the brick company's property. In the petition it is admitted that the brick company can not meet its financial obligations and has greatly suffered through a recent fire, and that at a meeting of the directors and a majority of the stockholders, held October 20, it was agreed to ask for a receiver. The liabilities are

said to be about \$20,000 worth of first mortgage bonds and other debts for material.

Additional machinery will be installed at the plant of the Lanius Press Brick Company, at Abilene, Texas, thus increasing the capacity of the plant to 46,000 per day.

The Norfolk Brick and Tile Company has been incorporated at Charleston, W. Va., with \$50,000 capital stock. John D. Lewis and W. E. Moore are at the head of the concern.

The Twin City Brick Company, St. Paul, Minn., has just completed an addition to its plant for the manufacture of drain tile, for which there is an enormous demand at present in the State of Minnesota.

J. T. Wentworth, president of the Albany (Ore.) Brick Company, writes us that instead of being installing a soft-mud outfit, as stated in the last issue of THE CLAY-WORKER, the plant will be equipped with a stiff-mud equipment.

The Oconee Brick & Tile Company, Milledgeville, Ga., write that they are in the market for a second-hand sewer press. Would prefer one of about 44-inch diameter steam cylinder and 20 inch clay cylinder.

A serious accident occurred at Goldrick's brickyard, just above East Kingston, N. Y., recently, when five arches of a brick kiln collapsed, killing William Jones, a negro laborer, and seriously injuring John Dominick, an Italian, while several other laborers escaped without serious injury.

Charles A. Hoshour, president of the Cleveland Vitrified Brick Company, of Oklahoma City, Okla., writes that his company has just closed a contract with the Morris Packing Company, of Chicago, for 8,000,000 paving brick, to be used in the erection of a new packing plant at Oklahoma City.

A valuable discovery of extensive deposits of high-grade clays has been made by Thomas R. and Will R. Ellerneck, of Salt Lake City, Utah, about thirty-five miles west of Salt Lake, near lime quarries owned by them. It is said that the clays are suitable for the manufacture of paving brick, fine face brick, sewer pipe, terra cotta and kindred clay products.

The two brickyard properties of the Bartlett Brick Company, at Roseton and Hudson, N. Y., were sold at receiver's sale to a party of men composed of John B. Rose, Everett Fowler, C. E. Townsend, F. W. Bartlett and W. H. Hilton. The sale was made in the matter of the voluntary dissolution of the Bartlett Brick Company, upon an application to the Supreme Court several months ago.

While uncoupling a string of clay cars from a "dummy" locomotive in the yards of the New England Steam Brick Company, in Barrington, R. I., recently, Joseph Chindranelli, who has been foreman of the clay train of the concern for the past ten years, was knocked down by the cars and so badly injured by the wheels, which passed over his body, that he died of internal injuries and shock an hour after the accident.

The board of directors of the Alabama Fire Brick Manufacturing Company, at Riverside, Ala., held a special meeting recently for the purpose of formulating the plans of the plant, the erection of which they will begin on their properties at Riverside within the next thirty days. This company will manufacture fire brick, fireproofing, repressed face buff brick, conduits and flue linings. The capitalization of this company was increased from the present capitalization of \$50,000 to \$200,000.

C. & A. Potts & Co., Indianapolis, Ind., manufacturers of sand mold brick machinery, report having had an unusually good summer season. Among the large orders recently received was a complete plant, including horizontal brick machine, No. 3 Potts disintegrator, mold sander and 12-foot granulator for the Ferris Brick Company, of Mechanicsville, N. Y., making the second plant of the kind furnished the Ferris Company. The first plant of the Ferris Company has been run continuously for four years, turning out 43,500 brick per day.

At Mason City, Iowa, the tile factories have a daily capacity of 1,000,000 brick. But they are all busy making tile, it is said, and therefore unable to give attention to orders for brick. The Mason City Elks, who are building a handsome block, had to send to Chicago for the necessary brick. This seems a peculiar state of affairs, but there is more money in making tile than in making brick, and so the men who want brick have to find a place where manufacturers find it more profitable to make brick. But, on the other hand, the freight charges on brick from Chicago ought to make the article rather expensive in Mason City.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—To buy Chambers 9-ft. dry pan, must be in good condition. LEGG BRICK CO., Calhoun, Ga.

WANTED—A second-hand gravity carrier. State condition and price. Address BOX 11—H., Care Clay-Worker.

FOR SALE—New Simpson land-lever press with standard mold, at a bargain. C. E. ANDERSON, 74 W. Monroe st., Chicago, Ill.

FOR SALE—Brickyard property seventy miles from New York City. Good local demand for product. Excellent opportunity for good brick manufacturer. J. H. BOAK, Middletown, N. Y.

FOR SALE—Three thousand dollars buys a brick plant, racks and pallets to hold 400,000 brick, and fourteen acres of land with house and barn. For particulars, write MRS. ELMER HOOVER, Laporte, Ind.

FOR SALE.

New sand-lime brick hardening cylinder, 6 feet diameter by 68 feet long. One removable head. Immediate shipment. FRANKLIN BOILER WORKS CO., Troy, N. Y.

WANTED—Position as superintendent of brick or tile plant, any process of making or burning. Would consider buying an interest in a good-going or new plant. Twenty years of experience and best of references. Address BOX 11—O. A., Care Clay-Worker.

FOR SALE—A large tract of valuable land near Perth Amboy containing heavy deposits of fire clays and sand. Unsurpassed facilities for manufacturing and shipping by rail and water from premises. Address WM. TUNISON, 23 Smith st., Perth Amboy, N. J.

WANTED.

A partner in the brick business located near one of the best and most thriving cities in the Piedmont South. Clay fine, and clay bed extensive. Market for double the output of 40,000 daily. Plant was running and making money when kilns collapsed. Owner needs money to rebuild. Rare opportunity. Address BOX 11—C. B., Care Clay-Worker.

FOR SALE.

A complete soft-mud brick outfit; one Potts machine, capacity 50,000 per day; one Potts mold sander; one Potts disintegrator. One complete Martin pipe rack dryer, capacity 40,000 per day, with cable carriers, loading cars, tracks, steel pallets, etc., all complete. Will sell this outfit as a whole or in quarters or halves, as it can be arranged. This outfit has been used but a short time. Reason for selling, have changed to the stiff-mud process. All of the above must be sold and will go at one-fourth the original cost. BROOKLYN BRICK CO., Builders' Exchange, Indianapolis, Ind.

WANTED—To correspond with a reliable man to contract for the setting of paving brick and face brick by the thousand. Plant runs the year around. Address BURKE BRICK CO., Ft. Smith, Ark.

FOR SALE CHEAP.

One hot blast.
One 125 h. p. slide valve engine.
One Smith vaile duplex pump.
All in good running order.
BLACK RIVER STARCH CO., Black River Falls, Wis.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO., Cleveland, Ohio.

FOR SALE—Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter. THE KING ENGINEERING CO., Richmond, Va.

PAYING BUSINESS FOR SALE.

We have for sale one of the best pressed brick plants in the southwest; daily capacity, 60,000. Has every facility and modern appliance for economical operation. Located in one of the best towns in central Arkansas, on lines of the Rock Island, Frisco, and Missouri-Pacific Iron Mountain railroads. Future delivery orders for one and one-half millions now booked. If a real bargain interests you, write for particulars. SOUTHERN TRUST CO., Little Rock, Ark.

BRICK PLANT FOR SALE.

One of the most complete stiff mud brick plants in Pennsylvania, located on the Pennsylvania Railroad, near Philadelphia. Daily capacity, 30,000; Chambers machine, nine-tunnel hot air dryer, eight round down-draft kiln, one Dutch kiln; railroad siding to the kilns. All equipped with the most up-to-date appliances. Can manufacture bricks at the lowest possible cost. Will sell at a sacrifice and on easy terms. Good reasons for selling. A rare opportunity. Address S. C., Care Clay-Worker.

FOR SALE.

State rights on my patent kilns. A good chance for a contractor in each state. See ad on page 453. F. W. DENNIS, 188 Bermuda st., Norfolk, Va.

WANTED.

Experienced brick burner. Only those who have had experience burning vitrified shale brick with gas need apply. Send recommendations with application. BURKE BRICK CO., Ft. Smith, Ark.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address FRANK P. CLEVELAND, 965 Adams Express Building, Chicago, Ill.

FOR SALE.

Brick plant in central Wisconsin with 116 acres of good clay land. This plant has a capacity of 25,000 to 30,000 brick a day, and has excellent shipping facilities, together with an excellent local demand, which it practically controls, in a town of 8,000 people. This is a fine proposition for the right party, and is offered at a bargain. Address BOX 11—J. G., Care Clay-Worker.



SWITCHES FOR SALE.

Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices. THE ATLAS CAR AND MFG. CO., Cleveland, Ohio.

FOR SALE.

The entire plant of the Powhatan Clay Manufacturing Company. Operating continuously since 1893 at Clayville, Va., manufacturing the universally known Powhatan front bricks. The entire plant, embracing 800 acres of land, employes' buildings, store, good will, etc., is offered on advantageous terms. Address 14 N. SEVENTH ST., Richmond, Va.



Our Special
Brick Yard Shovel

Our Scientific
Round Point

Two of Our Special Makes

Of the Mikola Patent Shovels

... 70 STYLES AND SIZES ...

Especially designed for handling shale, crushed stone, iron ore, clay, etc. Save time, labor and money by using shovels made just for your line of work. Write us about your needs and for Catalog Department A.

Shovel Specialists

CONNEAUT SHOVEL CO.

Conneaut, Ohio

FOR SALE, WANTED, ETC.

WANTED.

An old brick machine which can be used for pugging purposes. Must be a bargain. State make and price. W. D. GATES,
602 Chamber of Commerce,
Chicago, Ill.

WANTED.

To buy a waste heat fan 144 inches or larger, with direct connected engine and steam coils; also a hot water pump. Give all particulars and quote price. Address
BOX 11—F. L.,
Care Clay-Worker.

11 1 d

WANTED—Experienced man with capital to take share in pressed brick concern and assume management at good salary. Good clay, large market, bright prospects. Location, western Canada. Address

CELTIC,
Care Clay-Worker.

9 tf d

WANTED—Manager for a brickyard in Florida who understands red clays, burning of refractory clays in continuous kilns, and has had experience in manufacturing facing brick and terra cotta. Write, giving full particulars and stating salary.

JACKSONVILLE BRICK CO.,
Jacksonville, Fla.

11 2 d

POSITION WANTED—Correspondence solicited from parties desiring superintendent or manager of a clayworking plant. I am experienced in the manufacture of face and paving brick, stiff mud process, sewer pipe, drain tile and electrical conduits. A technical training in addition to many years of practical experience in the clay industry. First-class references. Address

BOX 11, L. S.,
Care Clay-Worker.

WANTED.

Experienced face brick salesman for Cleveland and Ohio territory. State references and salary expected. Address

"FACE BRICK,"
Care Clay-Worker.

11 1 d

FOR SALE.

Two second-hand American Clay Machinery Co. No. 2 automatic cutters.

One Western Wheel Scraper Co. No. 2 jaw crusher.

HYDRAULIC PRESS BRICK CO.,
Brazil Branch,
Brazil, Ind.

9 tf d

FOR SALE—Brickyard within easy hauling distance of Chicago. Thirteen acres; well-equipped plant. Would lease or make good proposition to man to make investment and run the plant.

FRANCIS LASLOW,
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FOR SALE.

One 54-inch disc exhaust fan, American Blower Company's make; belt drive; in good order.

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WANTED—To sell all or a two-thirds interest in an up-to-date brick plant and coal mines; excellent shale for street block; 12 feet of fire clay; two coal mines, both operated with compressed air machines, with more orders than can be taken care of. An excellent proposition and a good money-maker. Good reasons for selling; manager wants to go south. If interested, write to
BOX 11—A.,
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FOR SALE.

A full equipment of extra heavy pipe and fittings for a six-track steam brick dryer. All in good order and at a bargain.

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WANTED—A first-class man as manager who understands how to manage a brick plant. Must understand every detail, handle help, and manufacture and dispose of the product. One who has made good only need apply. Give references, experience, character, age and salary wanted. No "dead ones" need apply. Applications by correspondence only.

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Parsons, Kans.

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FOR SALE.

Soft mud brick plant, 40,000 daily capacity; plenty of clay; drying capacity, 200,000; kiln capacity over 1,000,000 brick. Only brick plant in town of 15,000 population; no competition. Local consumption over 5,000,000 annually; good shipping trade besides. Located in best business town in middle states—Helena, Ark.

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THE UNITED STATES PENITENTIARY,
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One Ross-Keller six-mold dry press brick machine, with all belts, shafting, pulleys, screens, etc., as now attached.

One 65 h. p. slide valve steam engine. The above property is in good condition for brickmaking. Inspection and correspondence invited.

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9 tf d

(Continued on next page.)

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The through time on this new train: From Indianapolis to Columbus, four hours and five minutes; from Indianapolis to Pittsburg, eight and one-half hours; from Indianapolis to New York, eighteen and three quarters hours. Extra fare from Indianapolis to New York, four dollars (\$4.00).

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Which shall it be with your clay?

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It would pay you to know which process makes the better brick with your clay.

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Absolute Draft Control. Fuel and Time Economy.

We will contract the construction of your kilns or, if you prefer local builders, we will sell the license, working plans, specifications, etc., at a very reasonable rate.

This kiln is making money for every owner.

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One revolving screen.

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Terms
reasonable.

First-class
references.

If you have trouble with Clay, Machinery
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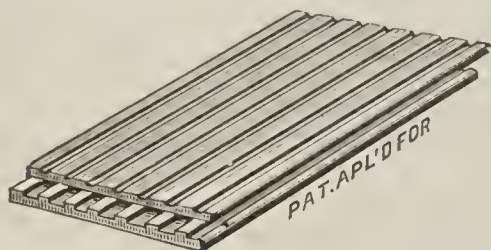
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Special Roller and Auger Presses for Shingles, Interlocking Spanish Tiles, Automatic Shingle Cutting and Punching Tables. Special Tile Tables.

Stiff Mud Machinery for smaller capacity and horse power, stiff mud brick and hollow block dies, dry press liners.

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The Best Are the Cheapest.

Send Specifications and Get Prices.

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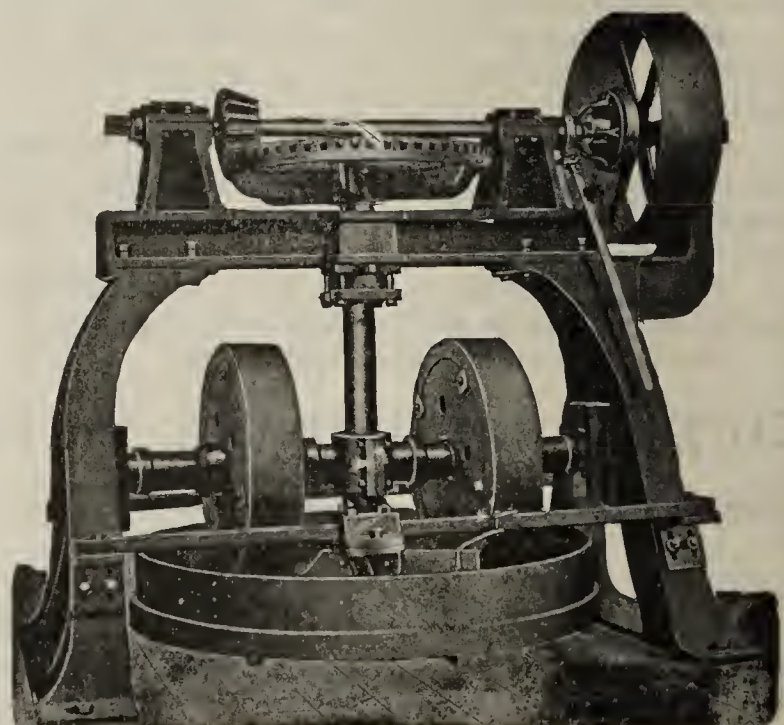
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Refractories, etc.

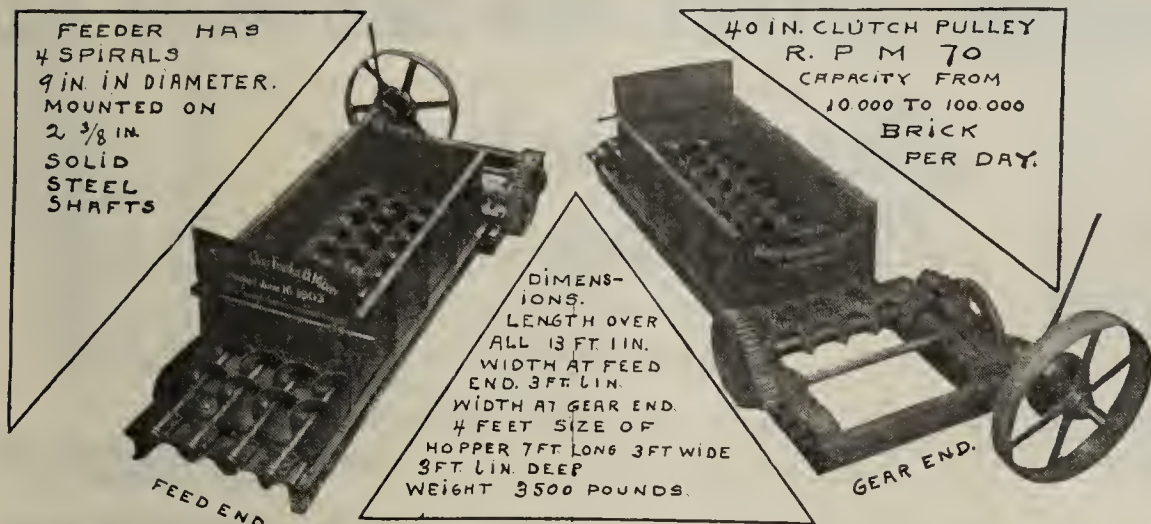
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When writing for Prices state
kind of Clay or Material to be
ground and capacity desired.

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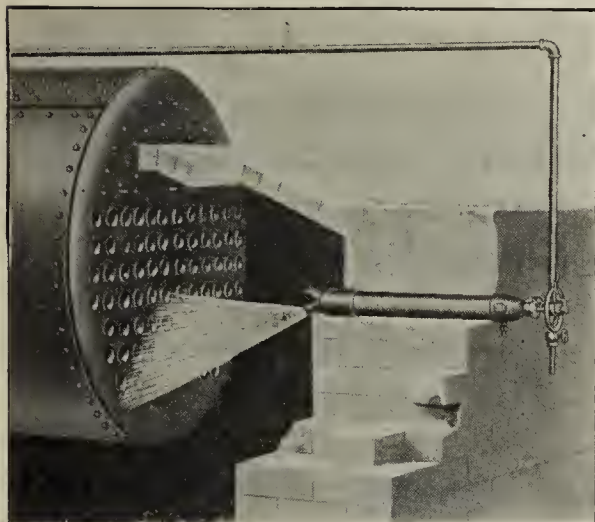


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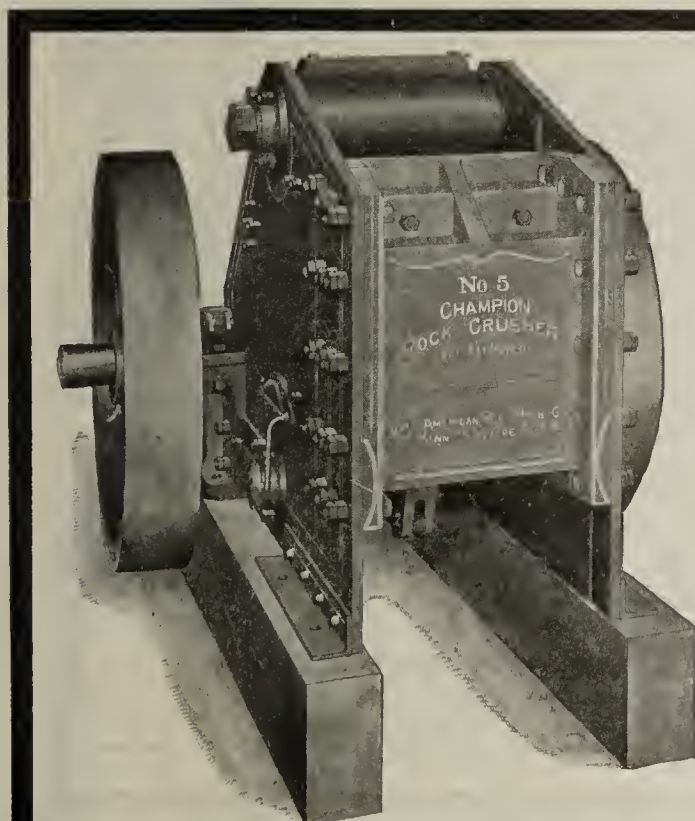
Patented Feb. 23, 1909.

Will save 10% of your fuel—Will insure you clean tubes—Will prolong the life of the boiler—Will prevent the accumulation of soot—Will save the cost of steam hose—Will enable you to clean your boiler while in commission.

The accompanying cut shows how the Flue Blower is installed in the rear wall of your boiler. Each Blower is fitted with a nozzle which rotates, and each opening in the nozzle blows a section of the boiler tubes at a time. We furnish different size nozzles as required, and positively guarantee to blow each flue clean.

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It Looks Better

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is expensive, *to do without*, because it saves you money.

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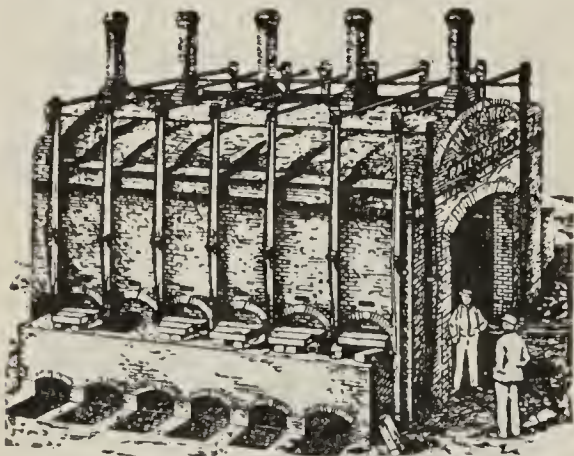
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drying bricks "solid" and AT LESS COST for
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Waste Kiln Heat.

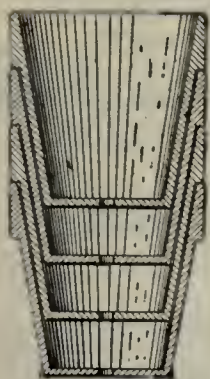
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Capacity in 10 hours:

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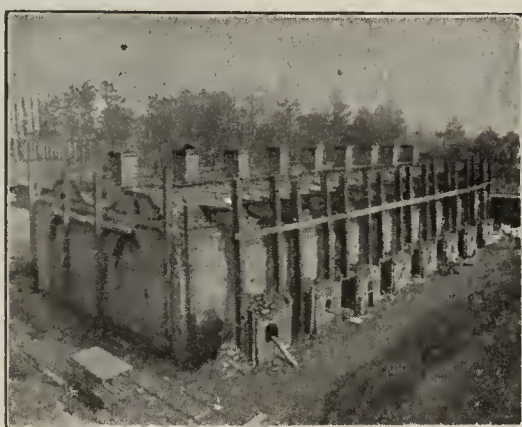
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Let us tell you about Side-Walk Black.

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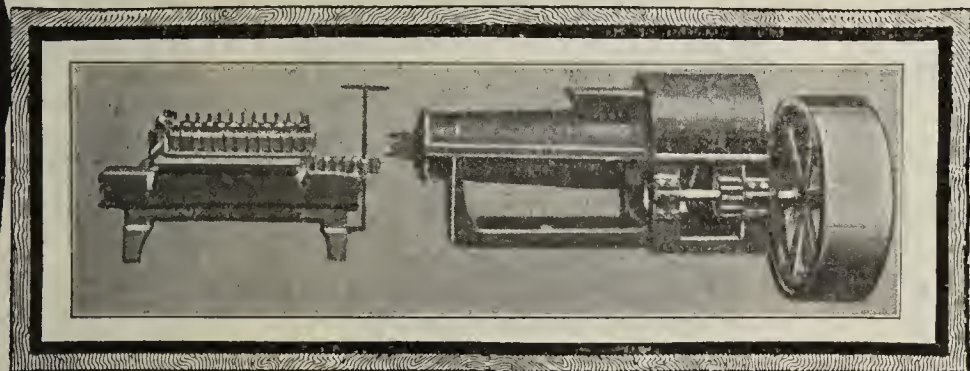
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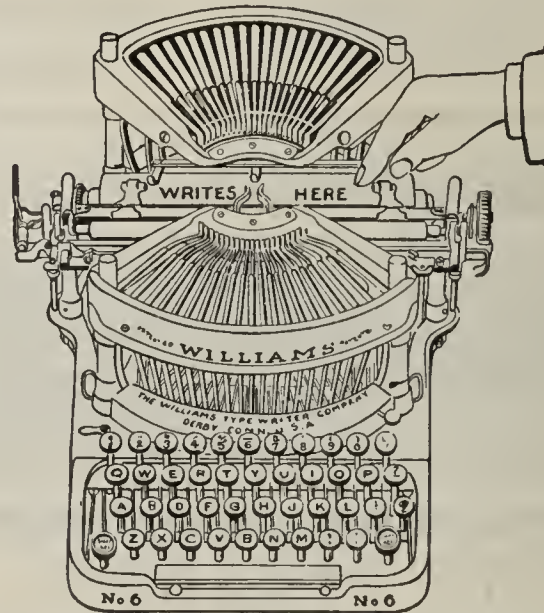
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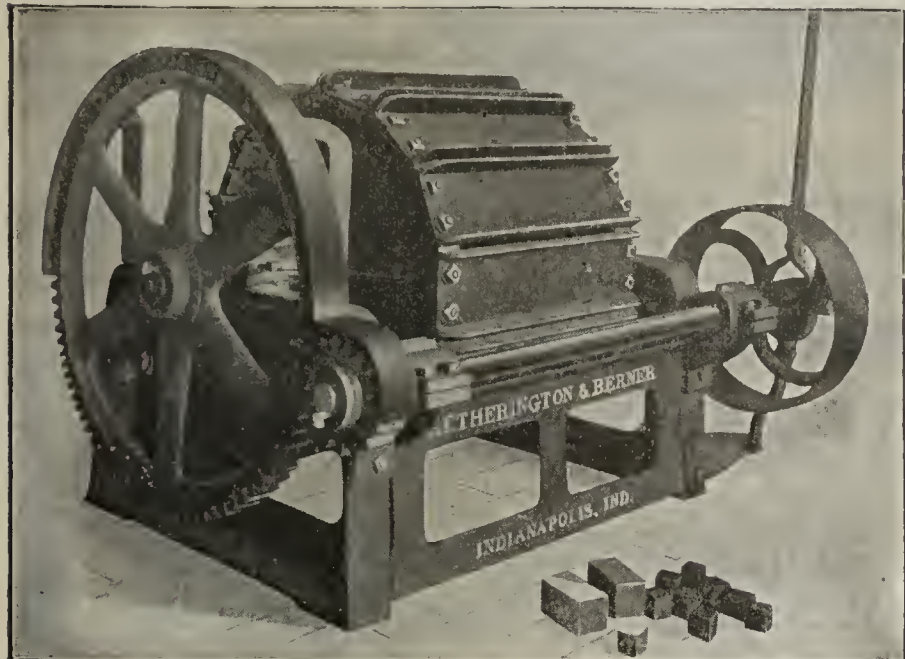
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This Rattler is designed in accordance with the requirements of the National Brick Manufacturers' Association's specifications, and is skilfully constructed of the very best materials for the purpose, insuring the greatest efficiency and durability. It meets every requirement.

Easy to Operate, Easy to Fill, Easy to Empty, and is in fact *The Standard Rattler*. For prices, etc., write

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To take charge of the stiff clay department of an old established brick machinery firm, which has not heretofore made stiff clay machinery, but contemplates adding that line to its outfit. A fine opportunity for the right man who must have a thorough knowledge of stiff clay machinery, its manufacture, installation and operation. Confidential correspondence solicited. Address

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Give the boy a
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5/8-inch Roll running full length and across ends.
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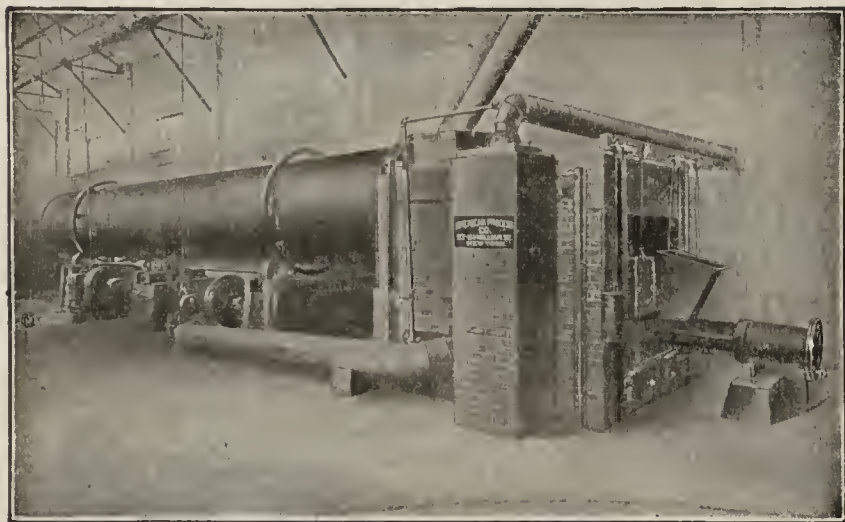
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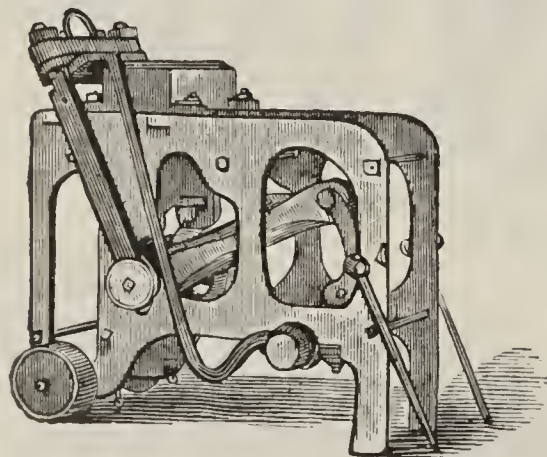
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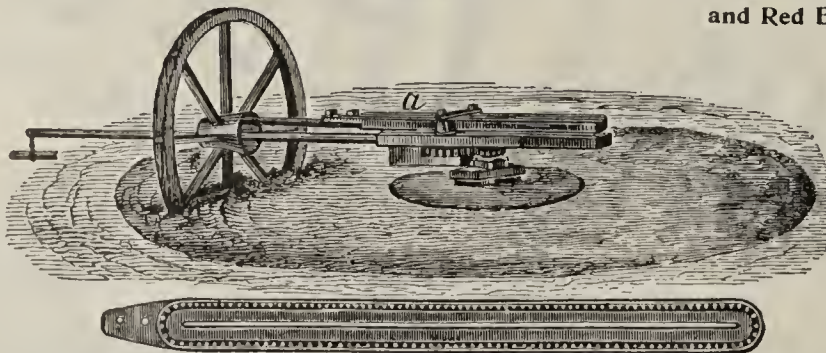


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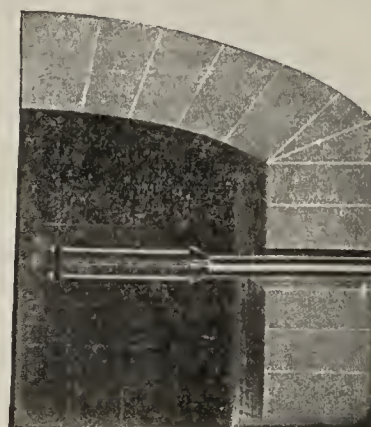
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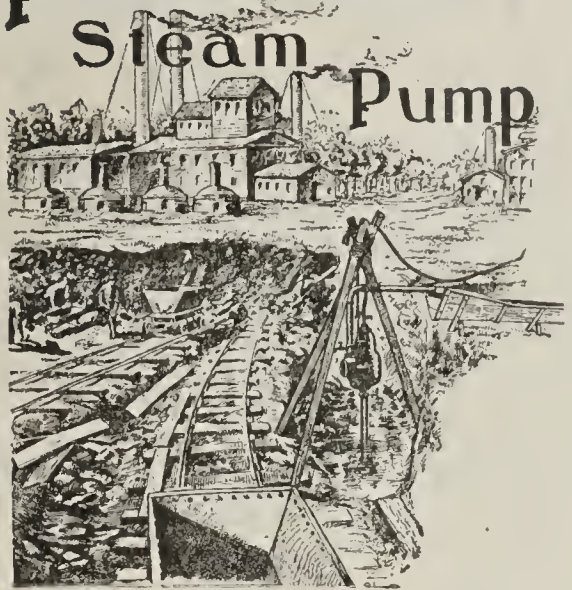
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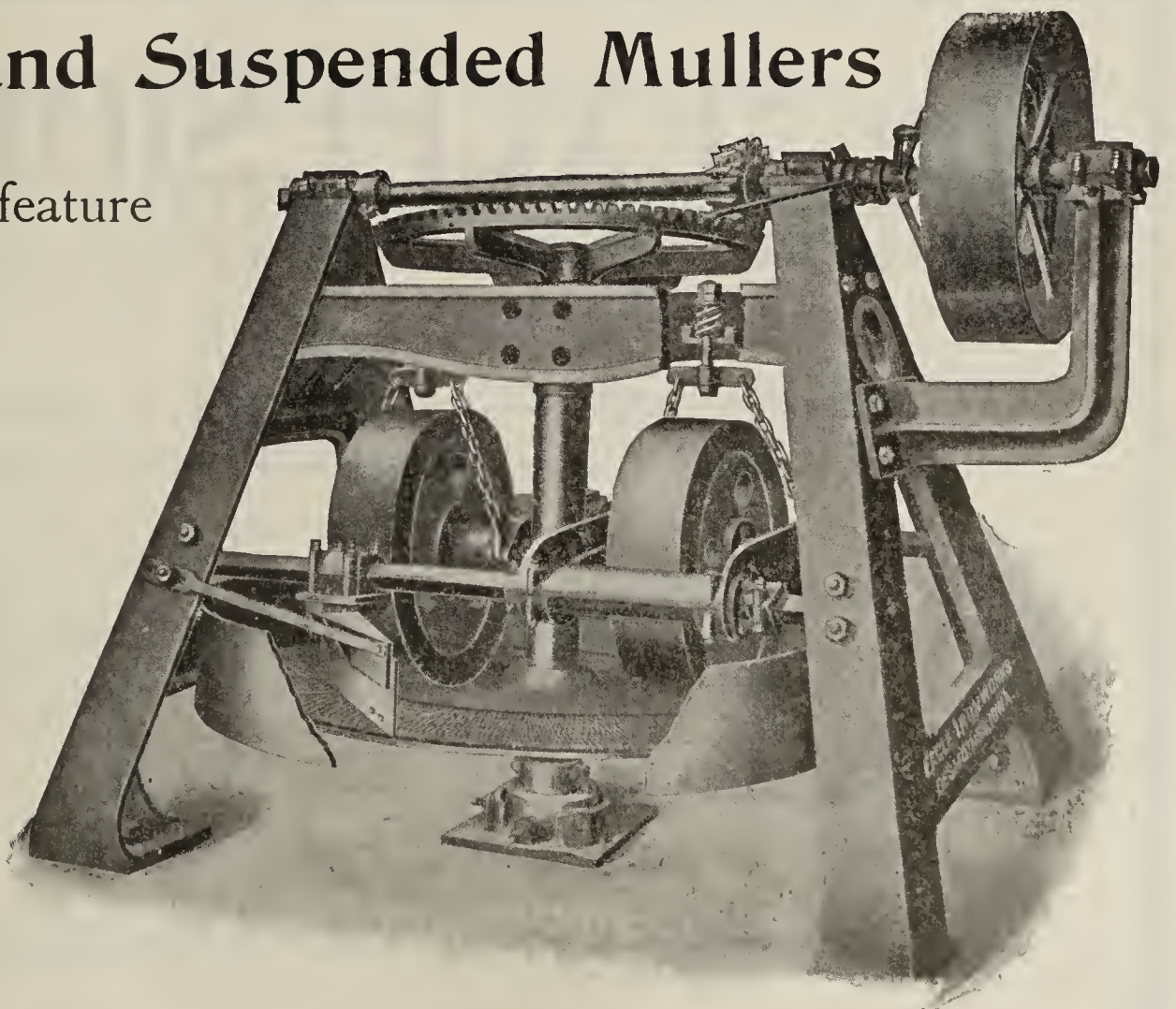
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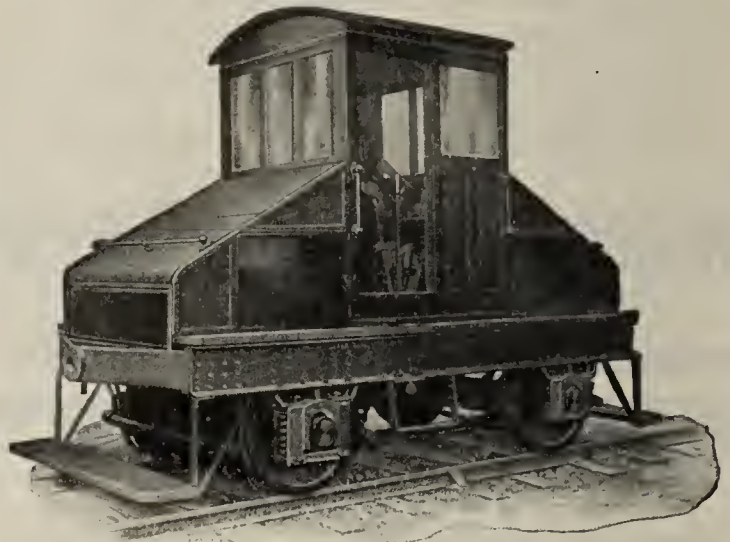
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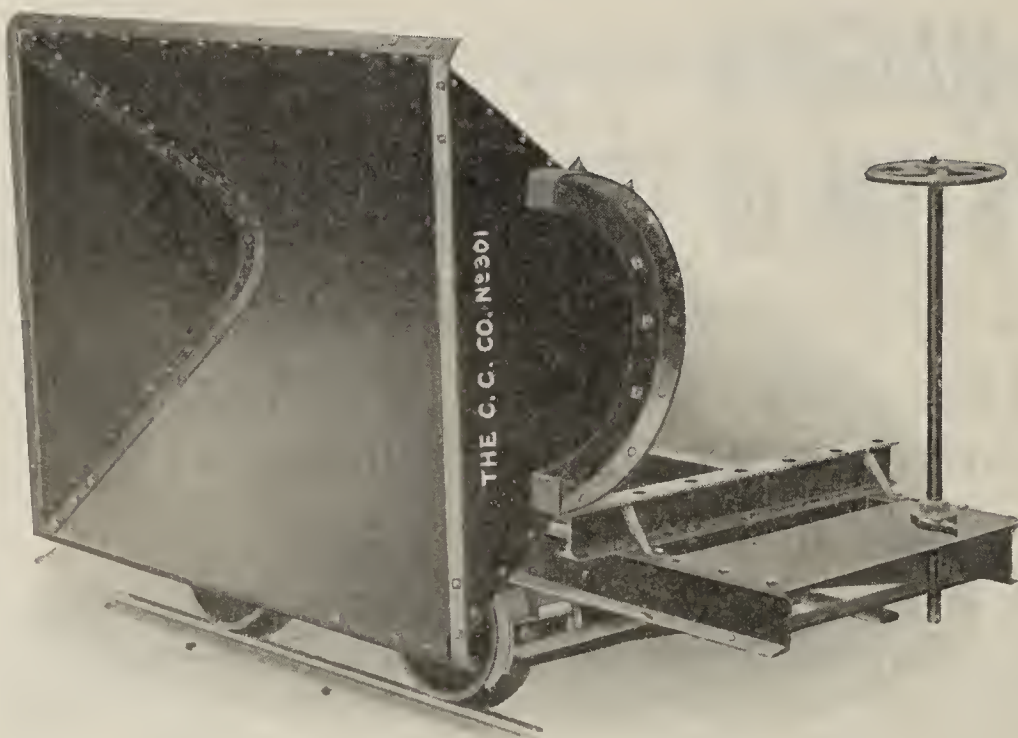
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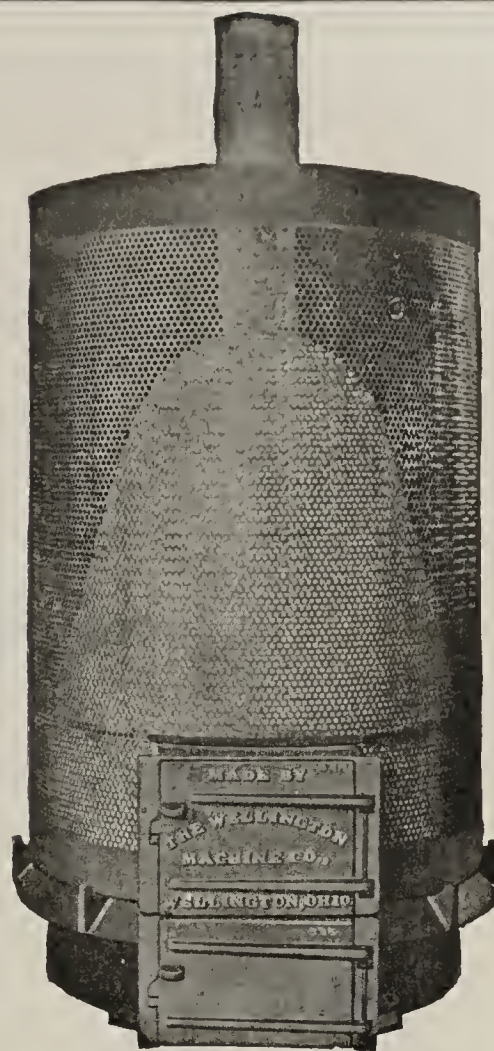


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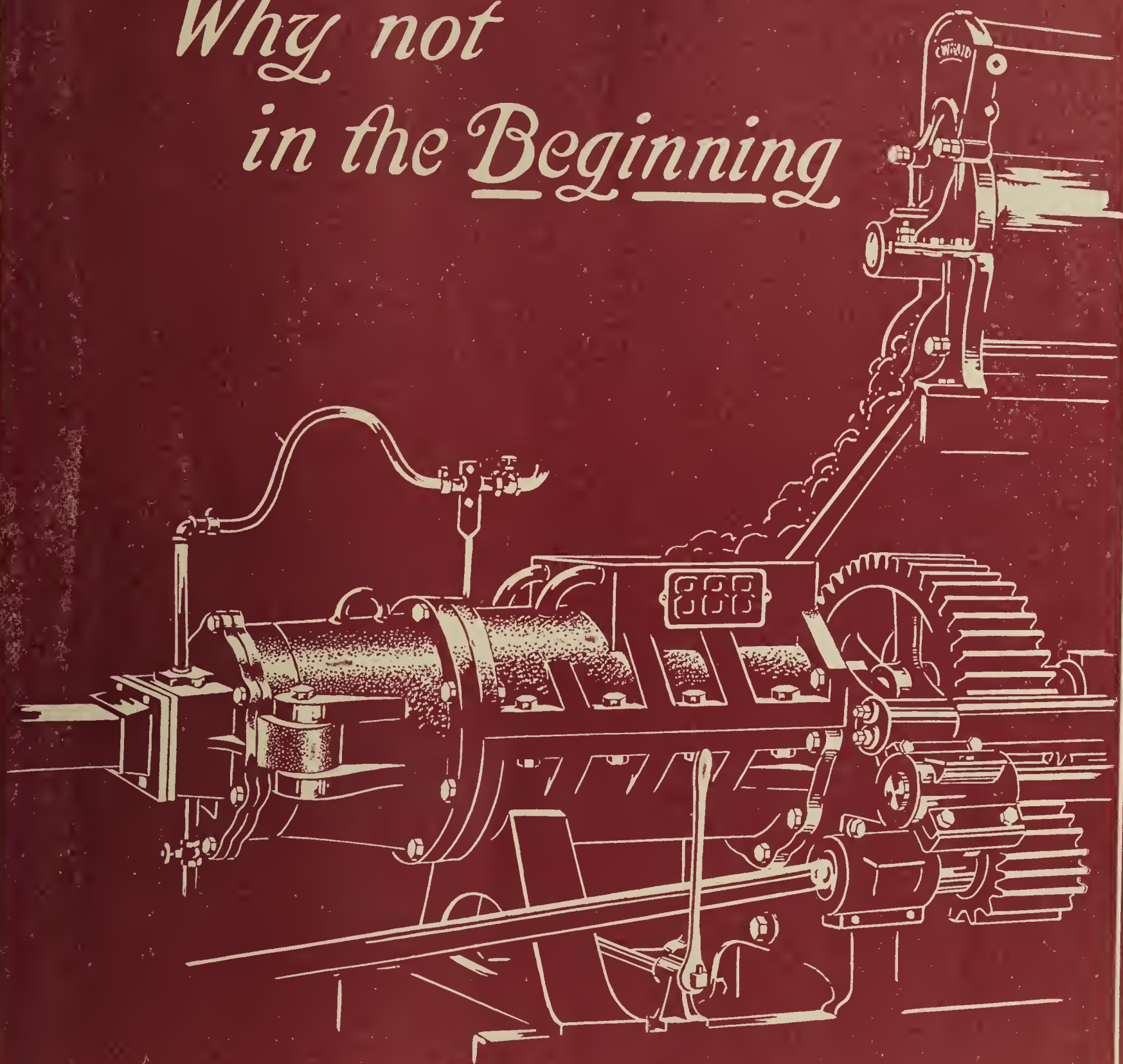
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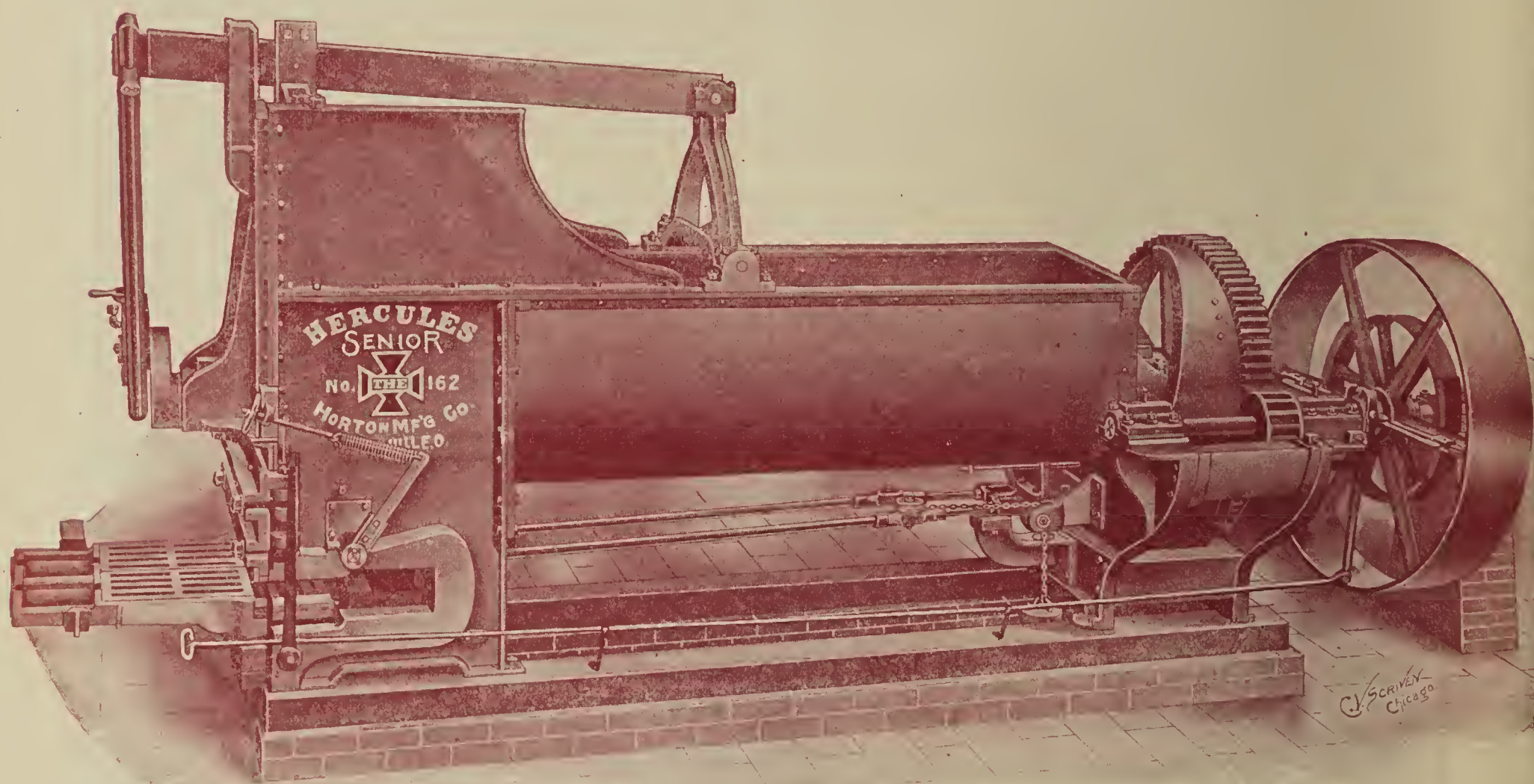
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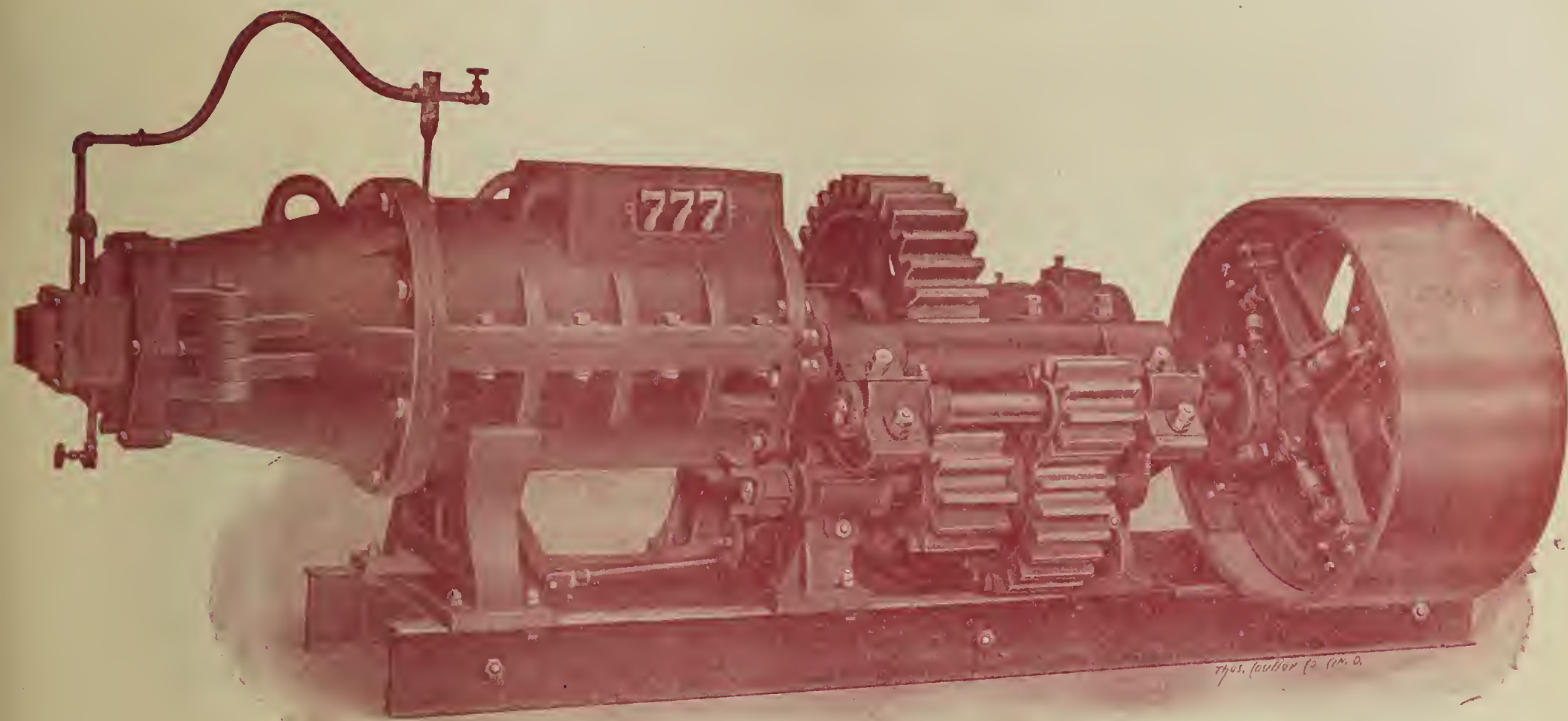
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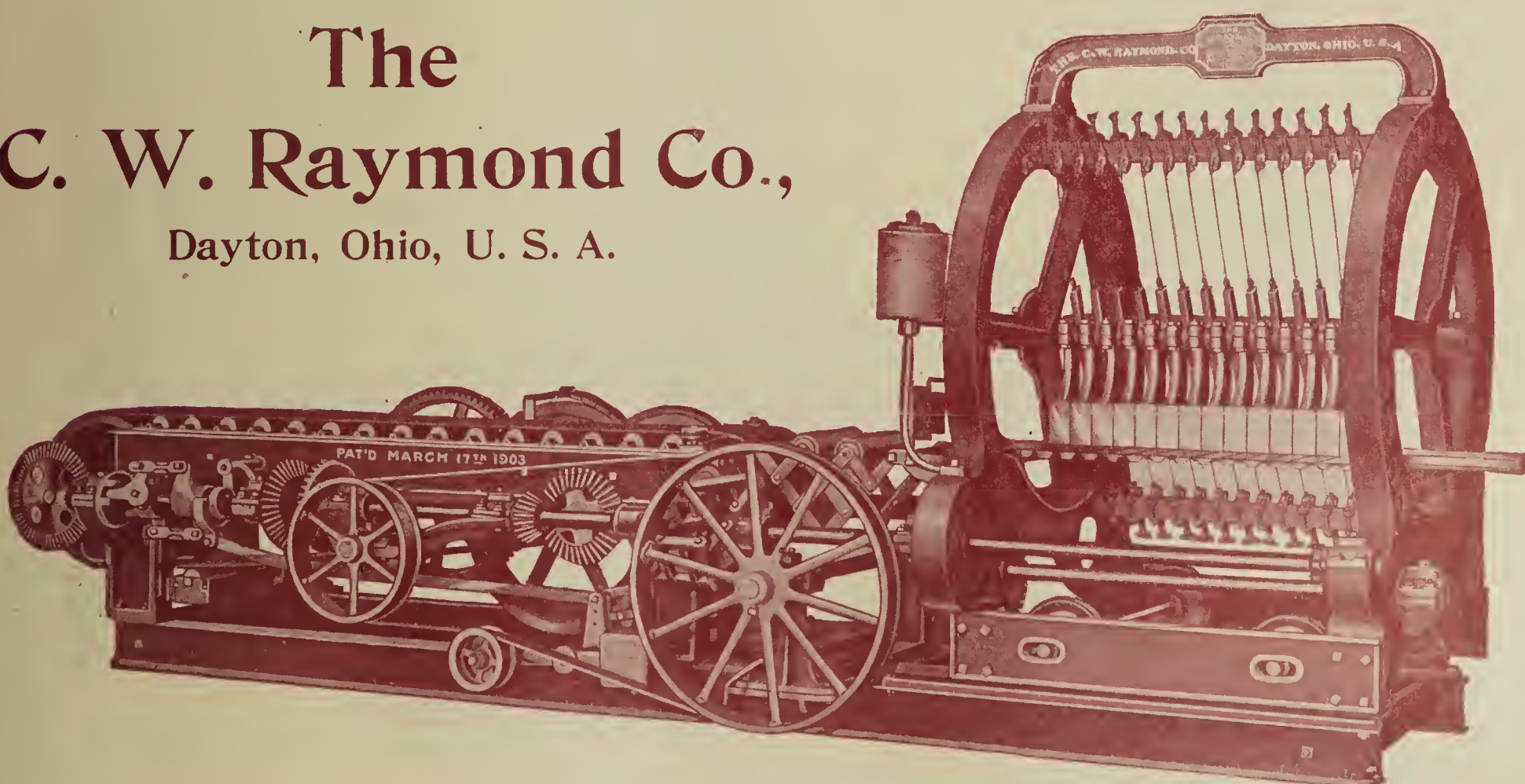
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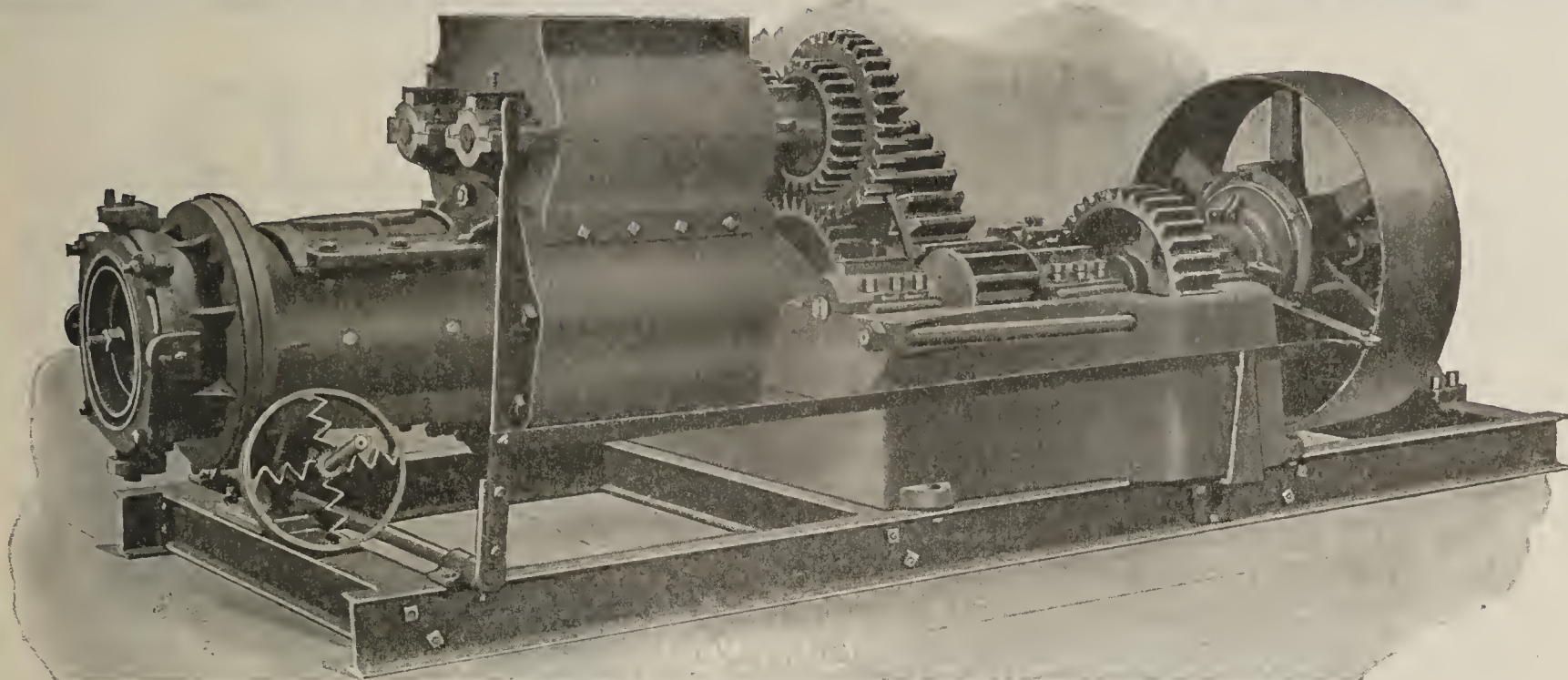
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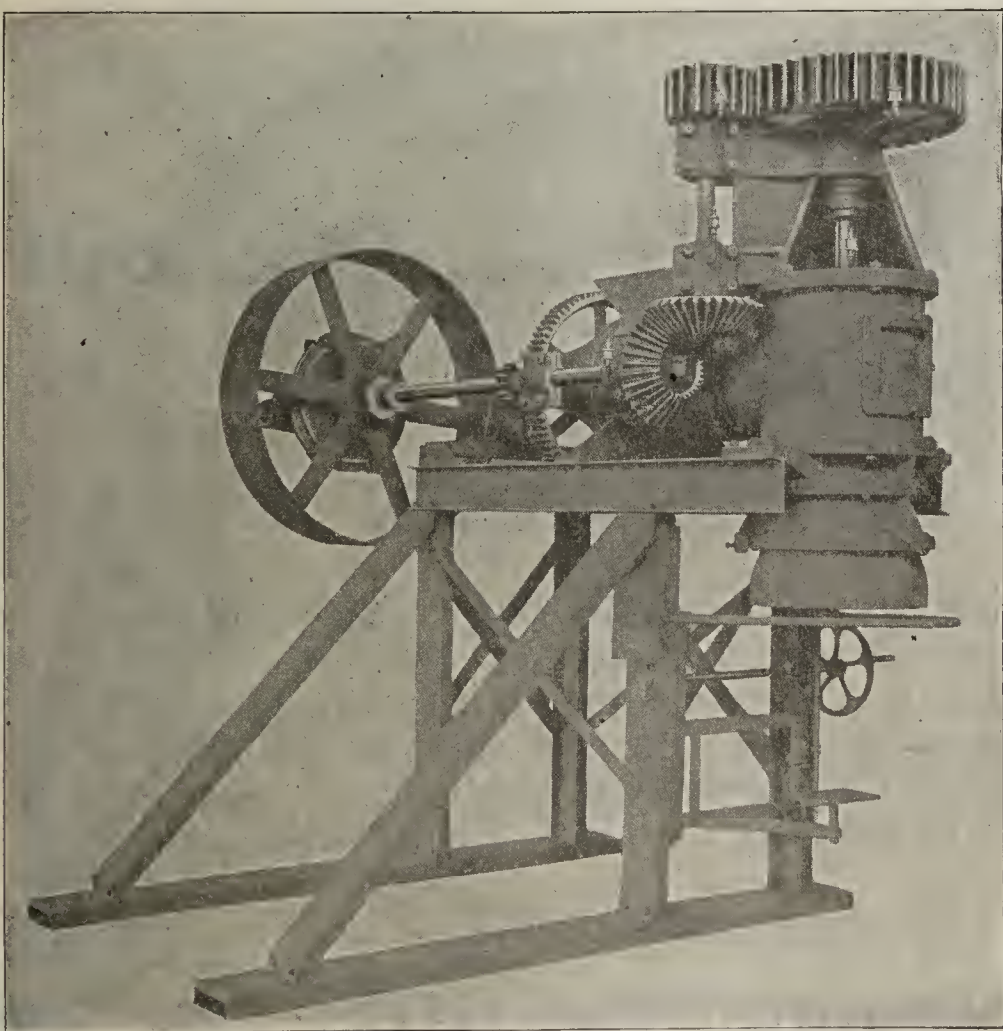
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Tile from 8 inches to 30 inches Diameter,
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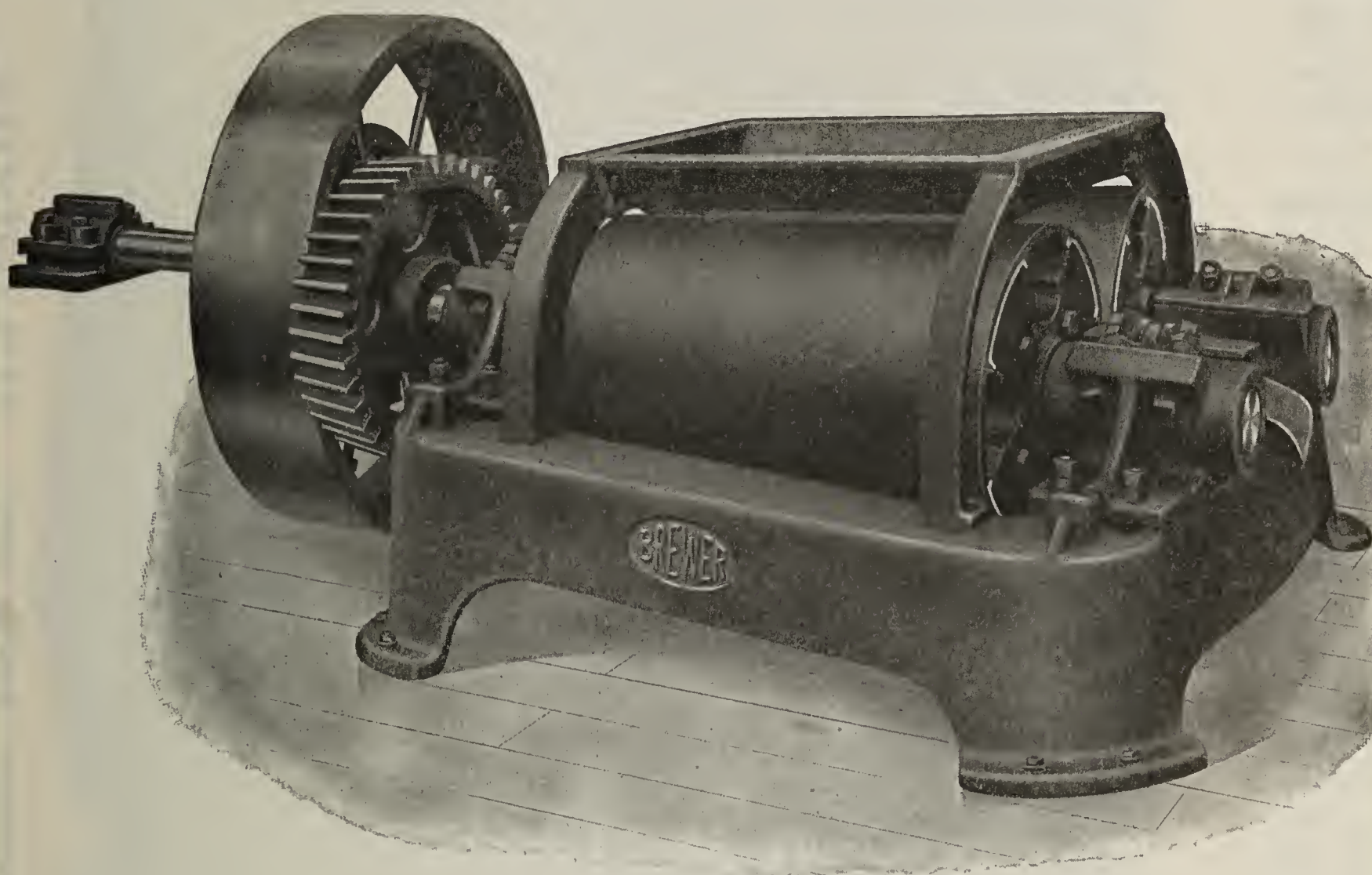
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WE HAVE a line of Clay Crushers which includes about everything anybody could want either in size or kind. We have Conical Roll Crushers, Straight Roll Crushers, Spirally Beaded Roll Crushers, Disintegrators and Compound Crushers all in two or more sizes.

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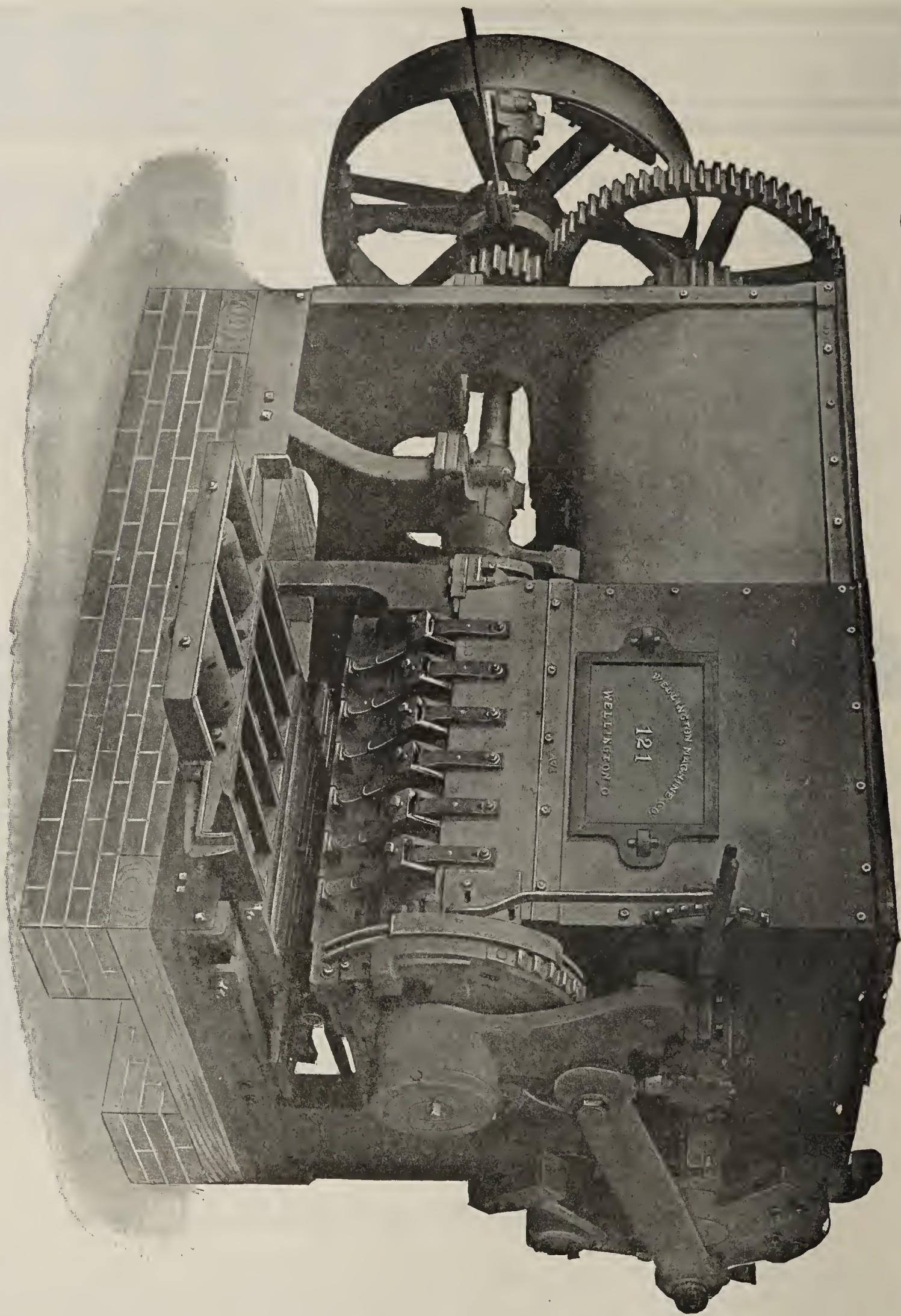
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Brick
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in use.

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Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

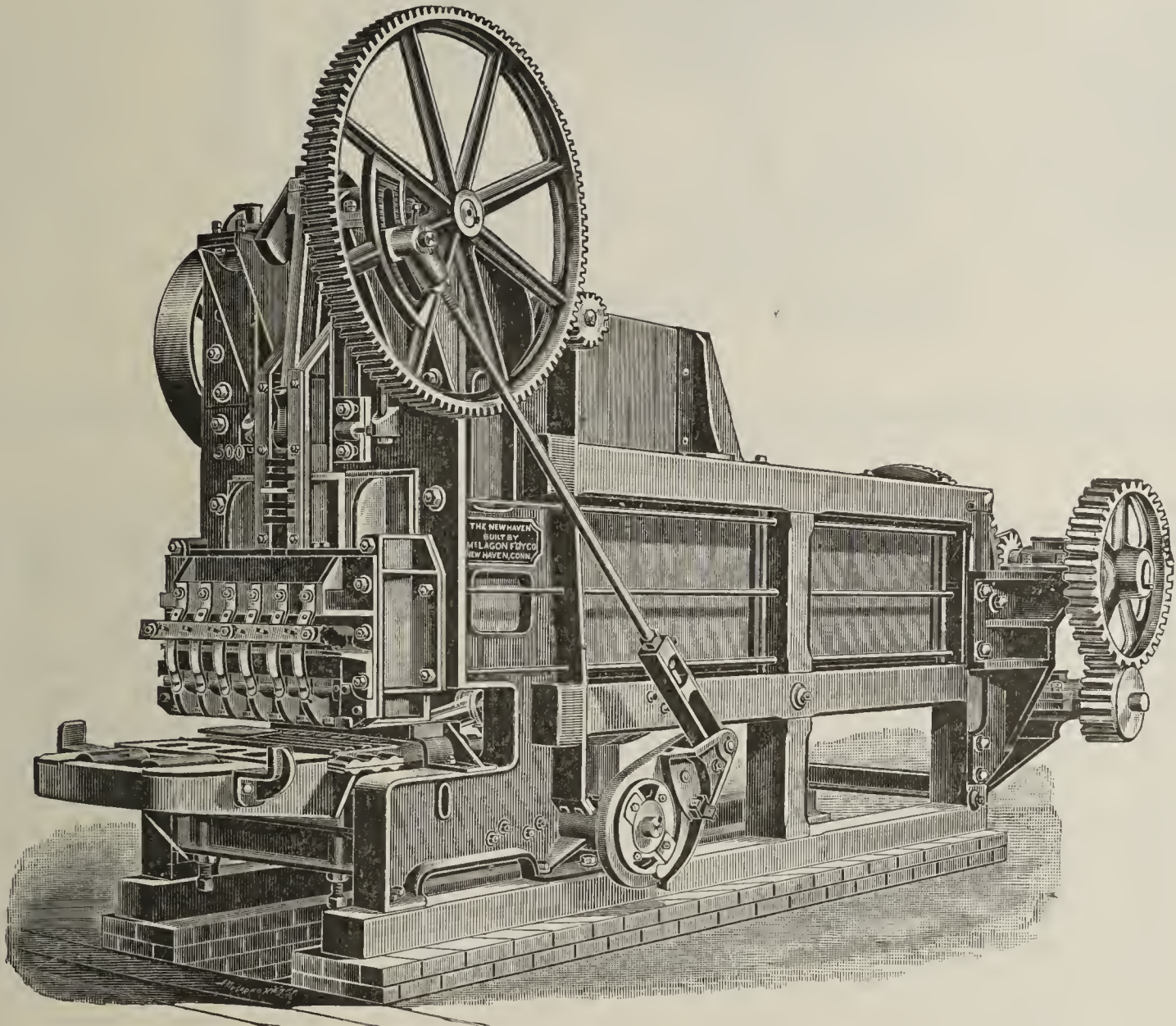
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WELLINGTON,
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Mention the Clay-Worker.

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The enduring qualities of the New Haven Machines have won for them the approbation of soft mud brick manufacturers generally, and the New England brick manufacturers in particular. If you want a soft mud brick machine that will insure steady operation, high class products and regular dividends, buy a New Haven.

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Worth its Weight in Gold to Every Factory Superintendent and Foreman.

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ALL WORKINGMEN.

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CUTS OFF BARBED FENCE WIRE AS EASILY
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Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

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A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

Street and Number

County State

WHY

Do the best and most successful brick manufacturers
after once using

POTTS MACHINERY

ALWAYS COME BACK FOR MORE?

The Ferris Brick Company, Mechanicsville, N. Y., after using one Potts outfit 4 years double their capacity by the purchase of another.

The Duffney Brick Company, Mechanicsville, N. Y. Mr. Duffney after using two Potts outfits 12 years erects another new plant, equipping this with POTTS MACHINERY.

THE REASON

The Potts Horizontal Brick Machine

is the largest and best constructed machine on the market, the only machine having Cast Steel Gears. It has no equal for Quantity and Quality of brick made.

The Potts Disintegrator Mould Sander and Granulator

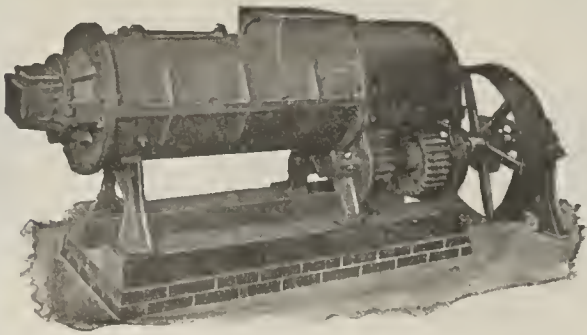
make a complete plant working the clay direct from the bank. The outfit is one that can be depended upon to make a given number of brick every working day, therefore producing the BEST and CHEAPEST brick made.

We are the only firm prepared to equip sand mould plants complete from Clay Bank to the Kiln.

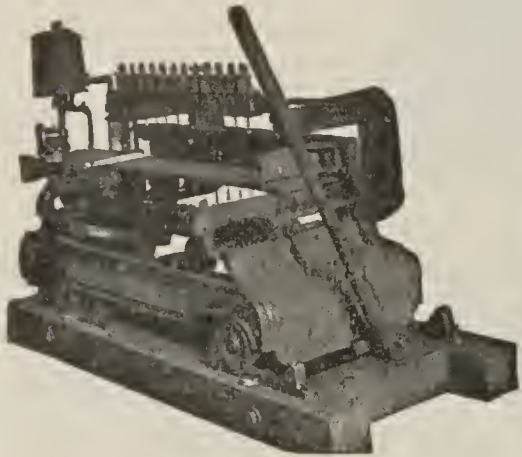
Give us a chance to figure with you. You will be surprised how complete a plant can be erected for small cost.

WE GUARANTEE RESULTS.

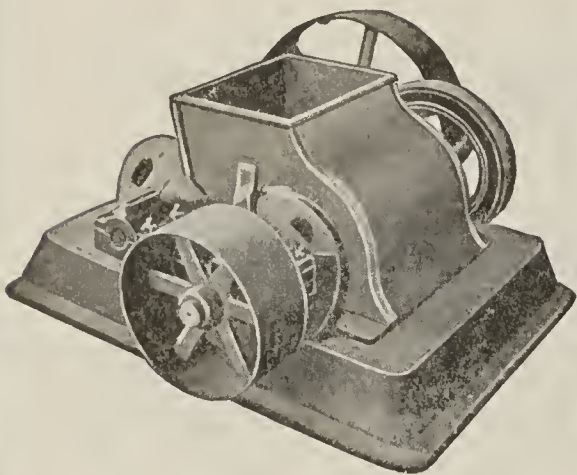
C. & A. POTTS & CO., Indianapolis, Ind.



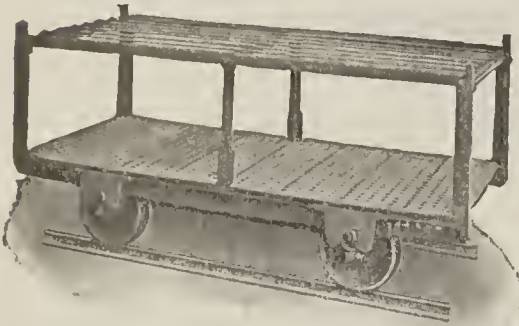
NO. 1 AUGER BRICK MACHINE



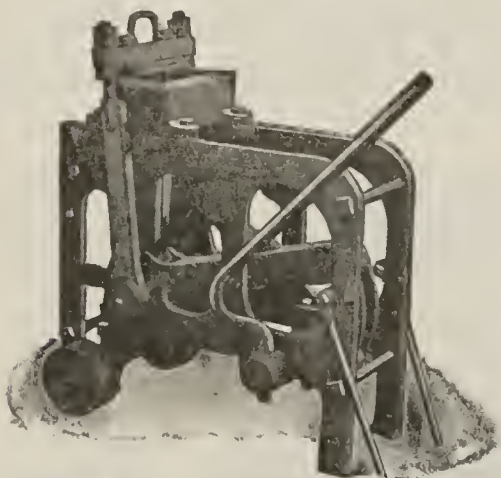
WIRE-CUT BRICK TABLE



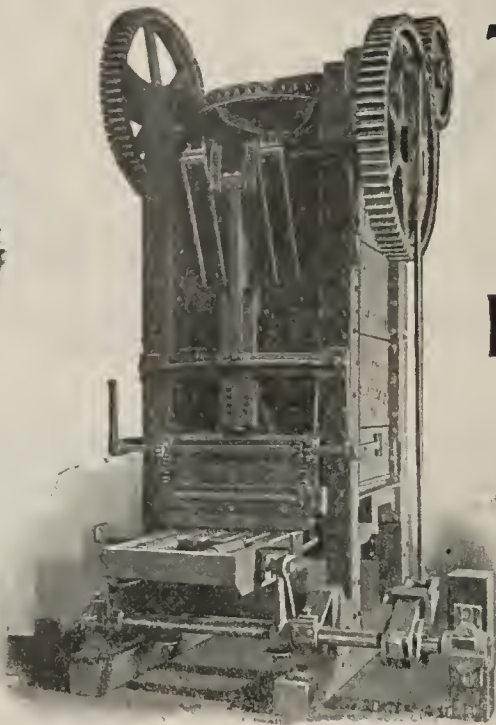
HIGH-SPEED CRUSHER



DRYER CARS



HAND REPRESSES



STYLE "A" BRICK MACHINE

THE "MARTIN"

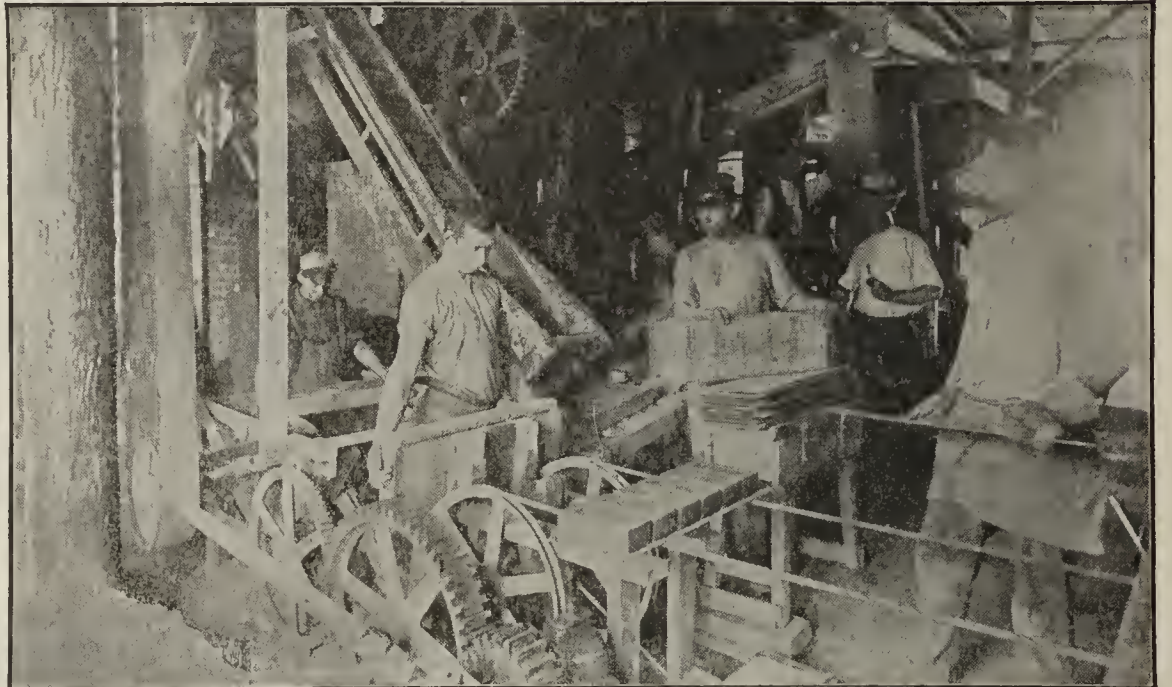
MACHINERY

IS FULLY GUARANTEED

TO MEET ITS

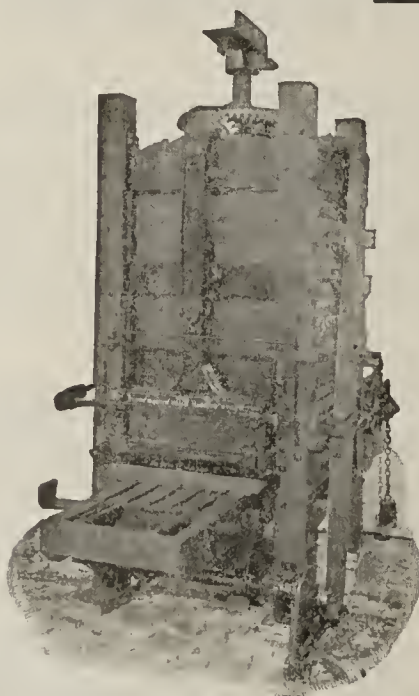
REQUIREMENTS

LET US FURNISH
YOU WITH A COMPLETE
SET OF DRAWINGS



HANDLING BRICK FROM THE MACHINE TO THE DRYERS.

LET US TALK OVER THE DRYER
QUESTION WITH YOU. THIS IS
NO EXPERIMENT BUT A PERFECT
SUCCESS. WE USE--NO CARS,
NO TUNNELS, NO FANS. DRYER
PRACTICALLY FIRE-PROOF.



HORSE POWER MACHINE

WRITE FOR PARTICULARS
THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.

THE "MARTIN"

BRICK DRYERS

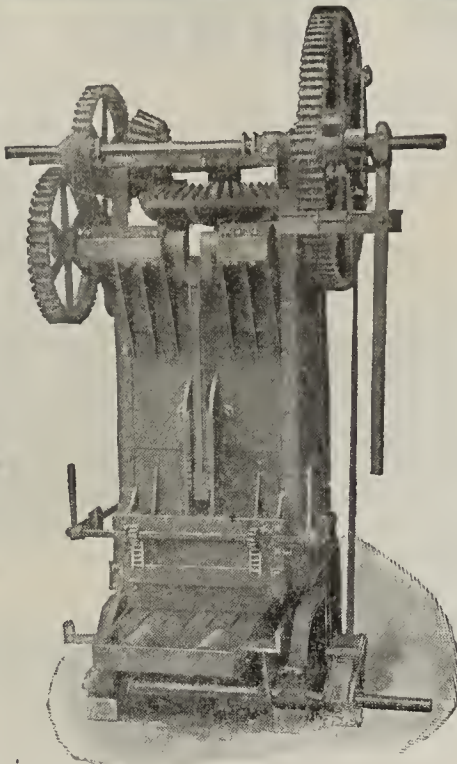
ADAPTED FOR EITHER SOFT OR STIFF-MUD BUILDING BRICK

FULLY COVERED BY PATENTS

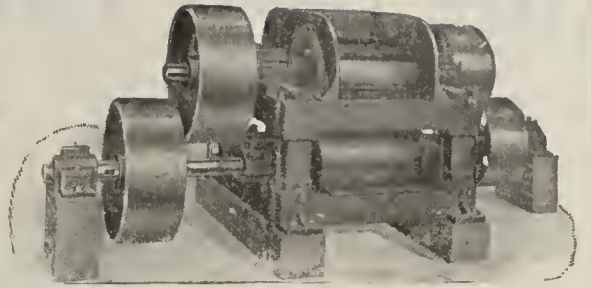
PATENTED

Feb. 22, 1898 - - 599509
Oct. 10, 1905 - - 95520
Nov. 14, 1905 - - 804489
May 26, 1908 - - 888831

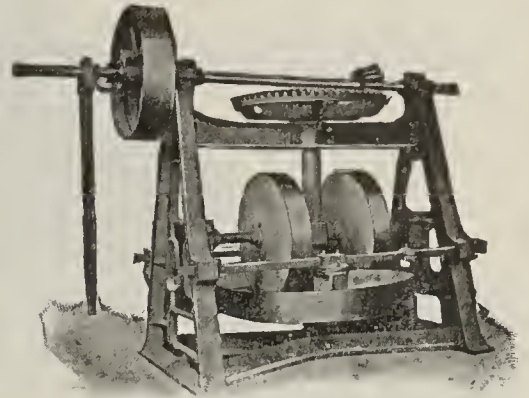
UNITED STATES & CANADA



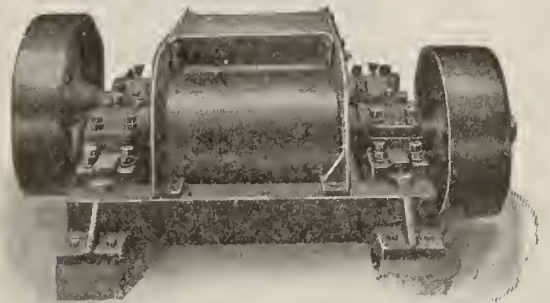
STYLE "P" BRICK MACHINE



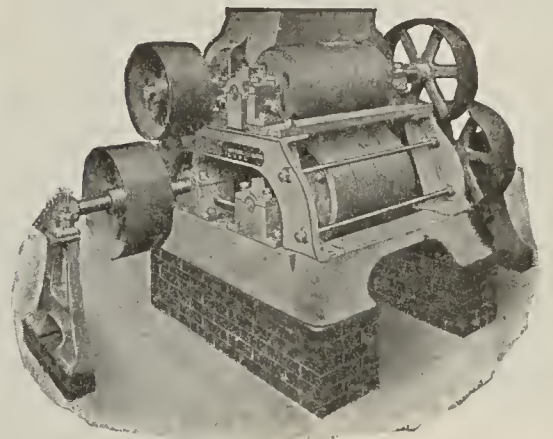
STYLE "P" CRUSHER



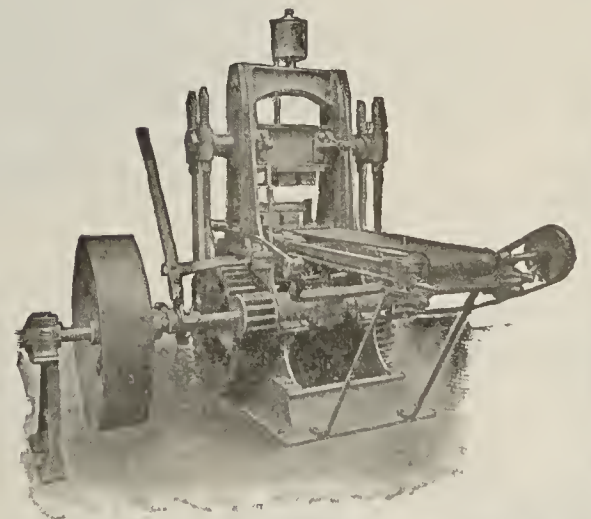
DRY OR WET PANS



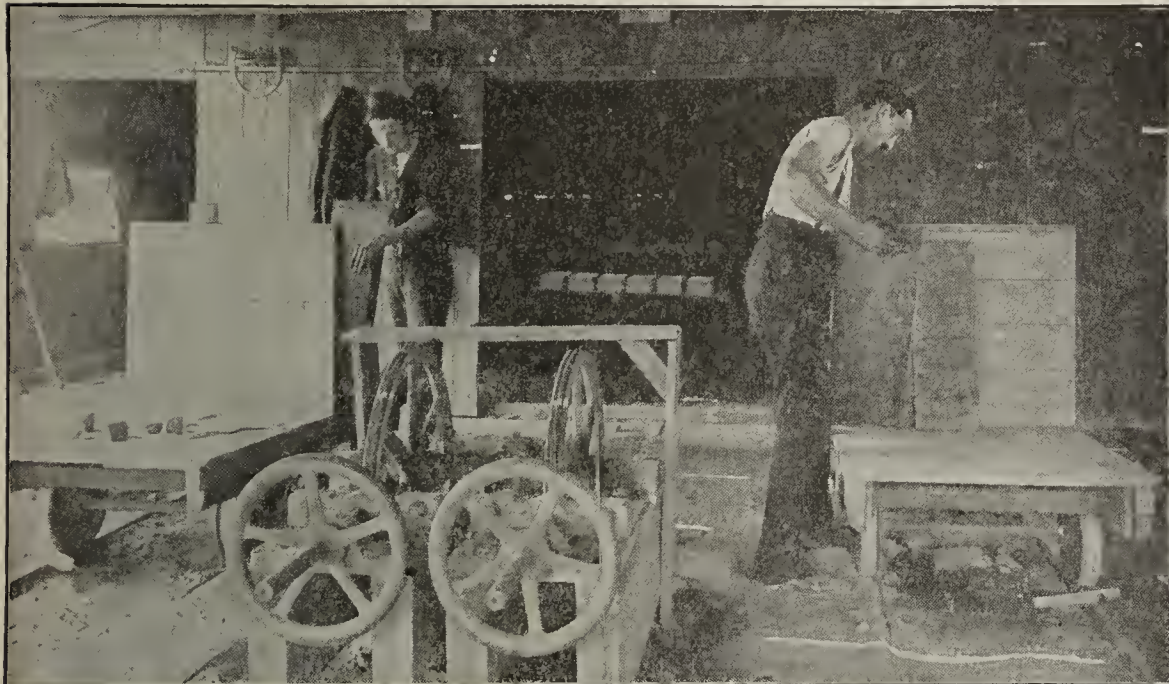
DISINTEGRATOR



4-ROLL CRUSHER



STEAM POWER REPRESS



THE BRICK COMING FROM A "MARTIN" PATENT DRYER

THE "MARTIN" COMPANY
AT LANCASTER, PA.

Own and Control These
Important Dryer Patents
and Have Authorized
— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

THE HENRY MARTIN
BRICK MACHINE MFG.
CO., LANCASTER, PA.



SAND DRYER

WRITE
FOR
PRICES

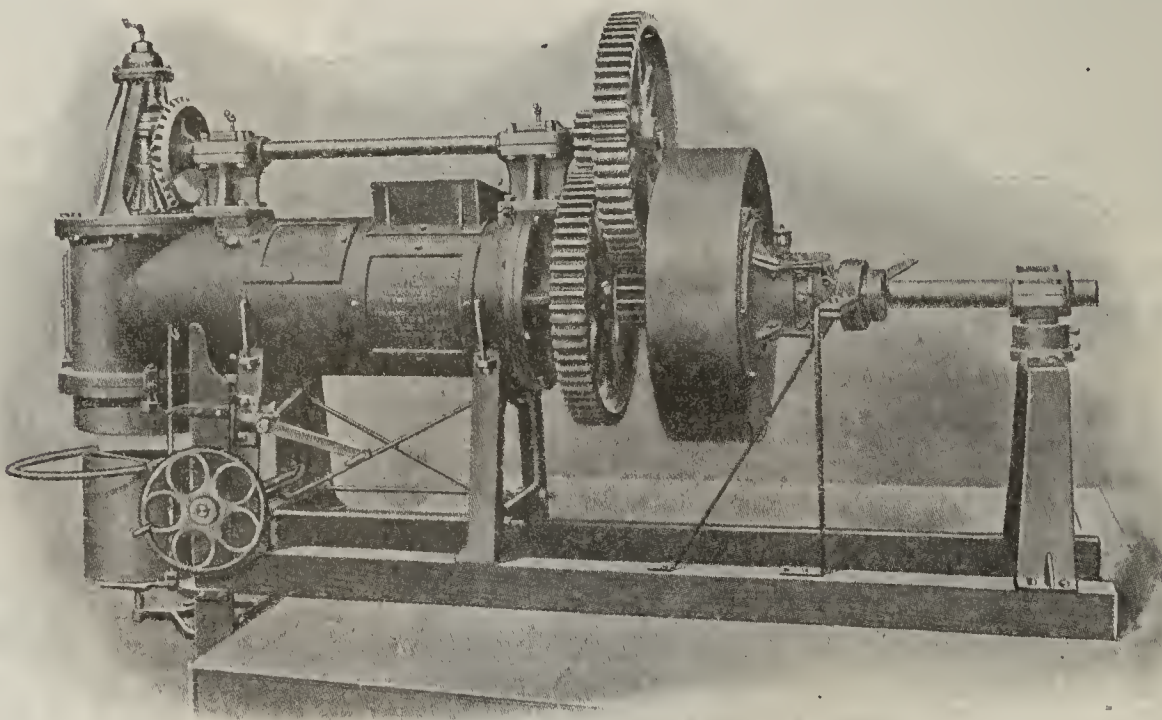
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

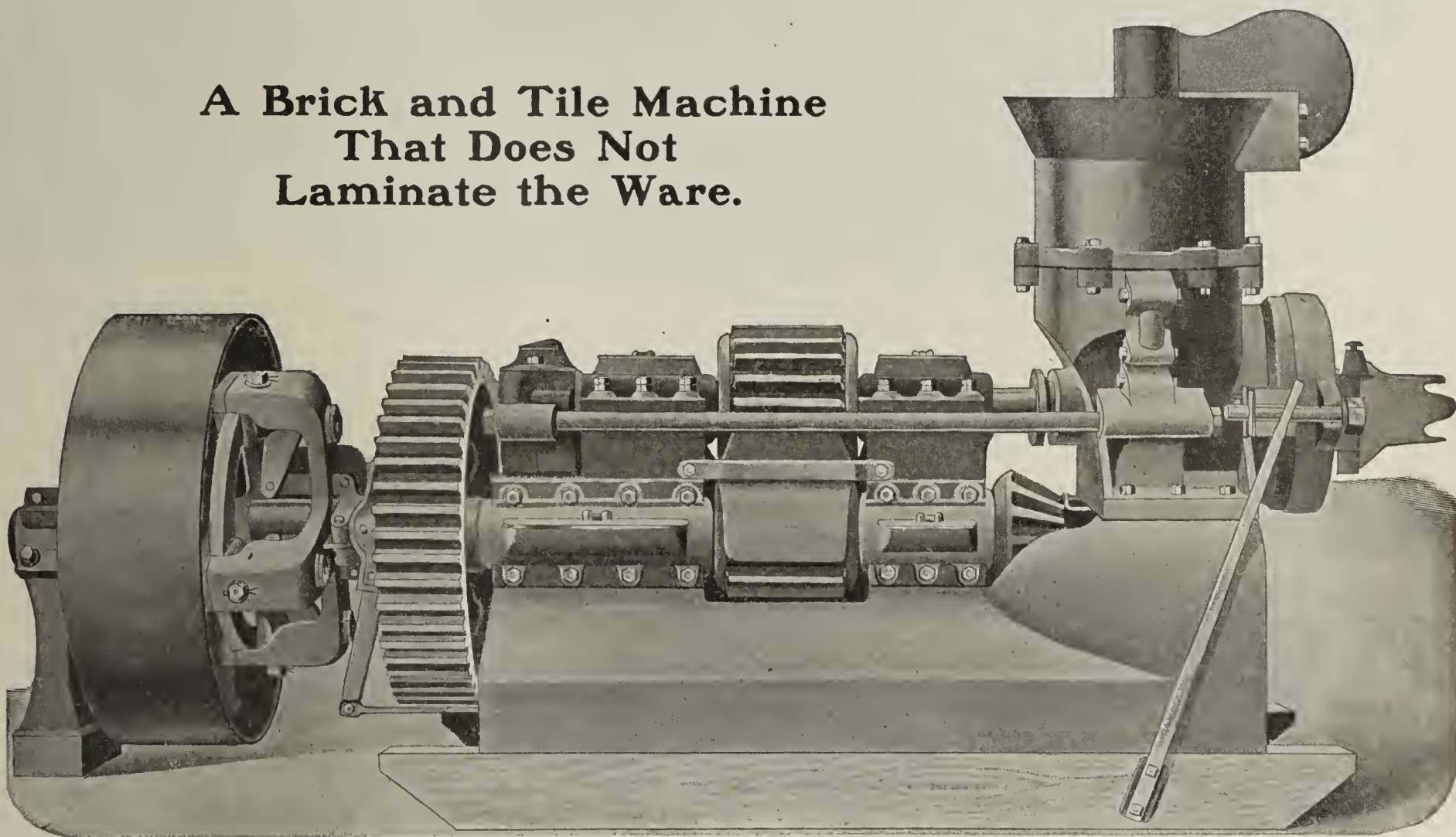
See ad on page 498.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.

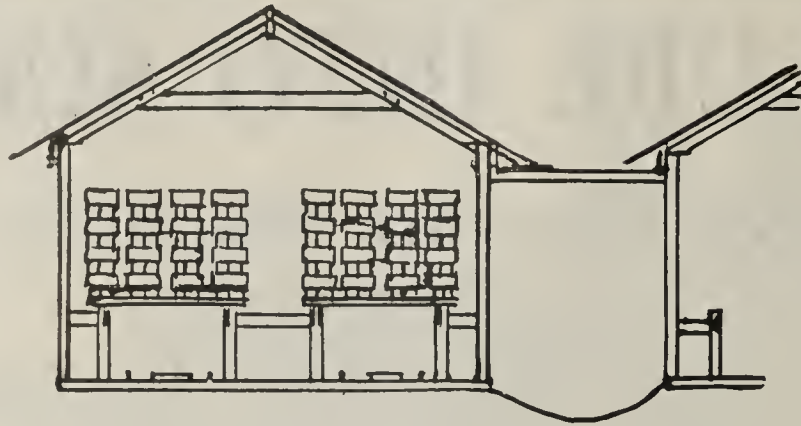


The Big Wonder Brick and Tile Machine.

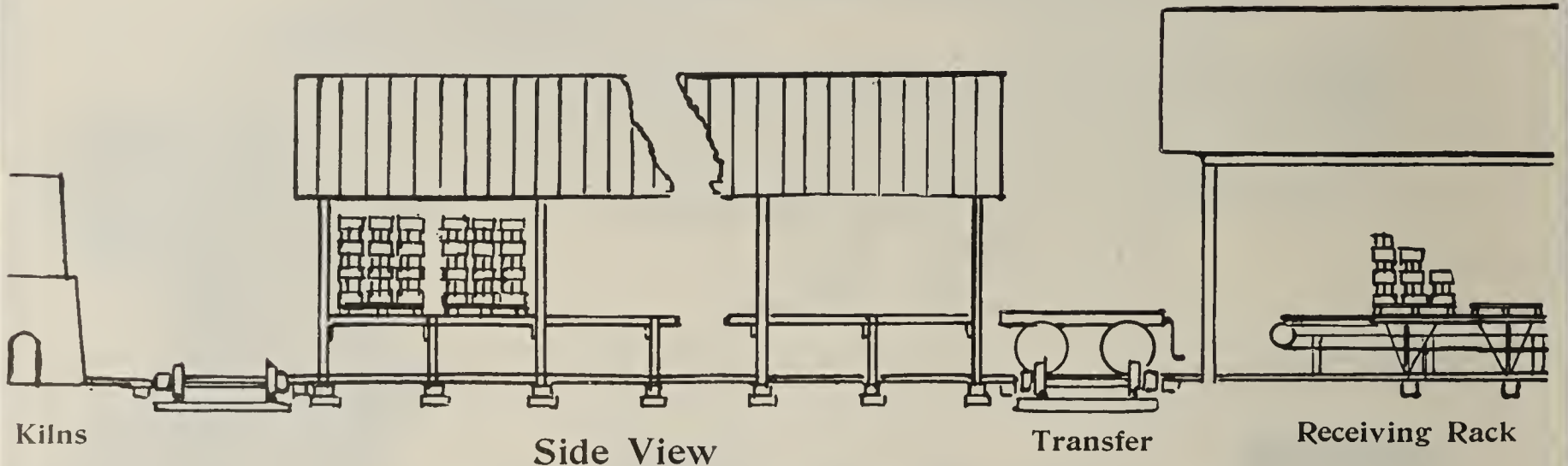
We also make Side-Cut Brick Cutters, Clay Crushers,
Dry Pans, Disintegrators, Pug Mills, Granulators and Cor-
rugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.



End View



Kilns

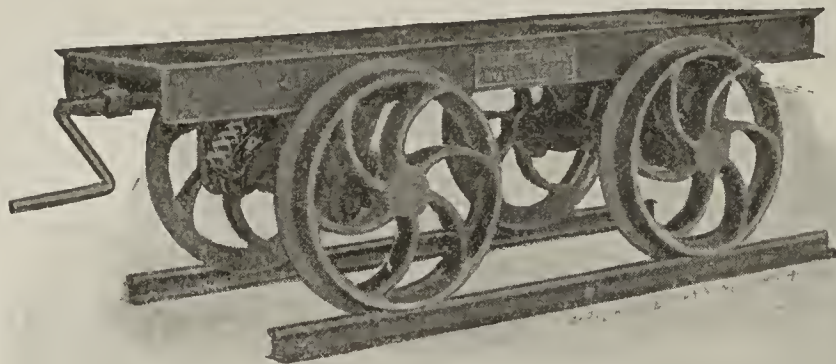
Side View

Transfer

Receiving Rack

STEELE'S SYSTEM OF DRYING

The best method of drying for most Southern yards. The cost of construction is not more than one-third the cost of a dryer ordinarily, and the cost of handling is about the same, while the cost for fuel is nothing.



STEELE'S ELEVATING CAR

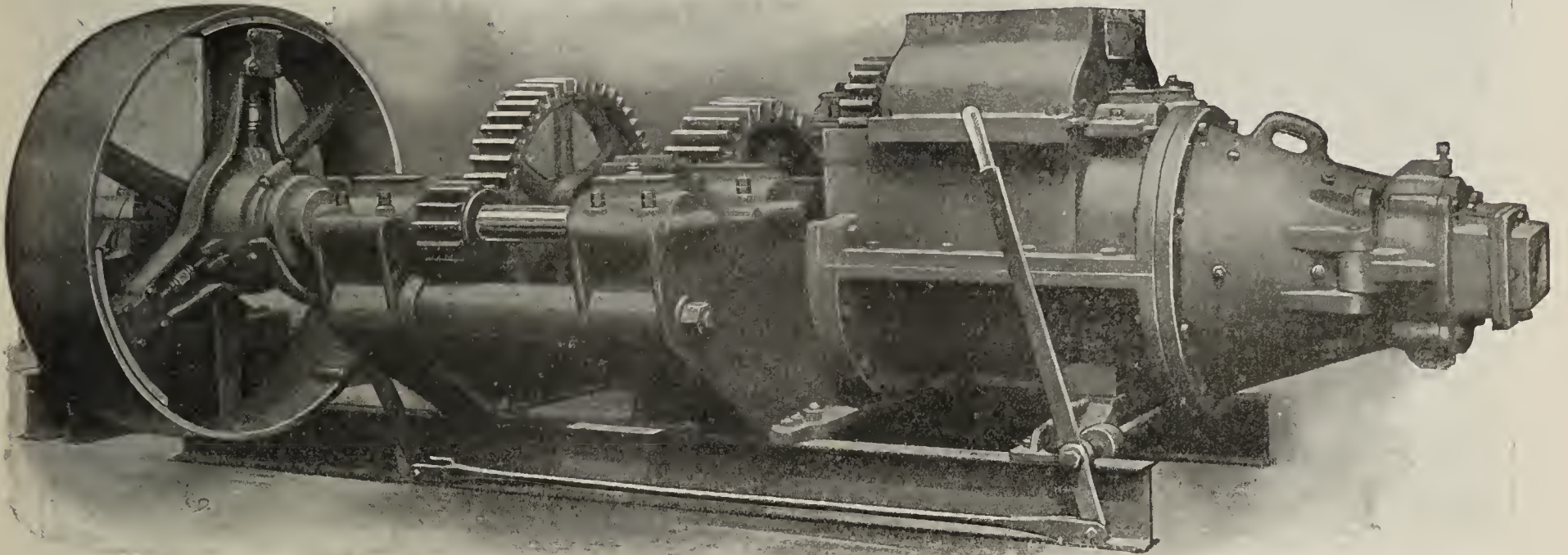
Our Elevating Car is much simpler than any other. Doesn't it look better? We also build a Turntable Rack that will turn.

Our prices will interest you.

J. C. STEELE & SONS,
STATESVILLE, N. C.

Modern Clayworking Machinery

Single and Combined Machines of Any Capacity.



No. 10½ Auger Brick Machine. Capacity 50,000 to 70,000 Brick per Day.



12 Ft. Pug Mill With Open End.

DRY PANS
SCREENS

CUTTING TABLES
REPRESSES

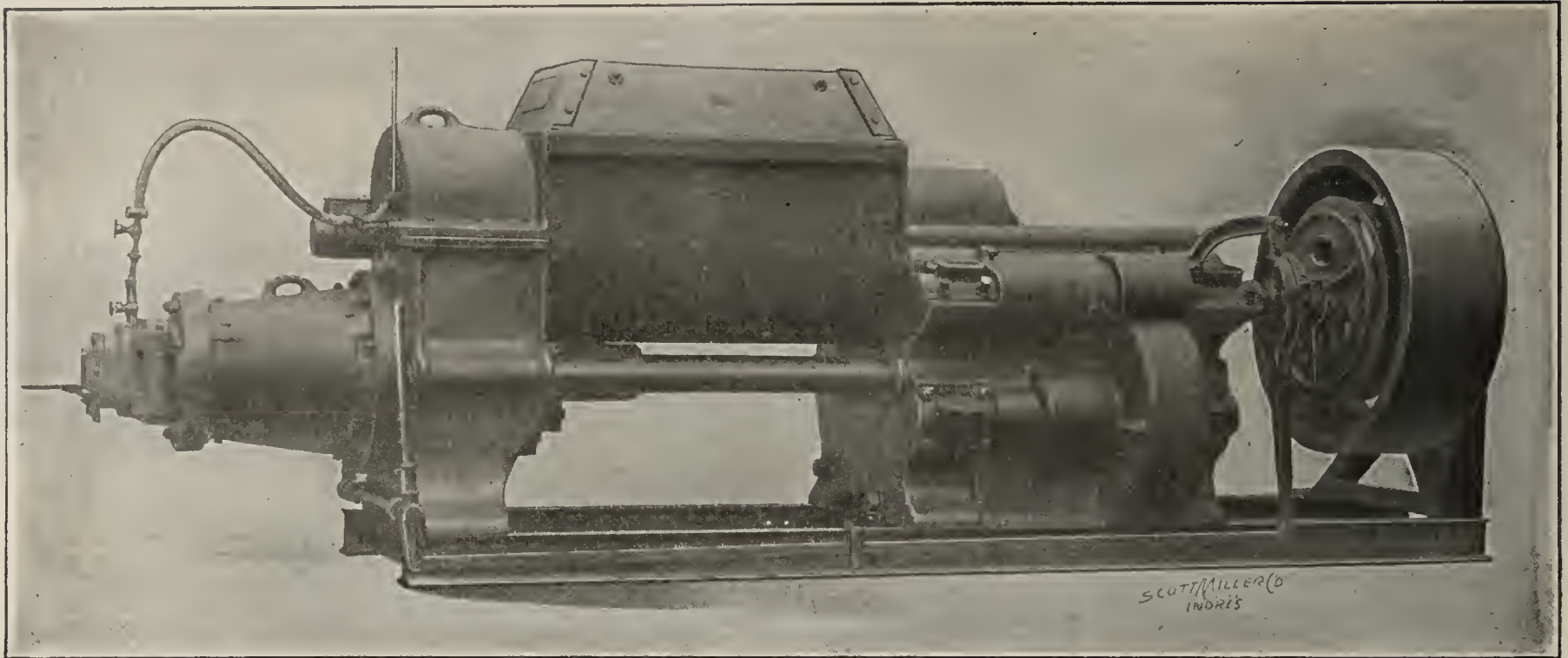
THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

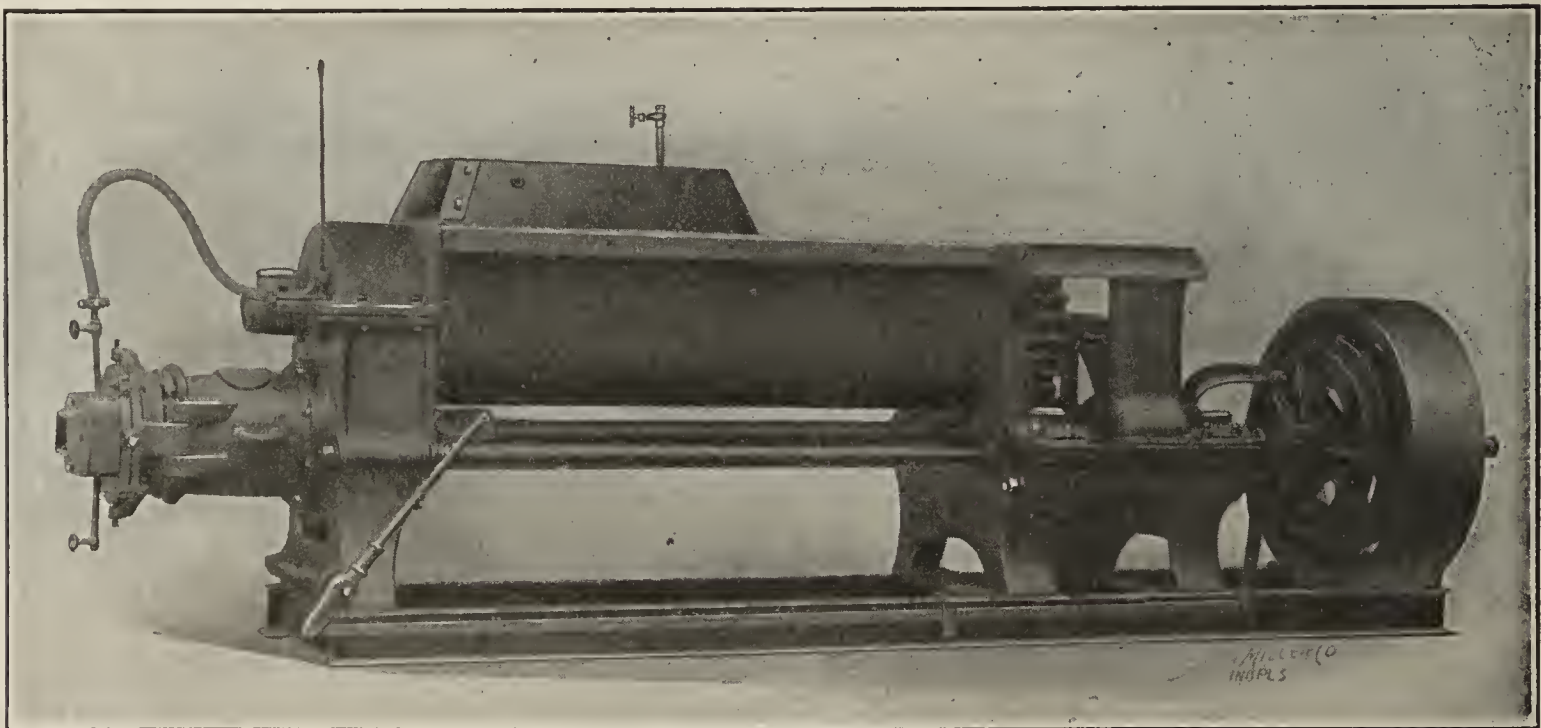
CANTON, OHIO

Mention The Clay-Worker.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.
Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

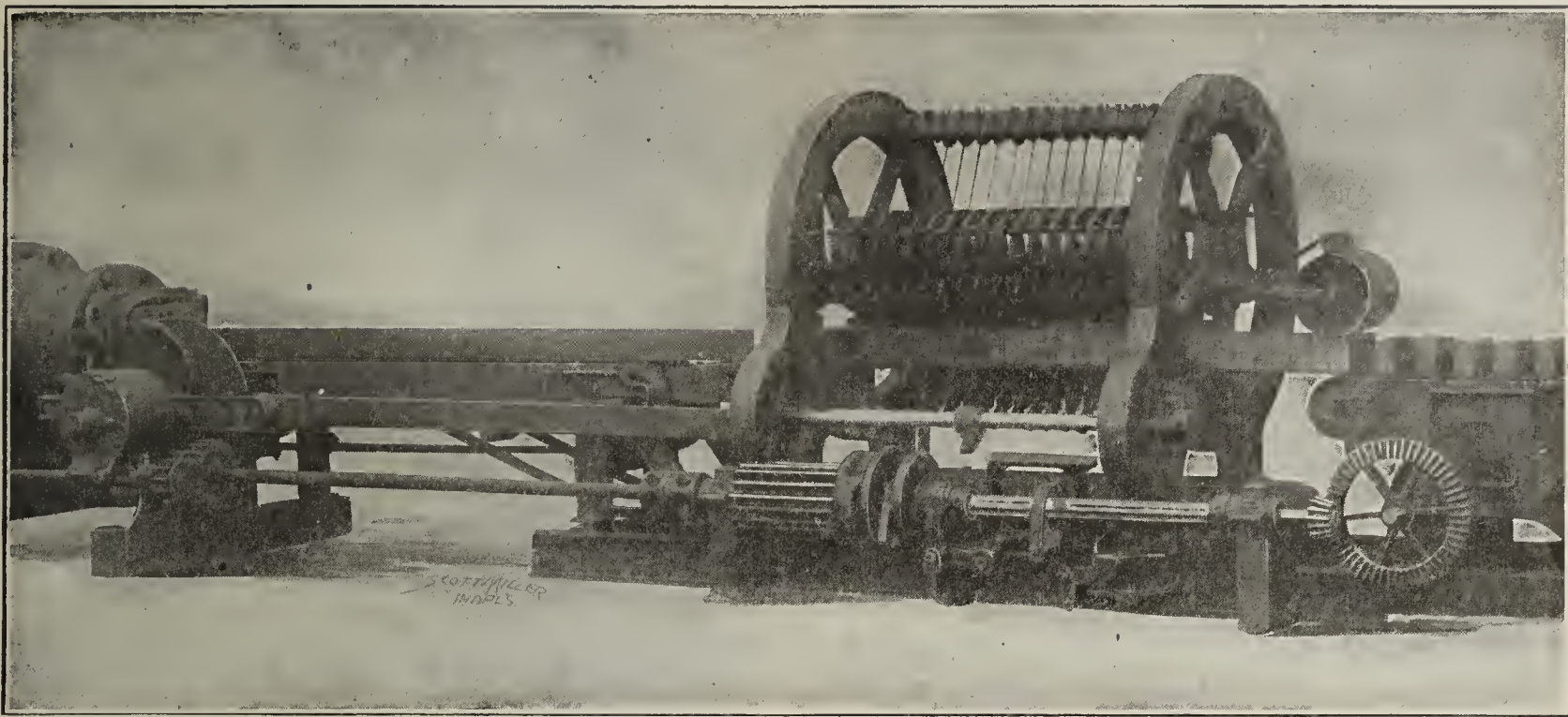
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

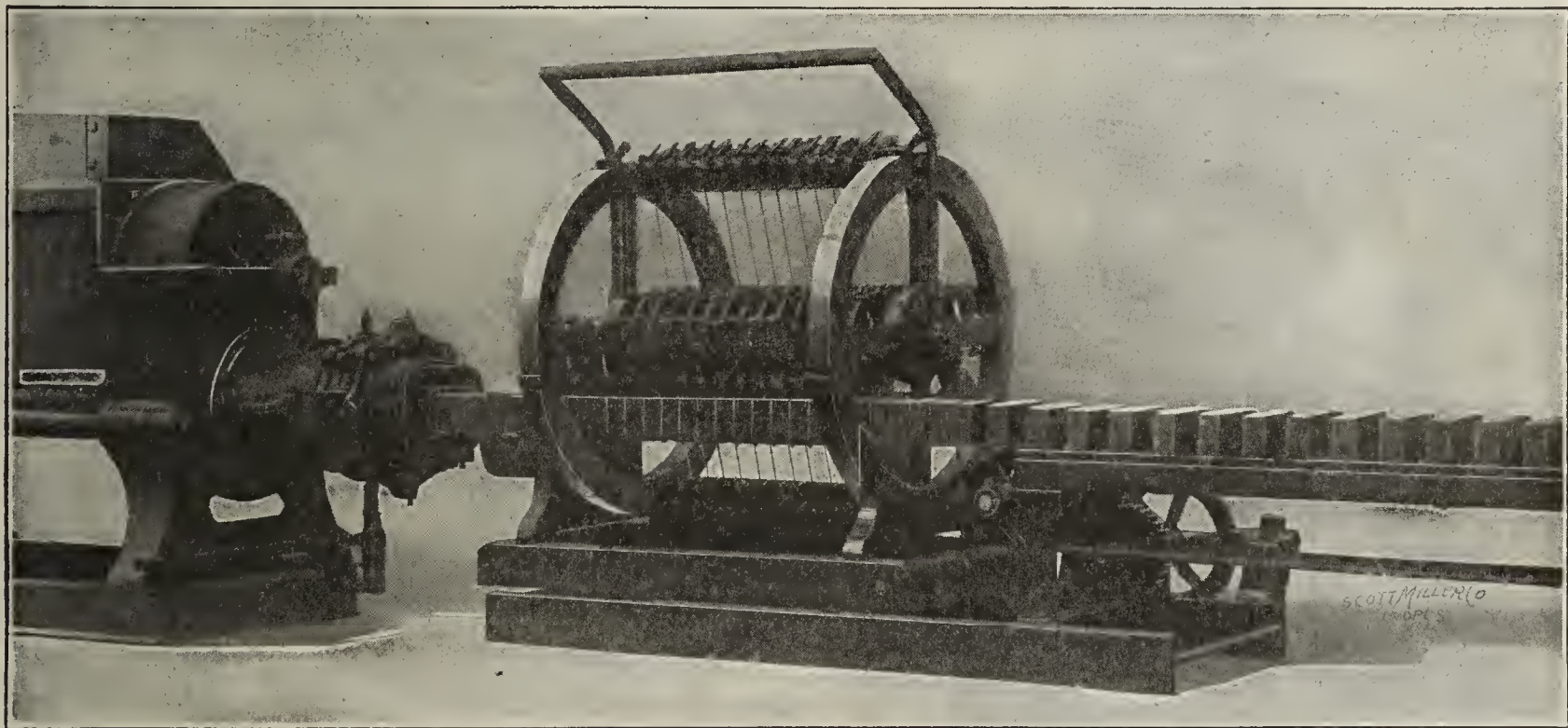
Write for Catalog

Galion, Ohio.

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

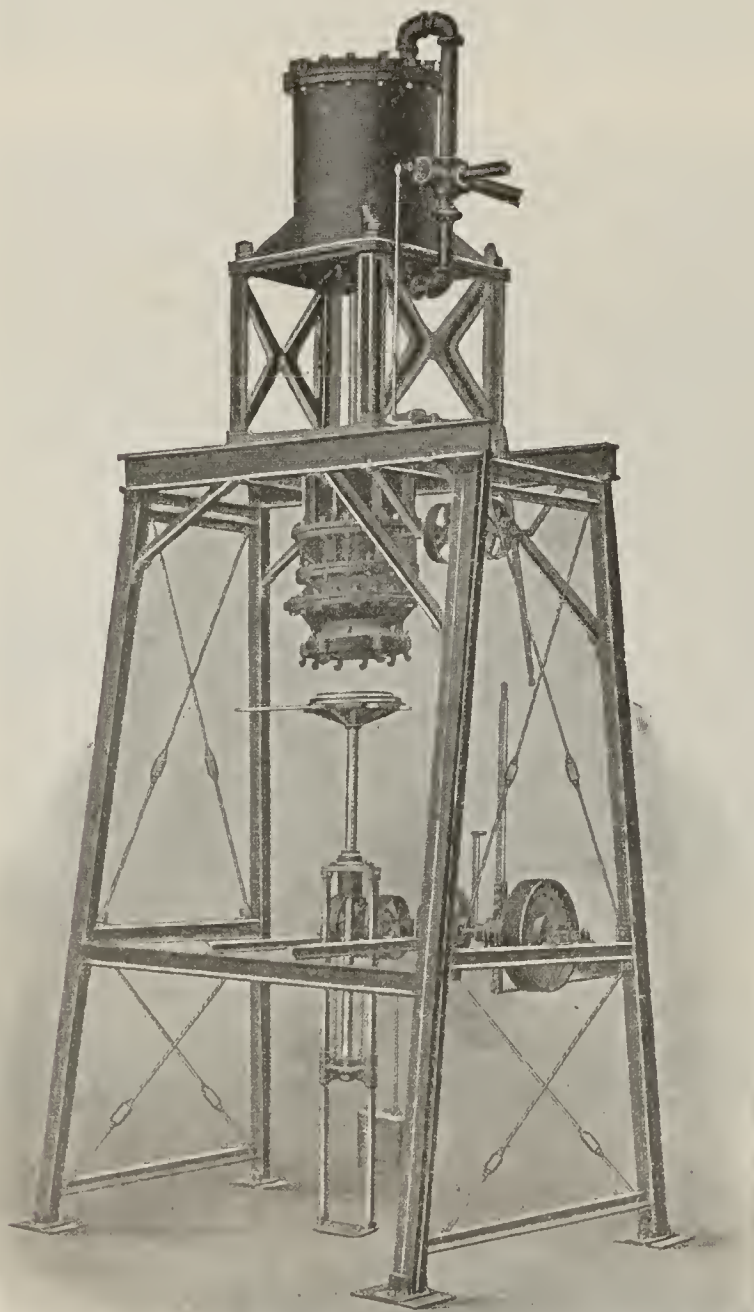
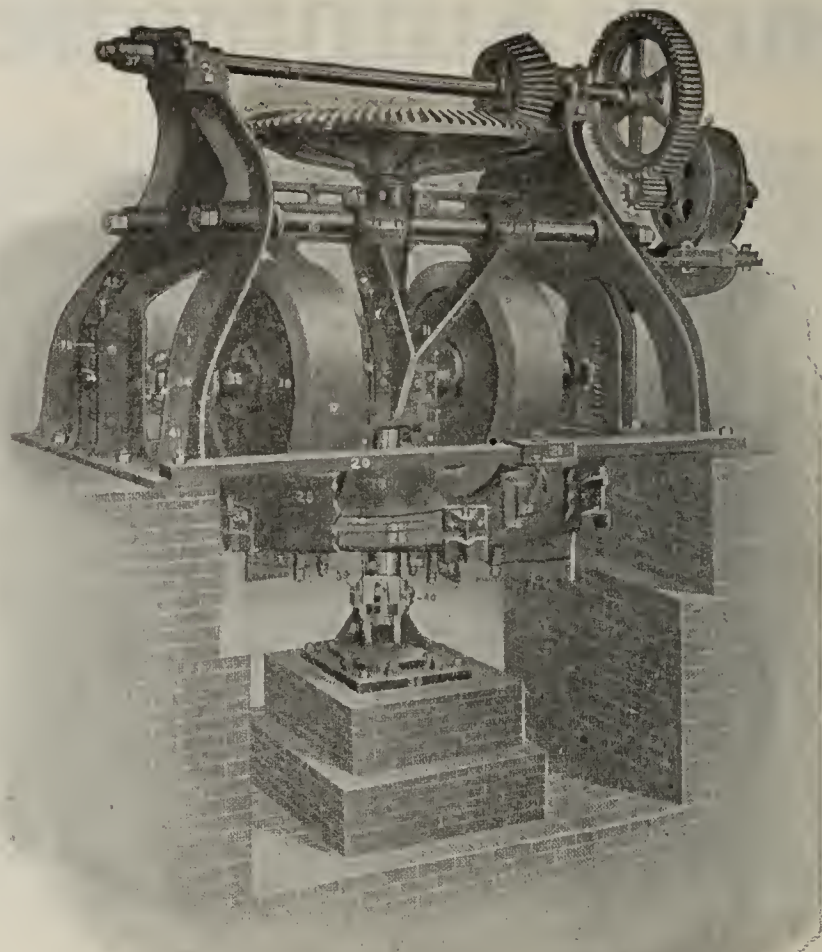
Galion, Ohio.

(Mention The Clay-Worker.)

LOOK AT HER!

She's Stevenson's 9-foot Iron Frame Dry Pan

Largest member of an entire family of the **Greatest Clay Grinders** of the age. The family consists of a 9-foot, 7-foot 7- $\frac{3}{4}$ -inch and 5-foot Dry Pan and an 8-foot Wet Pan, all fitted for either pulley or motor drive. There's nothing like the 5-foot pan for grinding sand, and it has had a tremendous run. Mounted on trucks she can be moved from one field of labor to another.



You Never Saw the Beat!

No, and you never saw anything like the **equal of Stevenson's Sewer Pipe Presses**. The cut shows their 1-rod press, which will turn out more and better pipe from 2-inch up to 30-inch than any other press built.

Their 3-rod press is a perfect match for the 1-rod in speed and product, and turns out 3-inch to 36-inch.

Write for information to

THE STEVENSON CO.,
Wellsville, Ohio.

PERFORATED STEEL SCREENS.

No Doubt You Use Screens—Let's Get Acquainted.

¶ You may never have obtained them from us. It would pay you to do so.

¶ There's more to a Perforated Steel Screen than a sheet of metal with some holes in it. The shape, the spacing, the size and accuracy of the perforations and the quality of the metal of which the Screen is made, all have a bearing on the working and wearing of the Screen—all must be *exactly right*.

¶ There are Screens that cost less than ours, but then guess-work always does seem cheaper than know-how.

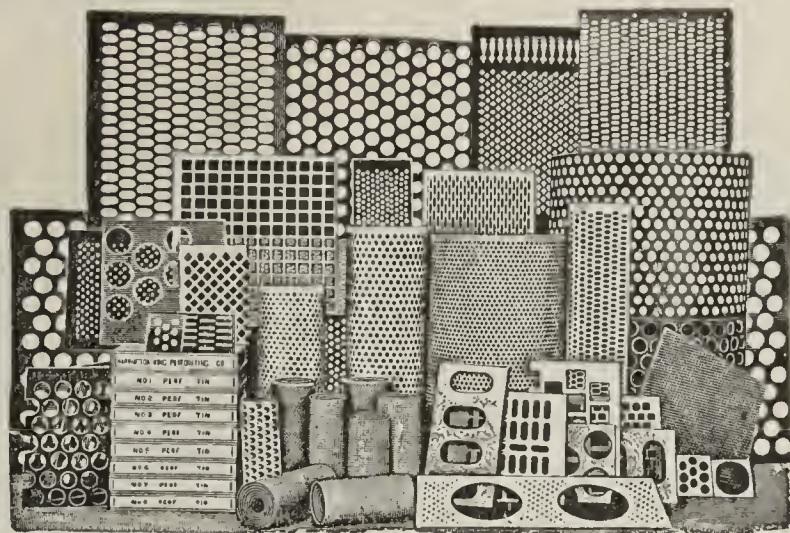
¶ We make Screens for Clay, Sand, Gravel, Cement, Stone, etc., and for Drying Floors, Car Bottoms, Conveyers, Dry Pans and cleaning and grading apparatus.

¶ You are not likely to want a size that we can not furnish. During our experience of over thirty years in the business (and that counts for something) we have acquired patterns by the thousand.

¶ Give us the size of sheets, the gauge (or thickness), the size and shape of holes, the number of sheets wanted and what for.

¶ With quotation we will send samples or Blue Prints.

¶ The work is made entirely to order.



The Harrington & King Perforating Co.,

NEW YORK OFFICE,
No. 114 Liberty St.

No. 624 North Union St.,
CHICAGO, ILL., U. S. A.



THE BETTER THE DRYER THE BETTER THE BRICK,

consequently, if you install a

Rodgers Waste Heat Dryer

in your plant you will have the satisfaction of knowing that you have a Dryer better than which none is built and are obtaining brick better than which could not be manufactured from the clay of which your product is composed.

The Rodgers Dryer is the Dryer which has an **UNBROKEN RECORD OF SUCCESS.**

IT PAYS AT LAST TO GET
THE BEST AT FIRST.

L. E. RODGERS ENGINEERING CO.

Waste Heat Dryer Specialists,
Brick Works Engineers.

Largest Manufacturers of Brick Drying Equipment in the United States.

108 LA SALLE ST.

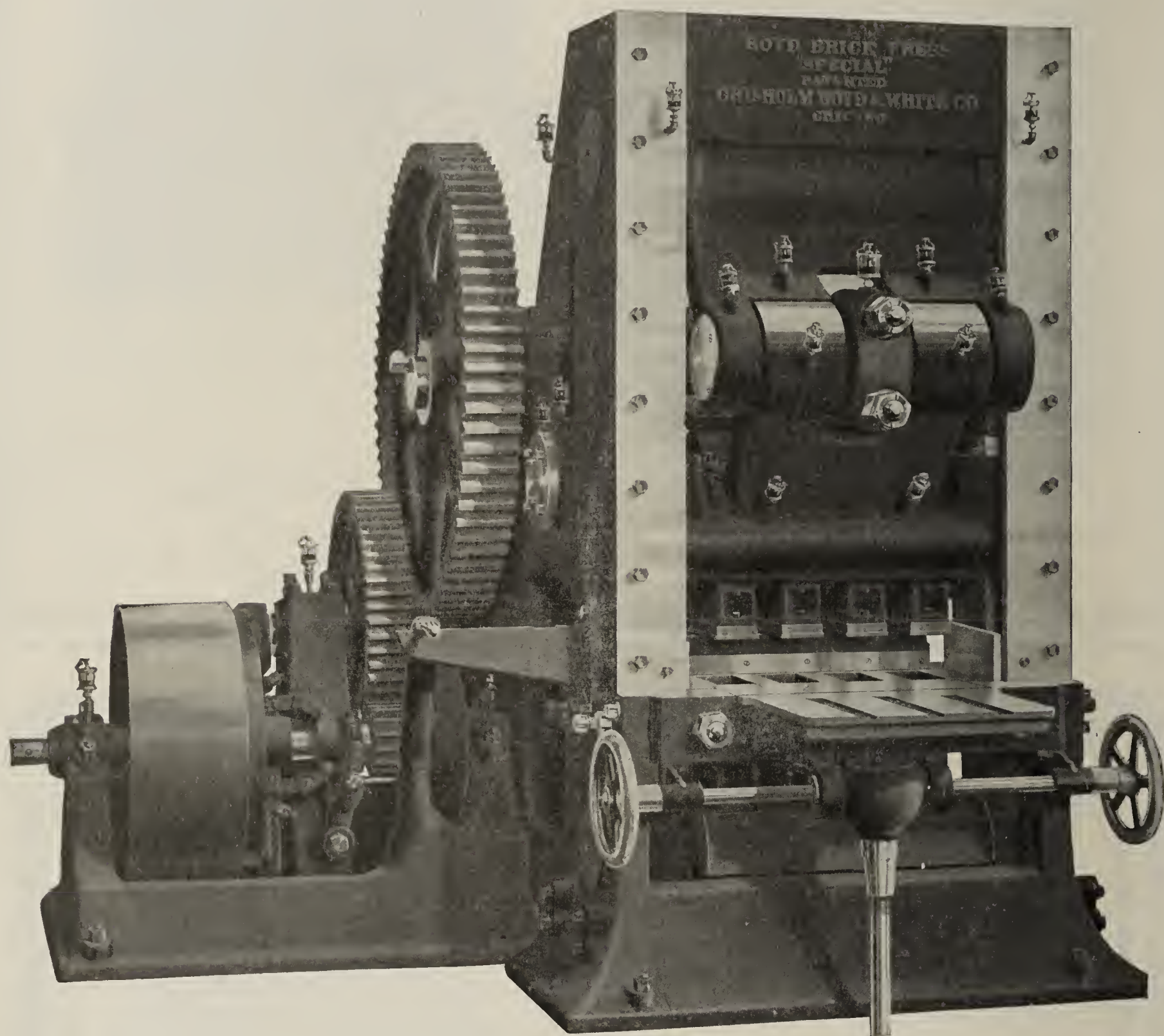
CHICAGO.



Mention THE CLAY-WORKER.

The Boyd Brick Press

Four-Mold Special.



Built in Two, Four and Six-Mold Sizes.

More Boyd Presses in use than all other Press Brick Machines combined.
BRICK PLANTS designed and complete machinery equipment furnished.

Write for Catalogue No. 20, which contains plans and suggestions concerning the design and equipment of brick plants.

Chisholm, Boyd & White Company,

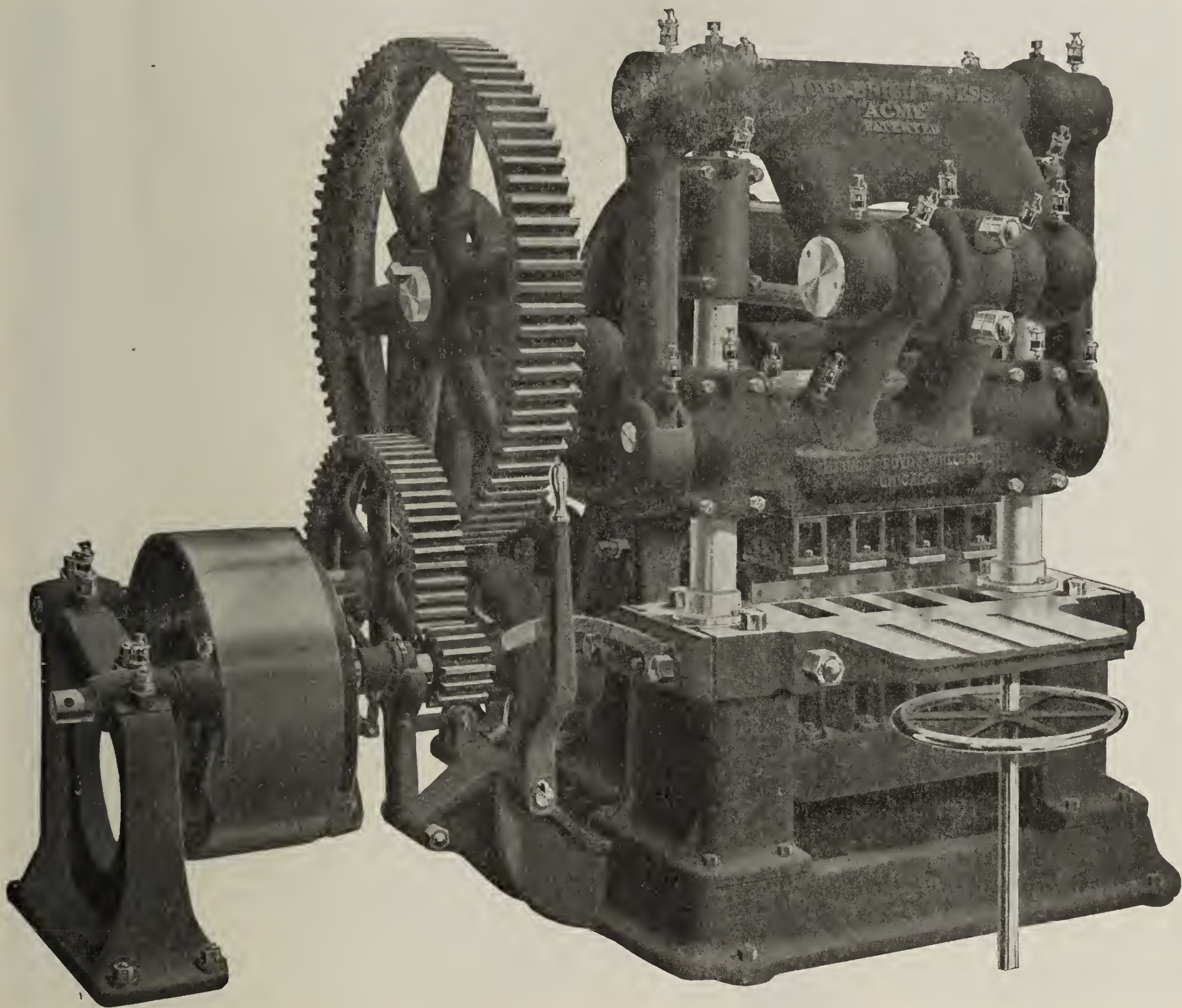
Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

The Boyd Brick Press

Four-Mold Acme.



Built in Two and Four-Mold Sizes.

The Boyd Press has great strength and endurance, great pressure and long dwell. Boyd Presses built 20 years ago are still in use and doing good work. Brick presses that last are the cheapest in the end. Write for Catalogue No. 20.

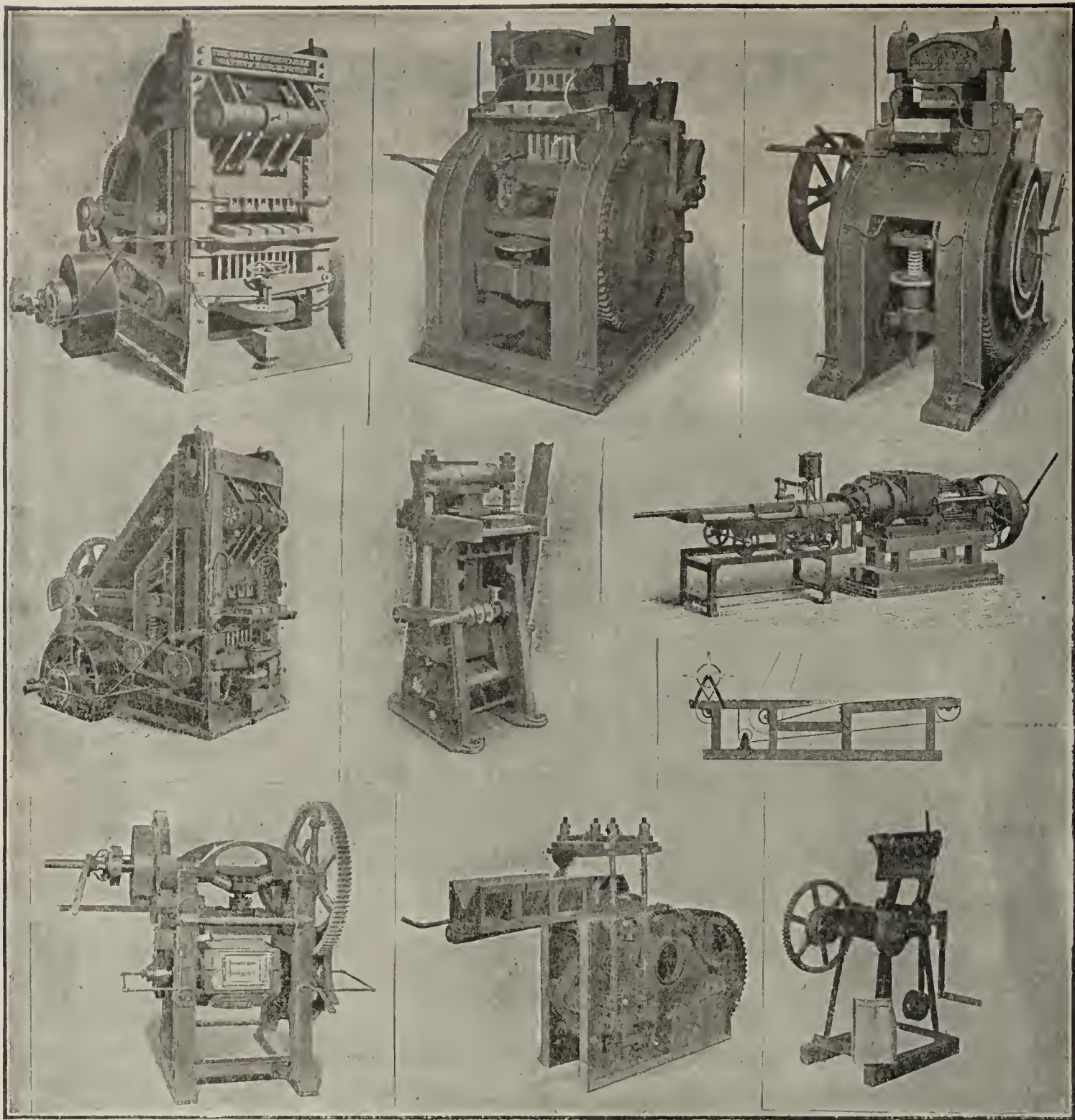
Chisholm, Boyd & White Company,

Office and Works, 57th and Wallace Sts.

CHICAGO, ILL.

Mention The Clay-Worker.

**We Have the Best and Most Practical Brick
Presses and Roofing Tile Machinery.**



OUR PRICES WILL SUIT YOU.

**Press Brick and Roofing Tile Machinery. All Guaranteed
Against Breakage and to Give Satisfaction.**

Get Our Prices Before You Buy.

**Selling Agents for The
SCHURS PATENT PERFECT
OIL BURNERS**

Especially designed for burning Brick, Tile, Terra
Cotta and Lime. For Up and Down Draft Kilns.

Flame may be regulated as desired and to produce any heat, can be
turned upward, downward or sideways. Most Economical Steam
or Air Burner in the market. For Crude, Fuel or Coal Oil.

Write us for prices, information and catalog.

Illinois Supply & Construction Co.

CENTURY BLDG., ST. LOUIS, MO.

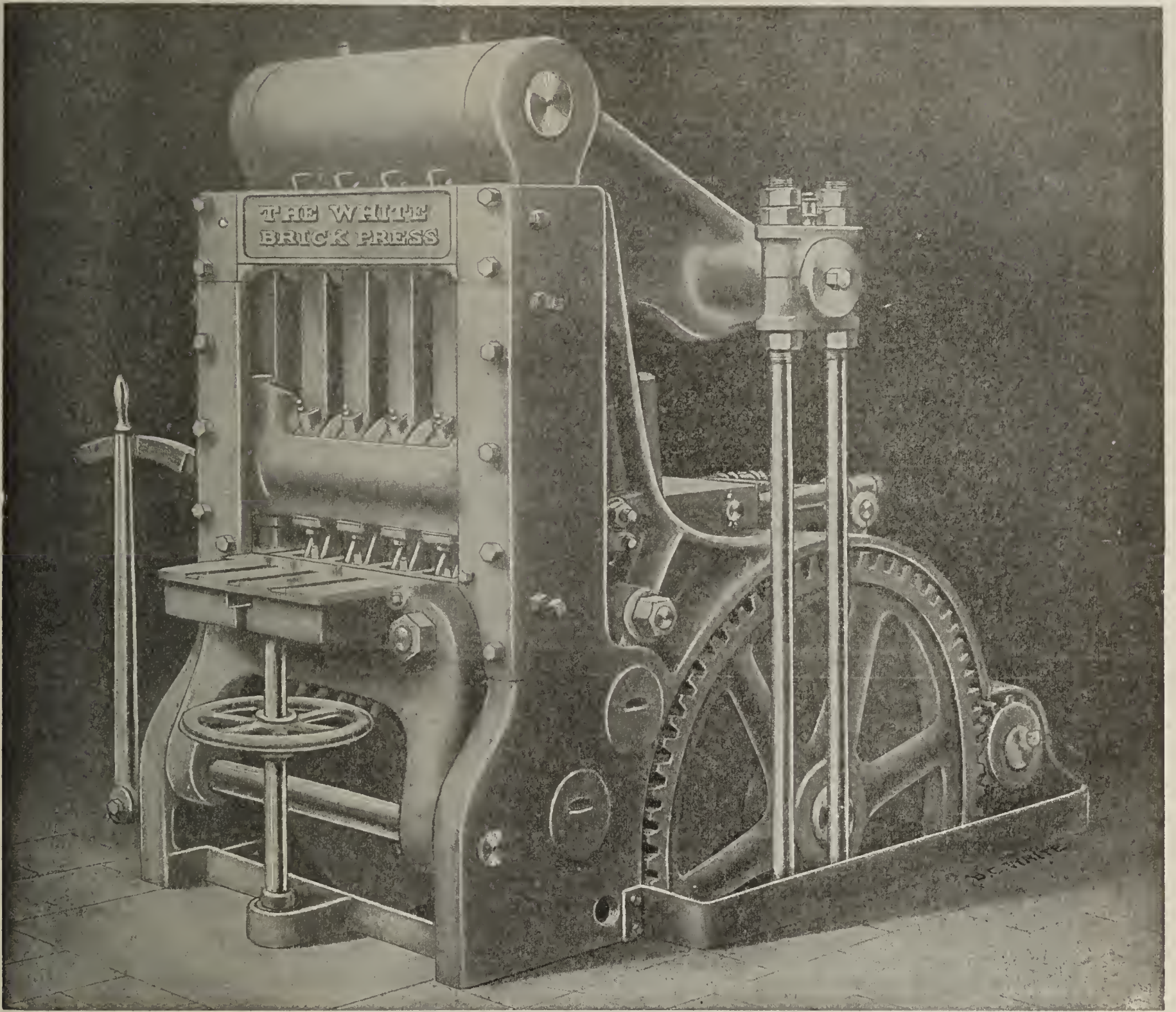
Mention The Clay-Worker.

Lieber's Code.
Cable Address,
GRATH, St. Louis.

Long Distance
Phone
Bell, Main 235.



**Always Worth More Than
You Pay For It**



THE WHITE BRICK PRESS.

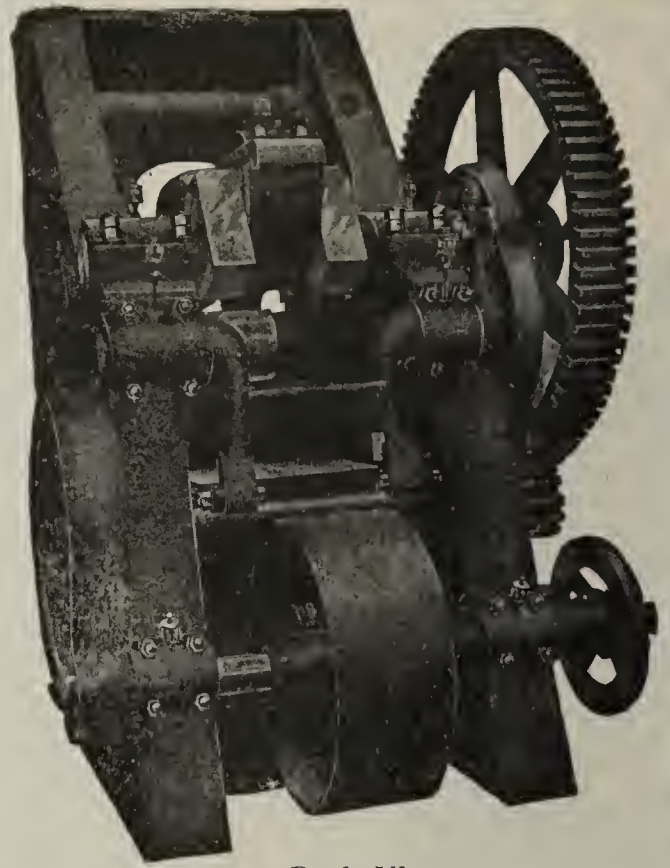
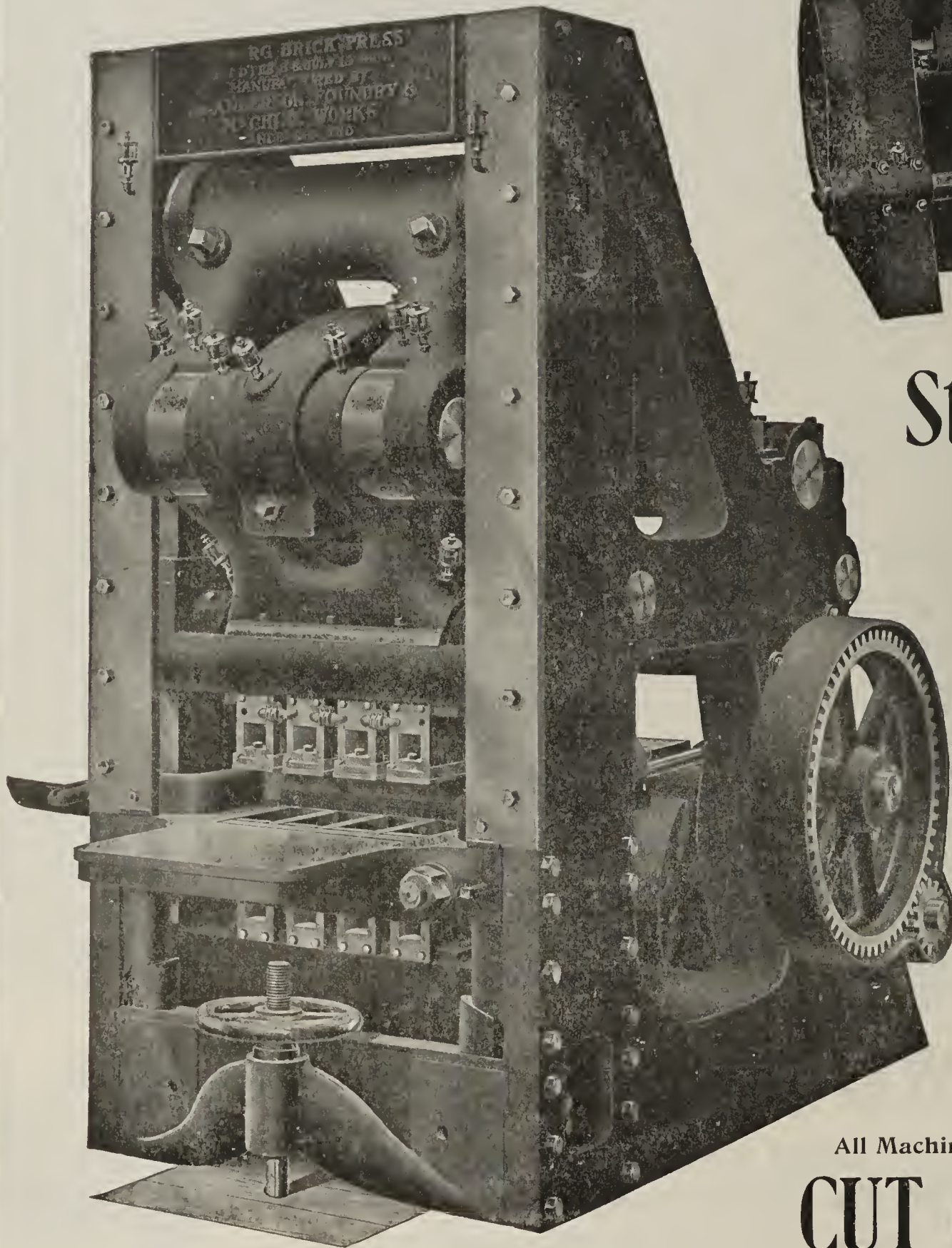
No brickmaker need fear unsatisfactory returns from his investment in a White Brick Press. It Stops the Stops and Delivers the Goods. Send for special catalog.

CHICAGO BRICK MACHINERY CO.

Great Northern Building, Chicago.

Mention THE CLAY-WORKER.

New Model Berg Brick Press



Back View.

Still in the Lead

and

One Step Further Forward.

Even stronger than ever, and all self-contained. Greater pressure and fewer working parts than any other machine. Simple, massive, compact and

SHIPPED IN ONE
PIECE.

All Machines Are Equipped With

CUT GEARING

Manufactured and Sold by

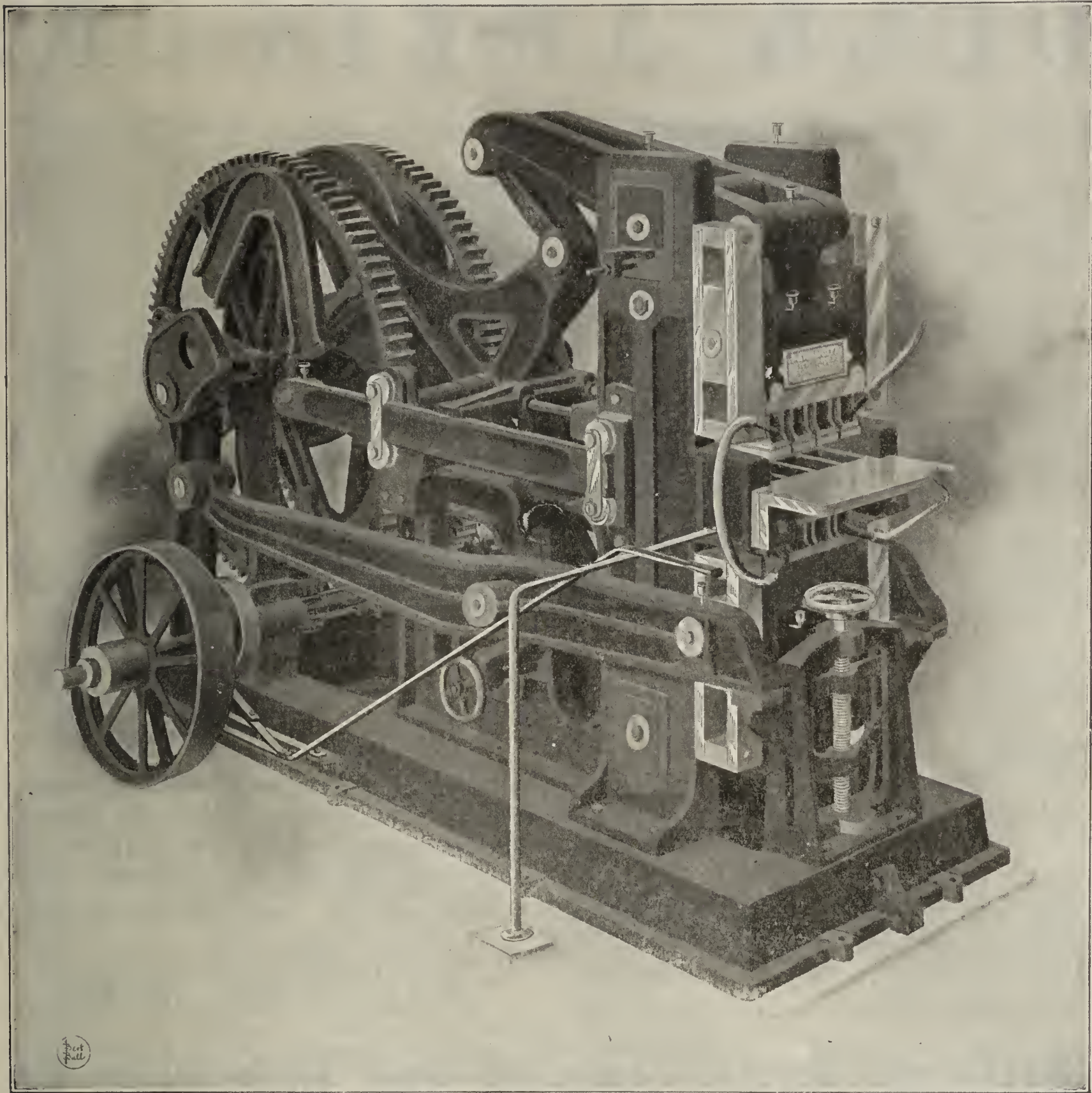
THE ANDERSON FOUNDRY & MACHINE WORKS,

Sold by the C. W. RAYMOND CO.,
Dayton, Ohio.

ANDERSON, IND.

The Fernholtz Brick Press.

Simple—Durable—Economical—Guaranteed.

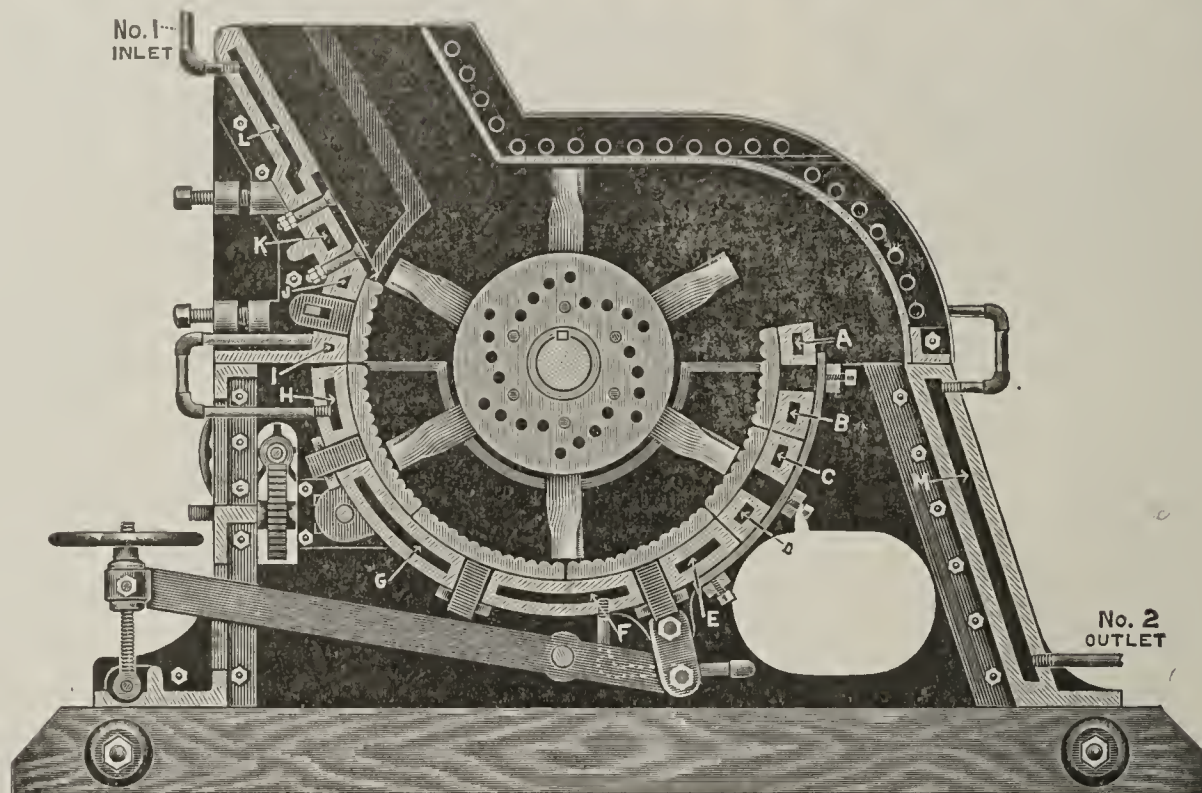


If you want an up-to-date Dry Press, one that will give you
RESULTS—See this machine in action.

The Fernholtz Brick Machinery Co.,

Boyle Avenue and Old Manchester Road, St. Louis, Mo.

JUST OUT! DECK SWEEPER.



York, Pa., Nov. 4, 1909.

The Williams Patent Crusher & Pulverizer Co.,
2701 North Broadway, St. Louis, Mo.

Gentlemen:—

Having used one of your Pulverizers, known as the Deck Sweeper continuously for six (6) months, I take this opportunity to tell you what I think of same.

We find the machine **entirely satisfactory** in every way. The adjustment is certainly very good. We adjust the machine while in operation for any desired fineness, and do heartily recommend your machine to any person in the brick business.

Yours very truly,
Howard Gise, Manager
Gise & Diehl Pressed Brick Works.

Williams Patent Crusher and Pulverizer Co.

St. Louis, Mo., U. S. A.

Old Colony Bldg., Chicago.

San Francisco Office, 428 Monadnock Bldg.

Write for Bulletin 21.

Over 1500 of the Williams Hinged Hammer Crushers and Pulverizers in daily operation.

BOOKS FOR CLAYWORKERS.

These Books will be Mailed, Postage Prepaid, to Any Address in the United States or Canada, on Receipt of Price.

The Brickmakers' Manual, by R. B. Morrison and J. A. Reep. Price \$3.00.

An illustrated hand-book for ready reference, giving detailed information on how to start a yard, and a full description of the process of manufacture of brick, from handling the clay from bank to machine to the finished product, including instructions as to erecting dryers, kilns, etc.

Clay Glazes and Enamels, by Henry R. Griffen. Price \$5.00.

With a supplement on "Crazing, Its Cause and Prevention," giving full instructions for glazing and enameling brick, terra cotta and pottery, including exact recipes and formulas for all the principal colors in use, and also instructions for their preparation and application.

Clays; Their Occurrence, Properties and Uses, by Heinrich Ries. Price \$5.00.

A valuable and reliable treatise on the origin of clay, chemical and physical properties, kinds of clay, methods of mining and manufacture and distribution of clay in the United States, including a chapter devoted to Fuller's Earth, its distribution in the United States, mining and uses, etc. The book is well illustrated, which adds much to its value.

Bricklaying, by Owen B. Maginnis. Price \$2.00.

This book contains extensive explanations of the most improved modern methods of bricklaying, and is the current practice and experience of the best authorities, making an invaluable work of reference for architects, engineers, contractors, builders and mechanics.

The Clayworkers' Handbook, by the Author of "The Chemistry of Clayworking." Price \$2.00.

A manual for all engaged in the manufacture of articles from clay, containing chapters devoted to Materials Used in Clayworking, Preparation of the Clay, Machinery, Transport, Conveyors, etc., Drying and Dryers, Engobing and Glazing, Setting or Charging, Kilns, Firing, Discharging, Sorting, Packing and Dispatching, Defects, Tests, Analysis, etc., etc.

Tables of Analyses of Clays. By Alfred Crossley. Third Edition. Price \$2.00.

Including analyses of chemically pure clays, well-known common and pressed brick clays, paving brick clays, fire clays, shales, etc., both in this country and abroad. A valuable book for those desiring to compare their clays with well-known and standard clays.

Burning Brick in Down Draft Kilns, by W. D. Richardson. Price \$1.00.

A manual on the "Burning of Brick," covering all the essentials of good burning, including chapters on kiln repairs, stages of burning, oxidation period, vitrification period, cooling, with valuable tables and illustrations of various testing apparatus.

Kiln Records, by W. D. Richardson. Price \$1.00.

To establish a successful system of burning, observations and records should be made regularly, carefully and conscientiously, and this can be done to best advantage by the use of Mr. Richardson's Kiln Records.

Practical Farm Drainage, by C. G. Elliott. Price \$1.50.

A Treatise on the Benefits of Farm Drainage, with plans and illustrations for making and laying tile.

Engineering for Land Drainage, by C. G. Elliott. Price \$1.50.

Giving instructions for laying out and constructing drains for the improvement of agricultural lands intended for the use of those who are charged with the responsibility of making plans for and executing drainage improvement.

Tile Underdrainage. By J. J. W. Billingsley. Price 25 cents.

A brief treatise on the benefits of farm drainage by the "Father" of farm drainage. This is an excellent pamphlet for distribution among tile users. In lots of 100, \$2.50; in lots of 1,000, \$20.00.

T. A. RANDALL & CO.,
Indianapolis, Ind., U. S. A.

The Andrus Brick Press

Makes Brick Every Day.

Been doing it **20** years.

Strong, Simple and Capable.

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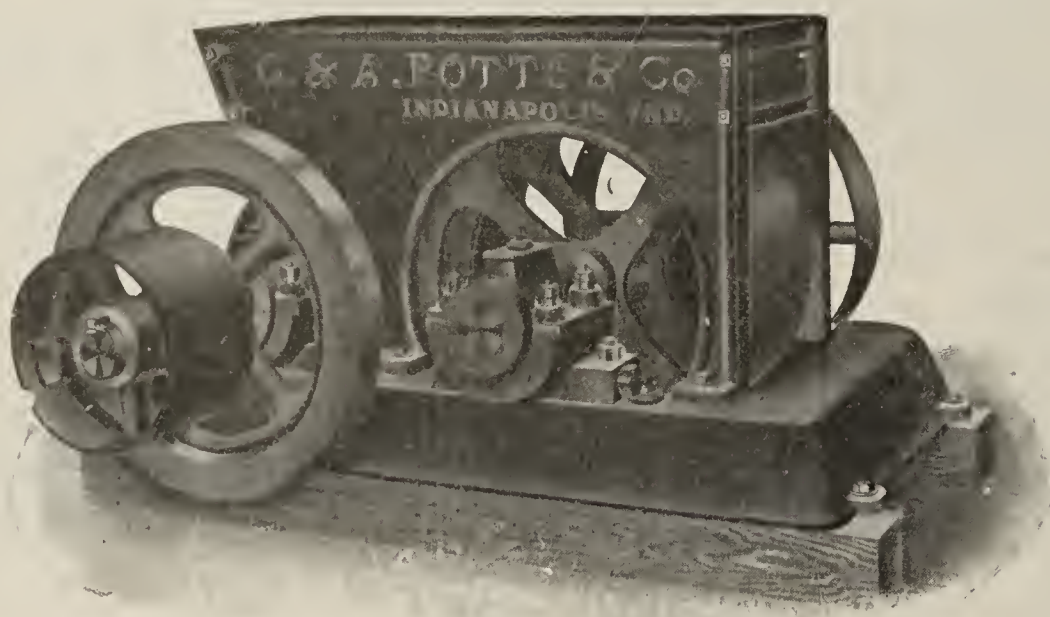
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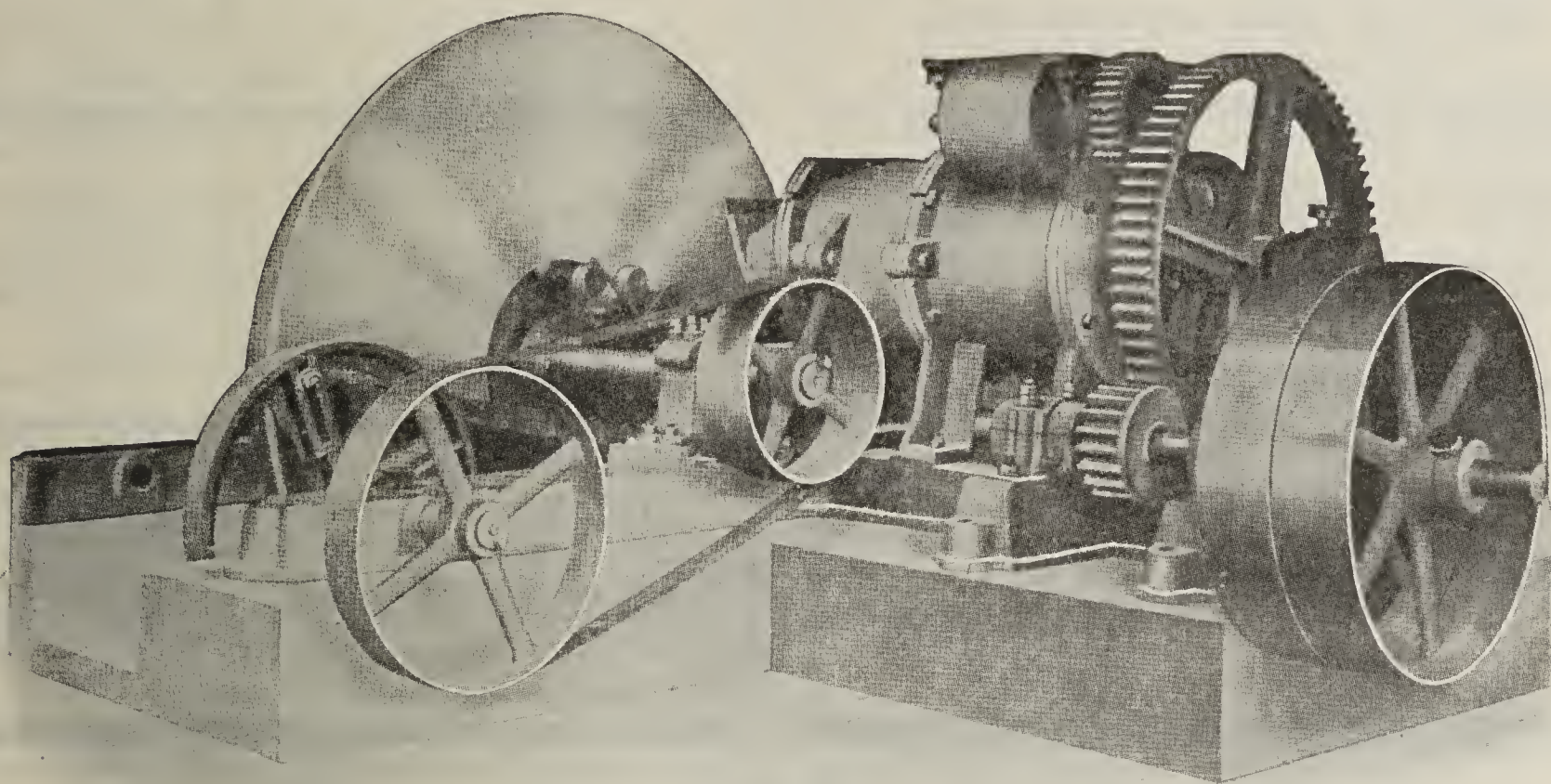
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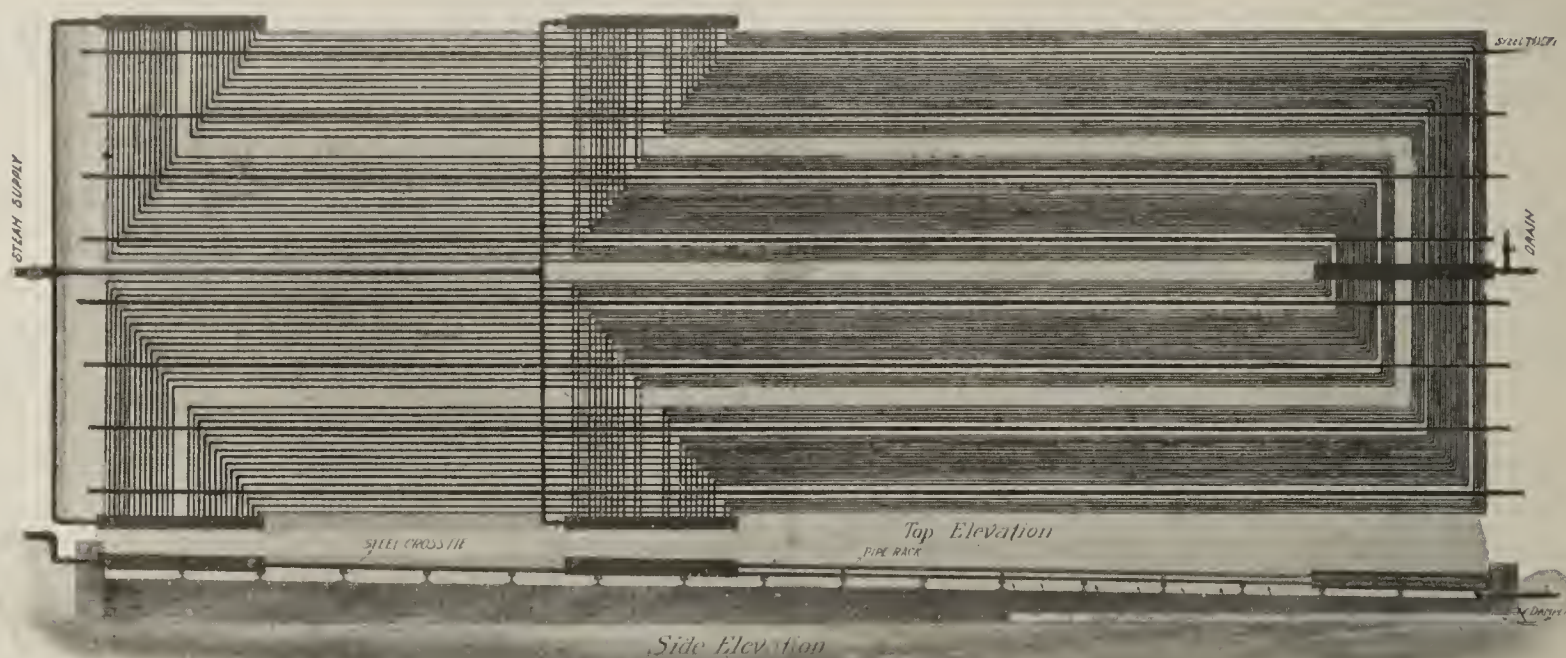
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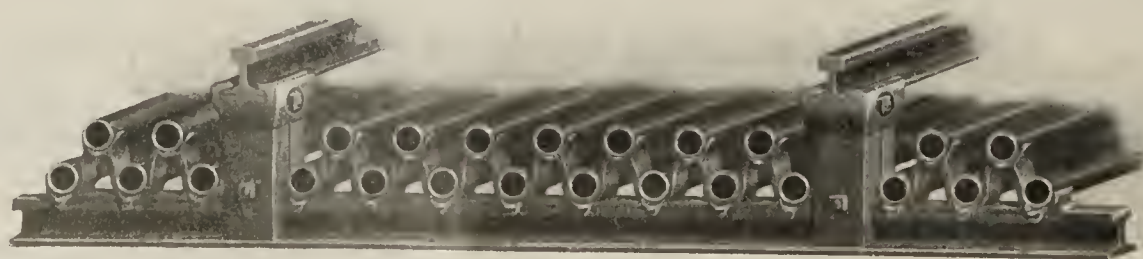
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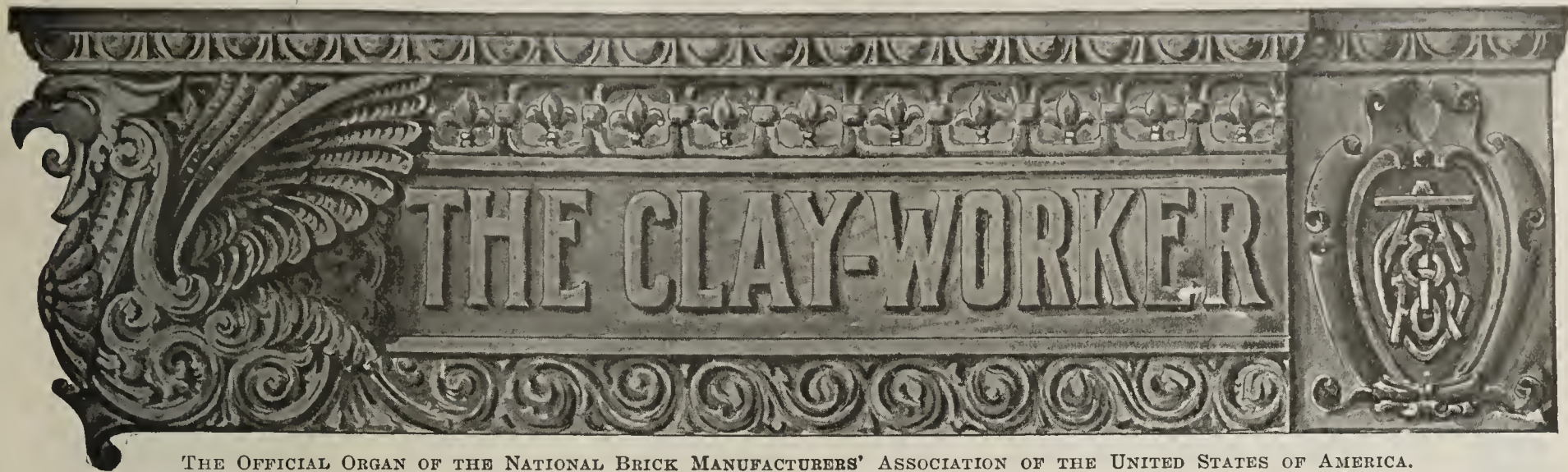
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VOL. LII

INDIANAPOLIS, IND., DECEMBER, 1909.

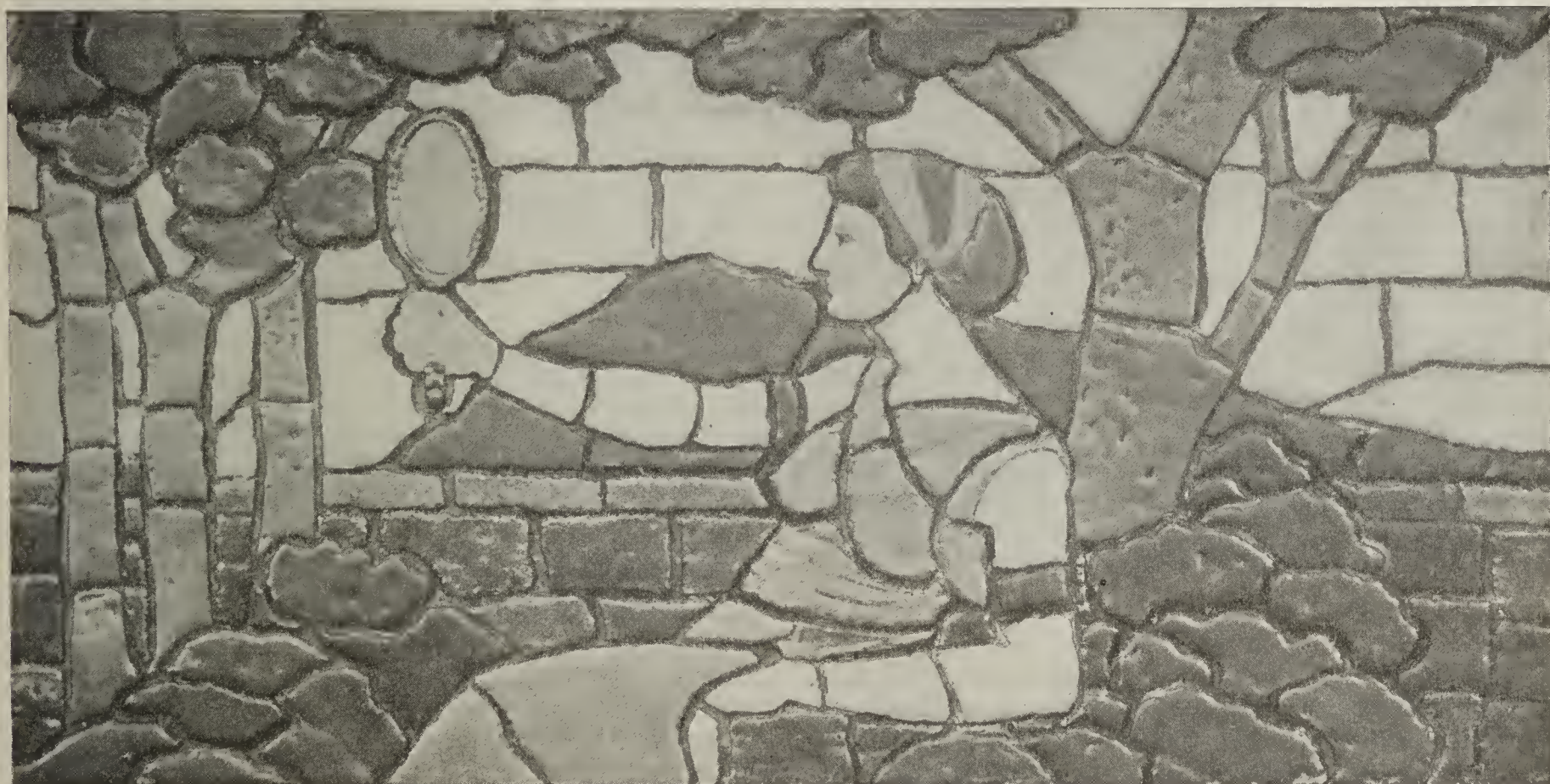
No. 6.

ART TILE IN ARCHITECTURE.

Special Designs in Mosaic Tiles in Both Modern and Oriental Patterns.

THE MUELLER MOSAIC COMPANY is a new Trenton enterprise which started in business last May, making artistic tile, faience and mosaic tiles in addition to the ordinary floor and wall tiling. Mr. H. C. Mueller, who

way the business is growing, they will outgrow present quarters in a short time. The company is incorporated, with a capital of \$50,000, and the officers are H. C. Mueller, president; George Grigsby, treasurer; James Grigsby, superintendent. Both of the Messrs. Grigsby have been associated with Mr. Mueller in years past, and, like Mr. Mueller himself, are past masters in every detail of tile manufacture. Mr. Kendee Elrod is in charge of the laboratory work and has an international reputation as a ceramic chemist, having



Specimen of Florentine Art Mosaic Panel. Original Design. Made by Mueller Mosaic Company, Trenton, N. J.

has long been connected with the tile industry and who is a man of much literary ability, as well as technical training, believing that there was an urgent need for tiling of more artistic character than that now in use, conceived the idea of an organization equipped to give special attention to art tiling. The excellent work already turned out and the favor with which it has been received by architects and lovers of the beautiful, prove that Mr. Mueller's faith was well founded.

The company's plant is located on Chambers street and Cedar Lane, Trenton, N. J., and occupies the buildings formerly the habitat of the Artistic Porcelain Company, which affords ample accommodations for the present, though the

received his principal education at the Seger school of Berlin. He has been connected professionally with a number of the leading firms in Germany and England. He is now one of the teachers in the Trenton School of Industrial Art.

With Mr. Mueller at the helm, assisted by such a corps of trained artists and technicians, it is little wonder that there is a constantly growing demand for Mueller art tile and mosaics. The accompanying views show a few of their ordinary art panels and do not begin to indicate the real beauty and possibilities in art work of this sort. Architects and builders desiring special designs and color schemes should get a copy of their catalogue containing color plates showing these art

panels in miniature. They are giving especial attention to fireplace work and other interior decorative features of exceptional artistic quality. An unusual bit of work is now under way at the plant in the form of a bust of Mr. Henry C. Kelsey for the Trenton School of Industrial Art, which was modeled by Mr. Mueller.

THE BRICK MANTEL AND FIREPLACE.

BY F. S. ATKINSON.



IN THE MODERN movement for better fireproof houses, the brick manufacturer can play a most important part by adapting his products for certain needs in a careful study of the building conditions. Lumber is constantly advancing in price and its use is growing more restricted in house building as a consequence. The time may not be far distant when wood will be used only for the inside trim and finish of our homes.

Already it is possible to construct brick houses in many

sufficient time is allowed them to dry and harden, and long ago architects accepted them as the best standard unit for architectural purposes.

Bricks have thus the advantage at the outset over almost any other material, and manufacturers should take their opportunity to adapt them to the new conditions of the trade. It is not sufficient to make simply the old bricks and rest content at that. The building trade is changing continually, and new materials, shapes and sizes of bricks are demanded to meet the requirements. One has but to note the improvements made in the last few years in architectural and structural terra cotta to see this. Terra cotta has come into universal use in our cities for outside and inside finish. The modern square blocks of cream-white terra cotta for clothing the outside steel framework of buildings proves more acceptable than stone or marble, and many noted illustrations of this adaptation of the material to a new use could be cited. The terra cotta blocks are lighter than stone or concrete, and when used on very tall buildings they reduce the load on the steel frames materially. Terra cotta flat tiles for domes, arches and stairways are also in considerable use



Roman Faience Mosaic, One-Half Inch Tessera. Made by Mueller Mosaic Company, Trenton, N. J.

localities as cheaply as of wood, and the much greater durability of the former makes it far more desirable. The brick house is moreover fireproof, less costly to keep in repairs, and deteriorates much less rapidly. As an investment, a brick house is today considered one-third more valuable than a wooden structure. The difference in cost of insurance and painting makes an important item in favor of the brick house.

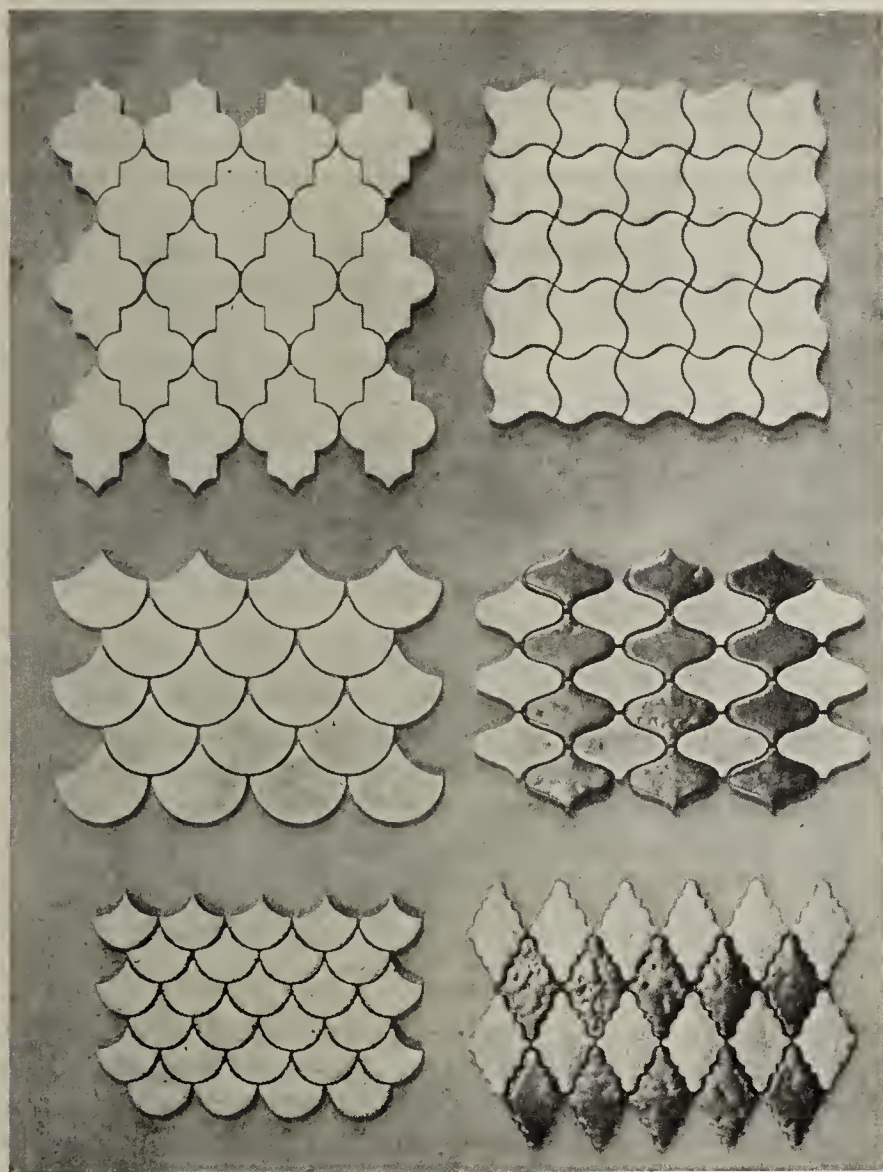
The remarkable craze for concrete building blocks for structural purposes is due entirely to the cheapness of this material, and to the systematic pushing and advertising of the fact by manufacturers of the blocks and machines. Within five years the concrete building block industry has jumped from almost nothing to a leading position in our domestic manufacturing. Yet architects take hold of concrete building blocks rather slowly. There is the element of danger in their employment that must be considered. If hastily made and applied in the walls of a house, the blocks may crack and cause a collapse, or if all pressed with the same machine the front appearance is rather monotonous. Bricks, on the other hand, are manufactured in the yards where

in a number of our best buildings, and they are rapidly tending to supercede the iron and steel domes and stairways.

In regard to ornamental terra cotta one has but to study the newer buildings of our large cities to note the remarkable adaptation of this material to a new use. It is taking the place of carved stone almost entirely. It is lighter in weight than stone, more fireproof, and shows greater durability. It is not easily affected by weather conditions, and consequently requires less cleaning. It will retain its color and form indefinitely, and the front of a building thus ornamented is an imperishable product of the day. There is less danger of terra cotta ornaments getting loose from their moorings at great heights above the street level, and when anchored directly to the steel frames they could not be shaken off by an earthquake. The anchoring of terra cotta blocks for exterior use to the framework is also a work that makes this form of building of paramount value in earthquake countries. The blocks are anchored by embedding the iron rods in the material during the baking, and then twisting them to the iron frames.

The skill with which structural and ornamental terra

cotta manufacturers have studied the architectural needs of the day and then adapted their material to meet the requirements may be taken as a sample of what many brick makers could do in their line. It is true that many brick concerns are today specializing on particular forms and shades of bricks in a highly commendable way. In hard burnt enameled bricks for both exterior and interior uses great strides have been made. Enameled bricks are in demand now for exterior ornamental use in connection with terra cotta. In several of the new buildings in New York several million enameled bricks have been used in this way. Their soft, shining surfaces add sufficient contrast to the terra cotta blocks to make the finish highly artistic. The facade of a modern building constructed of ornamental terra cotta and enameled bricks attracts general attention, and is superior in very many respects to more expensive marble and stone. In the first place, the materials retain their color and clean



Florentine Mosaic Tiles in Modern and Oriental Patterns.

appearance much longer and do not require frequent cleaning.

Enameled bricks for tunnel use, railway stations, lavatories, grill rooms and kitchens, laboratories, slaughter houses, gymnasiums and baths have become within five years the most satisfactory material, and millions of the bricks are thus employed. Many of our first class cities insist upon subway tunnels being lined with these bricks, and also all public baths and lavatories. The sanitary value of enameled bricks is also a point that is worth considering. In laboratories they are of special value where fumes of acids and chemicals will discolor stone, metal and wood. Manufacturers of enameled bricks have adapted their products to a great variety of uses, and with bricks selling at \$100 per thousand there is a constant demand for them. In the end they prove more satisfactory than inferior materials at half the cost.

The employment of bricks for mantels and fireplaces is

another feature of the industry that has gained greatly in the last few years. The revival of the old brick fireplace is now popular among architects and builders. We have had wood mantels and marble and stone mantels until people are tired of their monotonous finish. Wood mantels, unless done in hard woods and expensively carved, are very unsatisfactory. They have a cheap appearance and their durability is questionable. The heat of the fireplace or chimney invariably causes them to warp and crack within a short time. Hard woods, hand carved, are almost too expensive a luxury. Marble mantelpieces have the same disadvantage of cost, and also that of unpopularity.

The old fashioned brick fireplaces were pretty in their way and are being imitated in some instances. But the rough bricks used in them are not satisfactory for modern work. Variety and effectiveness are the keynote in these fireplaces. To obtain this the manufacturer of fireplace bricks should employ all the colors, shades and sizes within his means. Architects generally draw the designs they need



Fireplace Panel in Florentine Mosaic. Designed by H. C. Mueller.

for mantels and fireplaces, and experience has shown that these designs can be worked out better with bricks than any other material. The different sizes of bricks lend themselves better to such artistic development than any other articles. But it is a mistake to suppose that all has been accomplished in this direction. A short time ago our bricks and terra cotta were limited to a few plain colors, but today we have them produced in a great variety of shades. The first essential to the manufacture of fancy pressed bricks is the right kind of clay. A good many manufacturers have found clay beds of such striking color that their bricks have become popular from the outset. Just now there is a pretty thorough searching of the different parts of the country for clay beds which will show other new colors. Nearly every month the report of some new discovery of remarkable clay deposits is received, and new plants are established to work the deposits. A delicately tinted clay product that shows unusual colors of a durable nature when made in bricks is sure to have a commercial success.

But a feature of this work which has been neglected is

the combination of various clays and mineral elements for the production of bricks of special beauty. This work is entirely in its infancy and requires skillful working. It is only occasionally that a clay bed of great extent can be found which yields a uniform color for fancy pressed brick. As an illustration, a New Jersey concern which popularized a fancy creamy-white brick with a delicate shade of light blue running through it had all it could do to fill orders at high prices. The bricks were used for inside finishing of mantelpieces and fireplaces of colonial houses. Architects ordered the bricks so freely that the concern made money rapidly. Then the clay bed gave out and the color of the surrounding deposits was not nearly so effective. Complaints began to be received that the new bricks were not up to specifications. The coloring was not as ordered, and a fancy grade of bricks began to lose standing. It was impossible to substitute other bricks for the old ones. The company looked in vain for other similar deposits, and then, in desperation, it sought to manufacture similar bricks out of a composition of several clays. This did not answer, and a chemist was called in who, after analyzing the composition of the old clay, proceeded to specify the mixing of clays and mineral ores. After considerable rather costly experiment, desirable results were obtained. Once more the company produced the right sort of bricks, and today they are used freely for interior fireplace construction.

What proved the salvation of that single manufacturer could be made the secret of success of many another concern. To depend entirely upon the natural clay products of one region for fancy bricks is a mistake. Another New Jersey concern, that had an enormous deposit of a light clay, constructed a laboratory as a part of its plant and proceeded to experiment with various ingredients. First it mixed certain mineral ores with the clay to produce different shade effects. Some of these ores proved effectual in the making, but when subjected to weather conditions they run and caused streaks of colors. This would not do, and for the sake of its own reputation no new kind of bricks was placed on the market until after they had been exposed to weather for one year. Outside of the laboratory there is a yard where experimental brick walls are constructed. The bricks placed in these walls are exposed to all sorts of weather, winter and summer. When samples of bricks are put in them a record of the date is taken and carefully kept. At certain intervals they are examined and the bricks tested to see if they have deteriorated. Naturally, any which show signs of color running are rejected. Through this simple method of testing the company has been enabled to place half a dozen different kinds of fancy pressed bricks on the market in the past two years which have proved abundantly satisfactory.

Such experimental tests for bricks used in exterior walls do not apply to those for interior finish. A different sort of test is required for these. The severest test that can be applied to them is excessive heat followed by dampness and moisture. Bricks used in a fireplace must be subjected to great heat, and later when the house is closed for a period to dampness and moisture, they must be able to withstand both of these extremes without changing their surface coloring. Some fancy colored bricks which will withstand outside exposure do not do well in the fireplace. Their surface tends to get soft and sooty under great heat, and when washed streaks of mineral ores are left. An experimental test of them for this work is, therefore, almost as essential as for exposed bricks.

Bricks used in a fireplace of a modern home are frequently employed as the central point of decorative furnishing. In other words, the color scheme of the whole interior is made to harmonize with those of the bricks. For making the bricks the keynote of the decoration there must be some-

thing striking in their composition. In reds, blues, buff and cream whites, the bricks for fireplaces have already scored a great success. But the color scheme is still far from exhausted. There are modifications of these shades which manufacturers can obtain by a little experiment with different clays and mineral ingredients. A large manufacturer of fancy bricks has upward of fifty color schemes for fireplaces made out by an expert architect and exhibited in his office. A builder or house owner looking for appropriate fireplace designs could find here suggestions for his use. The different colored bricks manufactured for these various designs range in price all the way from \$40 to \$100 per thousand. But even at the latter price a beautiful mantelpiece can be produced in harmony with the interior surroundings at prices within the reach of most builders.

The ordinary carpenter and builder who does not call in the architect rarely recommends a fireplace constructed of bricks. To him the wooden mantelpiece obtained from the stock of some large manufacturer seems more appropriate because it is easier installed and at little cost of time and labor to him. The cheap effect of the mantelpiece after being put in position does not materially change his point of view. It may be hopeless to convince such builders of their error, but the manufacturers of fancy bricks can appeal direct to the architects and secure their attention. In the present campaign to induce the public to use bricks for fireplaces advertising must be made in such a way as to attract attention. The working out of harmonious designs in brick fireplaces may seem to be the work of architects, but the progressive manufacturers who have anticipated this work in the effort to secure attention to their products have not labored without good results. Many an architect in his anxiety to find some new ready-to-hand design to help him in his work will show his appreciation of such efforts on the part of brick makers.

"I never thought fireplaces could be made so attractive out of bricks," was the remark of an architect who had been induced to study some brick work designed by a manufacturer. "Can you guarantee the uniformity of your bricks, or is this a special advertising design made of selected bricks?"

"We can give you an absolute guarantee that every brick we turn over to you is uniform in color," was the reply, "and if they are not we will take out the work and pay you for your effort."

This guarantee led to numerous offers, and, as the manufacturer made his guarantee good, the quality of his bricks became standard among many architects of that particular city. The guarantee of a uniformity of coloring is as important as the development of certain styles of bricks. The fixing of the colors is not a difficult matter. Modern fancy pressed bricks are made according to certain set formulas. One can not make them haphazard. The different clays must be mixed as mathematically and scientifically as mineral ores are mixed for making high grade steels. This fact may not be recognized by makers of common bricks, but for the successful operation of a factory producing high grade bricks uniformity of coloring and other qualities are obtained only by scientific methods of making. More than one manufacturer has lost caste through producing very irregular grades of bricks. At one time his product is of a high order, and then a lot is greatly inferior. Such work does not pay in the end. Architects are not going to depend upon makers of bricks whose standard of quality can not always be depended upon. This uniformity must continue from year to year, and not simply from month to month. An architect who has had good results with a style of bricks this year may want to specify them again for next year or the year following.

The output of pig iron last year decreased over 50 per cent. as compared to 1907. It's no wonder that there were hard times in metal and industrial sections.



Written for THE CLAY-WORKER.

PREPARATION OF THE CLAY.

Second Paper.

IN THIS BRANCH of the work there is opportunity for improvements in our operations, and in many plants economy will result from increased cost in the clay preparation.

A clay storage shed is an important factor in the preparation of the clay, and also in economy of operation.

It makes the plant independent of the weather and there is no excuse for not getting the full daily capacity on account of the condition of the clay. In the preparation work it enables the operator to mix the clays and get therefrom a more uniform product. The lean clay can be dumped on the fat, and in cutting down the pile, a mixture of the clay goes to the grinding machinery. It may be said that the storage shed means another handling of the material, but this is a case where increased cost results in profit. The more uniform the clay, the more uniform the pugging will be, and with a uniform pug going into the machine, the output will be larger and better, and there will be less loss in the drying and burning. The resulting product will be better and will command a better price, or a larger market at the lower price.

The cost of this extra handling is small. A conveyor belt, or carrier of some kind, should be in a covered pit with removable cover, and one man will rake down from the pile all the material one fine grinding machine will grind.

If the material is sufficiently uniform for common bricks and it is desired to run it direct from the clay pit to the grinding machines, the chief value of the storage shed will be in its supply of material to tide over bad weather. For such direct operations we would provide a hopper or bin into which the clay could be dumped by gravity and fed through chutes to the grinding machines. One man will feed one machine and in many situations can take care of two machines.

Any surplus clay can be dumped in the storage shed, insuring full operation of the clay pit, and, in consequence, minimum cost of material.

We wish to emphasize the importance of independence in the operation of each branch of the work. Each operation then is subject only to its own delays and full capacity of the plant can be had every day.

Hard or lumpy clay or shale should be rough crushed before putting the material into the fine grinding machines. Such rough crushing saves repairs and increases the capacity of the fine grinding machines.

Compare this method with that seen in many yards: A crew of men are pounding up the lumps of clay or shale, shoveling the material into barrows and wheeling it to the crushing machines.

The latter are over-fed and under-fed at frequent inter-

vals during the day, resulting in decreased capacity and increased repairs and consumption of power.

Clays containing pebbles should be worked in a dry condition by putting them through a whipping machine to loosen the pebbles from the clay, followed by screening to remove the pebbles. If the material as it comes from the pit is wet a rotary dryer should be used for drying and then the pebbles whipped loose and screened out. On one yard, the pebbles were removed in the dry pan. The mullers were raised an inch or two from the grinding plates. The clay required no crushing, except to loosen the pebbles, which could be done in this way. The pebbles remained in the pan while the clay passed through the screen plates. At frequent intervals the pan was stopped and the pebbles screened out. Fortunately, the brick machine was of small capacity. Where the pebbles are of some size, they can be removed by grooved rolls, but any small pebbles will pass the rolls and appear in the bricks—oftentimes with bad results.

Where the clay contains pebbles, especially of limestone, and they are not or can not be removed, the grinding should be very fine in order to reduce the size of the lime pebbles small enough so that they will not cause "popping" in the burned bricks.

There are many clays that are tough and plastic, but very tender drying, such as the joint clays of the middle west. Recent experiments by the ceramic department of Illinois University, under the direction of Professor Bleininger, have shown that drying the clays at a temperature of 200 to 400 degrees C. will so affect the plasticity that these clays can be safely dried. It does not follow that all tender drying clays will be improved by this treatment, but it may be said that clays whose drying behavior is improved by weathering, especially freezing, will most likely be improved by the preliminary drying treatment. The weathering process is a slow one and requires considerable ground and extra handling of the material. Where possible, it can economically be abandoned for the more rapid preliminary drying process.

Slumming may be applied to some alluvial clays to advantage and, while it adds somewhat to the cost, yet the better results, better ware, higher price and larger market, offset the cost with a margin of profit.

We have visited yards where two or more clays are mixed to get certain color effects. The method of mixing to get uniform product by dumping the clays in layers in the storage shed applies only to clay banks of practically the same material, all of which goes into one class of products. The bank may have sandy streaks, or one portion be regularly more sandy than another, and there may be differences not noticeable. The storage shed plan gives a fairly good mixture of such material, certainly far better than, if the material be worked direct from the bank. We have seen such irregular materials worked by hand methods direct to the machines

and the burned product was as irregular as the materials, and showed the irregularity more markedly.

There would be in the kiln patches of light-colored, large, punky bricks, alternating with bunches of dark-colored, small, dense bricks, with all sorts of intermediate colors and sizes. In the pile from the kiln we were forcibly reminded of Joseph's coat.

But in many plants making high grade stuff a definite mixture is required to get results. It may be fire clay and shale for sewer pipe or paving bricks, or a mixture of clay and coloring matter, as in gray bricks, etc.

Such mixtures should be accurately measured or weighed, and the cost of this operation is slight. The clay may be drawn from measuring chutes, direct to the feeding belts, or into cars with scales attached, or into measuring diaphragm cars, such as are used in many fire brick plants.

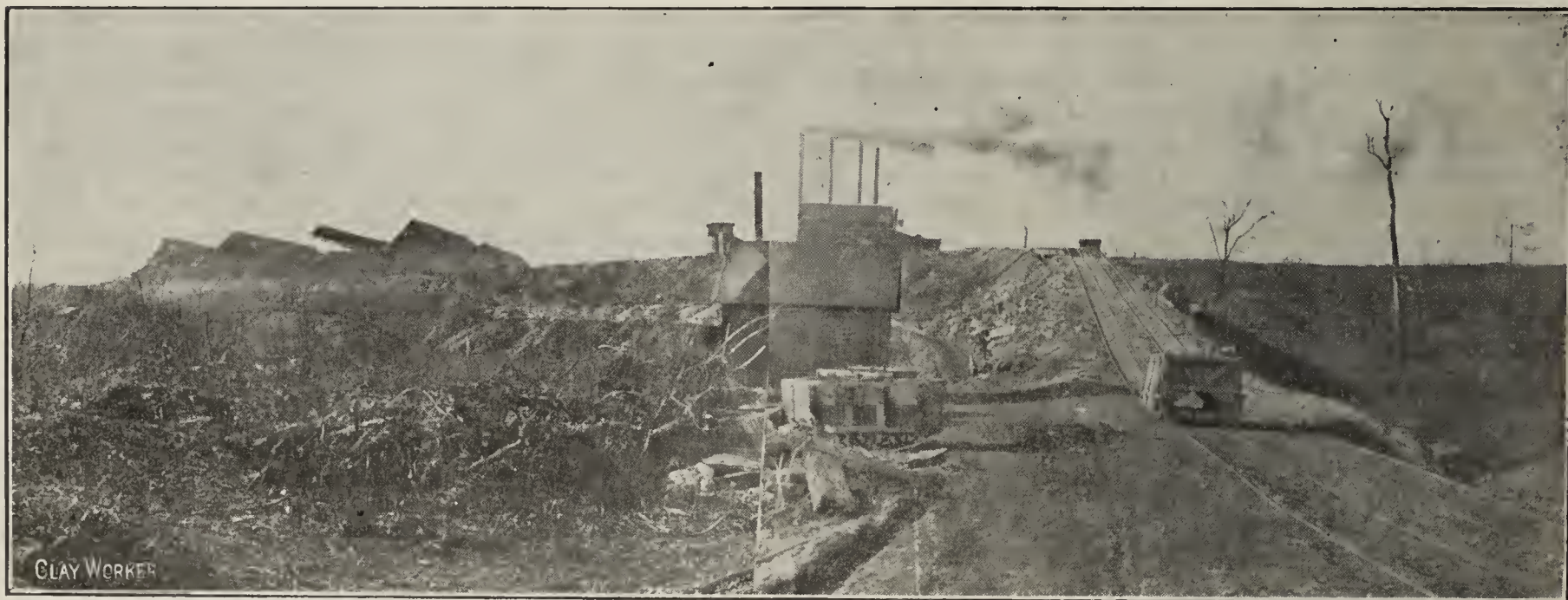
From the belt or car the material should go into an automatic feeder to be fed into the grinding machine.

If the clays vary considerably, fine and coarse, it often will be better to make the mixture after the fine grinding, as is done in the more modern fire brick plants. The clays are ground separately and stored in bins from which they are drawn into diaphragm cars, then introduced into the wet mill. A still better arrangement would be a series of auto-

exceeding any other machine. We are guaranteed 100,000 bricks per day from one machine.

The dry pan has wider application than any other machine, and is the only machine adapted to hard, tenacious clays. A dry pan should be adapted to the material. If used to grind a soft, friable, easily crushed shale or clay, the screening capacity should be the maximum, while the mullers may be lighter. For hard, tough clay the grinding capacity must be a maximum. The grinding capacity should be regulated to the screening capacity, and vice versa. A change in screen plates will often increase the output of the pan, and no one should be satisfied with the work of the pan until it grinds more clay than the machine will make into bricks; in other words, the grinding capacity should easily turn out the maximum capacity of the plant.

The grinding capacity of the pan may be increased by staggering or setting the muller shafts out of line with the diameter of the pan. This gives, not only the crushing effect of the mullers, but a grinding effect between the grinding plates and the mullers. Another decided advantage of this offsetting is that it keeps the face of the muller tires true, and prevents the grooving, which greatly lessens the grinding capacity of the pan. Experiments with this type of pan show an increase of 25 per cent. in the output of the



Panoramic View of Sheridan Brick Works, Brazil, Ind.—Taken from Shale Bank.

matic feeders from each bin, which could be adjusted to get any mixture, spilling the material on a conveyor belt or spiral leading to the pug mill or wet-pan bin.

This eliminates any operating labor.

Fine Grinding Machines.

The only preparing machinery on many plants using alluvial clays is a disintegrator. On one yard visited a lumpy clay was dumped direct into the combination machine pug mill, and in the kiln there was not 10 per cent. good bricks because of the lumps.

A simple granulator is sometimes used, but this is of little value for pulverizing clay. It may serve to break up the lumps, and should be followed by some other machine. It is, however, an excellent feeding device. A disintegrator is a good machine for the first crushing of soft clays and puts them in shape for smooth rolls or perforated wet pans or rolls. Wet clays can be worked by this method very satisfactorily. For dry clays the granulator, disintegrator and smooth rolls make a good combination. The pulverizer and dry pan are reserved for hard clays.

Where the clays are friable and not too hard, the pulverizer is a very satisfactory machine and has a capacity

pan on hard, tough clay, but it may also be said that the increase in power required was about 40 per cent. There are situations where it would be economy to expend this power to get the 25 per cent. increase in capacity.

The pan, where possible, should be set high enough to allow the ground clay to flow by gravity to the elevator boot and thus do away with the under scrapers, which require considerable power and additional repairs.

This can easily be done where the clay is drawn from an elevated bin or where a conveyor is used to feed the pan.

The step bearing of the pan should run in oil, and be easily removable for cleaning.

Screening Clay.

Any ground clay should be screened to get out the lumps, and there are numerous situations where it would pay to first dry the clay in order to permit screening, and perhaps grinding.

If a man or boy is kept at the screens to clean them, either the clay is unusual or the plant is not properly equipped.

There are traveling, self-cleaning gravity screens, stationary gravity screens with traveling brushes, revolving

screens with beaters, piano wire screens with vibrating devices, etc., and there should be no occasion to require any labor at the screens.

Ground Clay Storage.

We have mentioned in another place the importance of storage bins for ground clay, and repeat it in order to emphasize it.

The brick machine may be stopped to lace a belt or for other minor repairs, but the grinding machine continues to deliver its regular supply. Later in the day the grinding machine may be in trouble, but the brick machine does not find it out until the clay in the bin is exhausted. Without the bin, a stop of one machine also stops the other.

Written for THE CLAY-WORKER.

NEW YORK AND VICINITY.

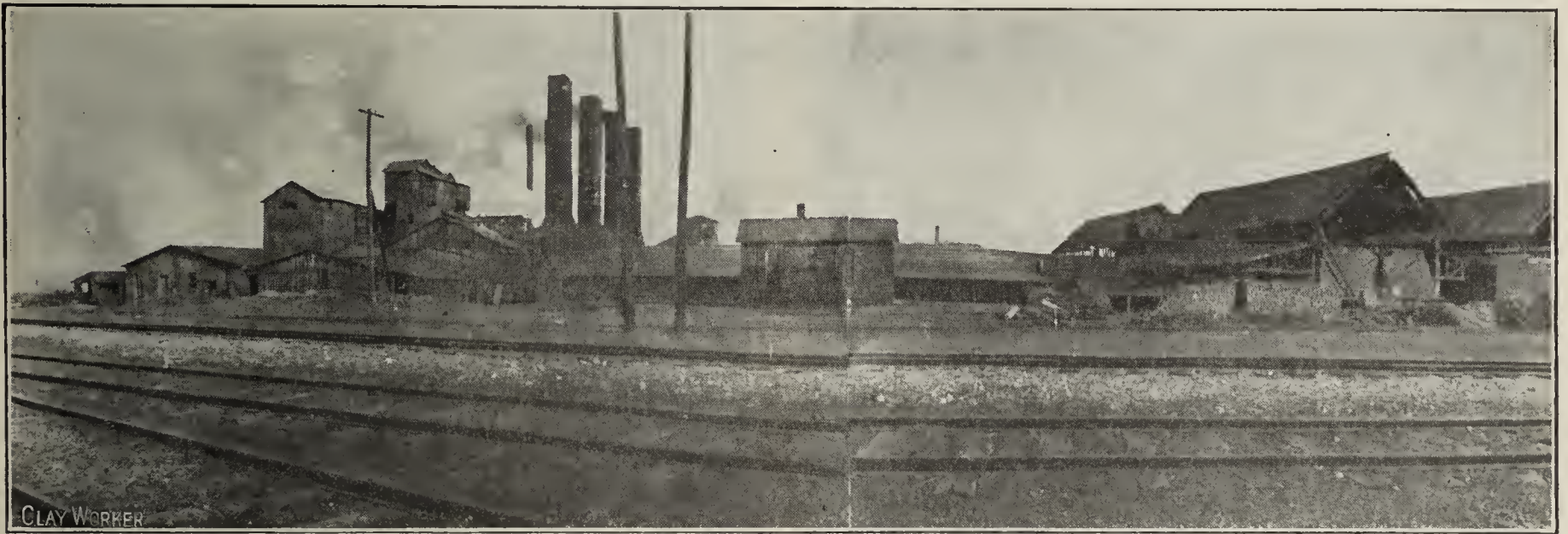
PRICES ARE likely to advance by the time this is in print. Builders who are closing operations a trifle late, perhaps, are experiencing some difficulty in obtaining supplies sufficient to fill their requirements. Where building brick are now commanding up to \$6.50 per 1,000, it is said that another 50 cents to \$1 per 1,000 will be added within a short time, possibly before the middle of this month.

Written for THE CLAY-WORKER.

A TRIP THROUGH THE SHERIDAN BRICK WORKS.



ONE MILE FROM the center of Brazil, Ind., located on the Vandalia railroad, is the plant of the Sheridan Brick Company, manufacturing a good grade of face and building brick. The company was organized in 1891 by J. C. Adams and Oliver H. Root. At that time they built in the gas field near Sheridan, Ind. (hence the name of the company), a plant of 40,000 daily capacity, and afterwards increased it to 70,000. At that time there was an abundance of gas in that region, which they used to good advantage in the drying and burning of their brick. The company put in ten gas wells in the district with five miles of pipe lines. The company at that time used clay from a 160 acre field located alongside the Monon railroad. Here they were very successful until the failure of gas in the late nineties, at which time Mr. Root became sole owner. At this time he looked about for a favorable site for the location of a new plant, and finally



General View of the Sheridan Brick Company's Plant, Brazil, Ind.

Supplies are reported none too liberal, at least this may be said to apply to available supplies. Navigation on the Hudson river will close within a short time, and the result of this will be felt in all the building operations in and about New York. There are a good many belated buyers who have had a good deal of trouble in finding sufficient brick to complete the contracts which must be closed up this fall. Conditions otherwise are substantially the same as they were last month. The season has been an unusually good one and the close sees but few brick left for which there is no market, either at present or in the near future. It is true that business for this season is practically over, but that does not hinder the fact that trade promises well and hat makers and others are looking forward to next season with anticipation of further expansion in their prosperity.

Building permits issued during November were far more than during November of last year, and the aggregate value ranked far beyond that month. The issuing of permits continues unabated and sales of brick, based upon these permits, must necessarily be large. The situation is unusually promising and everyone connected with the industry is confident of a year next season which will surpass anything hitherto known in the brick business in this vicinity.

BURTON.

purchased a rich shale land at Brazil, on which the present plant stands.

This yard has been operating almost continually for the past twelve years, and is turning out products that find a ready market. The present location gives the company the advantage of an outlet to St. Louis and intermediate points, Peoria and Chicago, Ill., St. Joe, Mich., and the far west.

At first the machinery equipment was that of a soft mud plant. This was not well adapted to the shale found at Brazil, and a complete line of Freese stiff mud machinery was installed.

They make a variety of face brick known as the machine mission brick (patent applied for), mission colonial, rustic, rustic colonial, a smooth red, which takes the place of a press brick, a smooth colonial and also a hard brick for foundation work. All are made of shale from a bank located 350 feet from the plant proper.

The shale bank has a 60-foot face and covers a large area. A 10 to 15-foot vein of surface clay is worked in with the shale, making a mixture better suited to the manufacture of their brick than either material used separately. The surface clay and shale are separated by a 3-foot vein of a hard rock formation, which is the only problem in mining the materials. The shale and clay is blasted and a Marion steam

shovel facilitates the gathering. This handy machine dumps the material into wooden-bottom dump cars holding from one to two and a half yards. These cars are hauled up an incline to the plant on a double track tramway by means of a wire rope cable and a large double-acting winding drum.

At the plant the raw material is dumped in large storage bins near three 9-foot all-iron dry pans, two furnished by the C. W. Raymond Company, and one, the largest in the district, by the Taplin-Rice-Clerkin Company.

Three chain elevators carry the ground material to gravity wire screens. The screened material is stored in large bins which feed directly into a Freese combined pug mill and brick machine.

The green brick are dried in a large Standard Dry Kiln Company's steam dryer, said to be the largest in the state, having 24 tracks. The burning is accomplished in eight kilns, 400,000 capacity each, making a total kiln capacity of 3,200,000. The daily output is close to 100,000. The finished product is shipped out over the Vandalia and C. & E. I. railroads, the company owning the sidetracks connecting with the main lines.

The power of the plant is furnished by a large battery of five 125 horsepower boilers and three engines, two for running machinery and the third for running a generator. The



Sheridan Brick Company's Shale Bank.

two large engines are the Atlas and Taylor, equalling 400 horsepower, while the small engine is 20 horsepower, furnishing sufficient power for the electric lighting and fully equipped machine shop.

The water supply is obtained from a large reservoir for soft water, averaging 15 feet in depth, filling a large gully 200 feet from the plant.

Sheridan Brick Works' main office is in the Castle Hall building, Indianapolis, Ind., where a number of attractive exhibits of their various grades and shapes of brick are open to inspection.

PROSPERITY AT SPOKANE.

The Washington Brick, Lime and Manufacturing Company, with headquarters at Spokane, Wash., are increasing their plants, and are shipping out increased quantities of their several products. The excellent terra cotta supplied by them for the courthouse at Missoula, Mont., the Y. M. C. A. building at Portland, the Moore Theater building, Hanford, and others in Seattle, as well as the beautiful Paulsen building and numerous others in Spokane, testify to the high grade and quality of their products. This company is now being merged into the Washington Brick, Lime and

Sewer Pipe Company, with a million dollars capital, and have commenced the erection of a large sewer pipe plant in the suburbs of Spokane, and if the quality of the sewer pipe from the new plant is in keeping with the other products from their several plants, we predict for them a large business in this industry.

CLEVELAND BRICK NEWS.



RECORDS COMPILED in the office of the Cleveland Building Inspector for the eleven months ending November 30 indicate that the year just closing promises to equal, if not break, all former records in the history of the city. The total value of buildings erected for the eleven months was \$12,300,000, as against \$8,991,000 for a similar period during 1908. It is believed by the building officials that the total for this year will reach about \$13,000,000. Permits in Cleveland are seldom issued for more than 50 or 60 per cent. of their real value and it is fair to estimate that fully \$20,000,000 has been spent in



Placing Brick on Dryer Cars.

new building projects during the present year. The highest record made heretofore was about \$13,500,000 during the year 1907, but in that period a permit for \$2,990,000 for the new county courthouse was issued, which was a very unusual thing. The general volume of building this year, it is agreed, has been greater than ever before in the history of the city.

The past month has seen the launching of several huge projects, work on which will progress during the winter months as rapidly as possible. A new skyscraper, to be of brick and terra cotta and twelve stories high, is to be built on Euclid avenue, immediately to the east of the Cleveland Trust Company's building. The building is being erected by the City Investment Company, of which E. H. Baker, manager of the Plain Dealer Publishing Company, is president, and T. M. Swetland general manager, will have a frontage of eighty-six feet and will run back 172 feet to an alley, and is expected to cost about half a million. Plans are to be prepared and actual work started February 1. A white terra cotta will probably be used for the front of the structure.

The Rockefeller building, one of the largest sixteen-story

structures in Cleveland, is to be doubled in capacity. A tract of land sixty-three feet wide and 250 feet deep running through to a rear street has been acquired by the Rockefeller interests and an addition which will nearly double the size of the magnificent building is to be erected at once.

Another ten-story building for Ontario street has just been announced. The May Company, one of the largest department stores in Ohio, has leased a piece of land forty-five by 130 feet next to its present store on Ontario street and will build a ten-story fireproof building to be occupied by next June. The front will be of a red pressed brick and brown terra cotta to conform with another building now being used by the same concern.

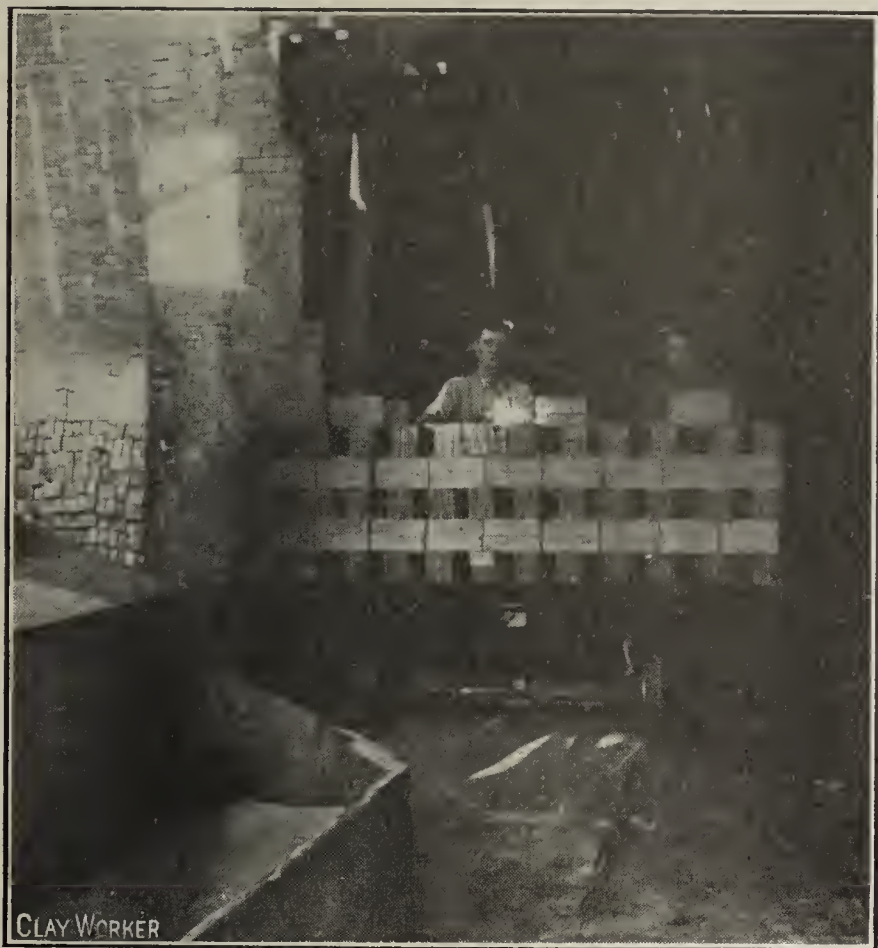
Another big building project which is already looming up for next year is a \$350,000 home for sailors, to be erected in Cleveland by the big vessel interests located here. Two-thirds of the boats plying the great lakes are owned or operated from Cleveland, and it is proposed to erect a large building where unmarried men who sail the lakes may find a winter home. In this manner the shipping interests can keep good men always on hand and need not recruit each

and Brass Foundry Company is spending about \$10,000 for new additions to its plant, which will be of brick. The Grant Lees Manufacturing Company is erecting a large brick addition to its plant on East Sixty-sixth street, one building being 200 feet long. A host of other factories are going up in all parts of the city, the surest indication that business is again on a sound and enduring basis.

By New Year's day the city will have one of the finest turnverein halls in America. The Germania Turnverein Vorwaerts is preparing to open a handsome new structure which is nearing completion on East Fifty-fifth street near Harlem avenue. It is costing \$70,000 and will be one of the most complete buildings of its kind in existence. The interior of the entire building is finished with white glazed brick, with 900 square feet of window light. The exterior is of an attractive colored pressed brick.

A syndicate of Cleveland men have purchased the Pythian temple, a six-story brick building on Huron road, and have announced that they will spend \$150,000 in improvements at once. Two stories are to be added and an arcade entrance is to be built through to a piece of vacant property in the rear, whereon a vaudeville theater is to be built at once. The Osborn building, near the Pythian temple, has recently had about half of its length raised from four to eight stories, a red pressed brick being used.

A fine large automobile garage of brick and terra cotta

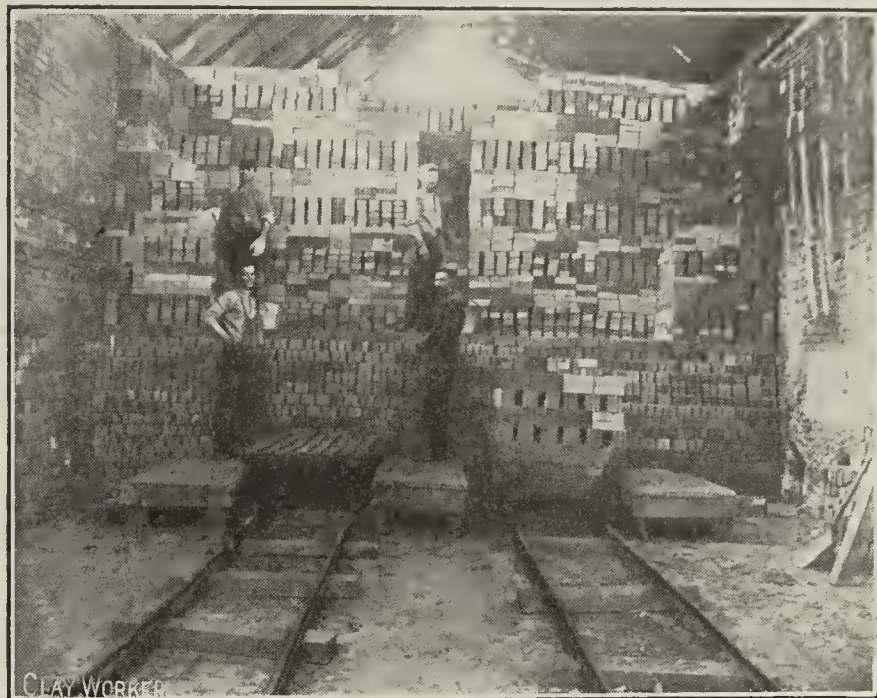


Brick Going from Dryer to Kiln.

spring. Stock for the building has all been subscribed and three sites have been optioned.

Announcement was made during the past month that the White Sewing Machine Company would abandon its old plant on Canal road to move into a mammoth new factory to be erected for it on St. Clair avenue adjoining the plant of the White Automobile Company, which is the largest manufacturer of steam automobiles in the world. The new building, which is to be of common brick, will be of saw-tooth construction, 380 by 490 feet in size, one story high for about three-fourths of its size and two stories for the remainder. The new factory and its equipment will cost about \$500,000. It is to be ready for occupancy by midsummer next.

The National Car Wheel Company has purchased two and a half acres of land on the Lake Shore railroad at West 106th street and will cover most of it with a factory, which is to be ready for occupancy some time early next summer. The Electric Welding Company is to build a \$30,000 brick factory building on Clarkwood road, S. E. Another building nearly as large is also being added to the plant. The Stand-



Setting Brick in Open-Top Kiln.

is to be built on Euclid avenue and East Ninety-seventh street for the Rauch & Lang Electric Automobile Company. It will have a frontage of over 100 feet and will be nearly 250 feet deep. Another garage for the Baker Electric Automobile Company, ninety feet wide and 260 feet deep, is to be constructed before next spring at Euclid avenue and East Seventy-first street.

The Cleveland Builders' Supply Company, with which were recently merged the retail department of the Kelley Island Lime and Transport Company and the Mason's Supply Company, has announced to its friends that after January 1 it will occupy a new and much larger suite of offices on the ninth floor of the new Hippodrome building. It has for years been located on the seventh floor of the Garfield building. Manager Bert Graham of the brick department of the big company, which is the largest supply company in the world, is authority for the statement that a fine brick exhibit is being prepared for the new quarters.

At the annual meeting of the Builders' Exchange, held during the past month, officers for the ensuing year were elected. Elmer E. Teare was chosen as president, J. C. Skeel vice-president, George A. Rutherford treasurer and E. A. Roberts secretary. On the committees announced by President Teare for the ensuing year are the names of sev-

eral of the city's brick dealers. H. C. Bradley of the Barkwell & Bradley Co. is a member of the legislative committee; R. L. Queisser of the Hunt, Queisser & Bliss Co. is on the committee on new members and acquaintanceship, and F. C. Strayer of the Hydraulic Press Brick Company is on the arbitration committee. The exchange is expanding so rapidly that a committee has been appointed to consider the advisability of securing new quarters. It is possible that the exchange may erect a building of its own in the near future.

BUCKEYE.

Written for THE CLAY-WORKER.

PUGET SOUND CLAY NOTES.

THE commercial situation in connection with the clay-working industries in the Puget Sound section is satisfactory. The demand for building brick is still good, while the sewer pipe and paving brick branches of the trade are as usual. New buildings are still going up everywhere, and in all Sound cities building is still active. While Seattle is contemplating the erection of three skyscrapers for next spring, Portland is about to let the contract for two sixteen-story buildings. The aggregate value of new buildings in Seattle during the month of November is somewhat below the monthly average, but still remains good evidence of the active growth of the city. The permits issued by the city building department amounted to \$1,254,630. Architects and builders anticipate an increased activity in the building trade after the holiday season. It is the general opinion that the volume of construction next year will far surpass that of this year. Numerous buildings are either contemplated, or are already drawn, and will be figured on early in the year.

Some large contracts were let this month, principally the addition of eight stories to the Northern Bank and Trust building. Hans Pederson secured the general contract and the Northern Clay Company, of Auburn, the contract for the architectural terra cotta. The contract for the Hotel Astor, of which W. P. White is architect, was also let to Megrath & Duhamel, who were given the general contract. The exterior will be architectural terra cotta for the first two stories and paving brick and terra cotta for the balance of the eight stories. The Denny-Renton Clay Company will furnish the paving brick, while the Northern Clay Company secured the terra cotta contract.

The possibilities of over-sea trade for our clay manufacturers in this section was forcibly brought out in an address before the Commercial club. The speaker, Mr. Lynch, called attention to the fact that in Manila the streets are paved with large blocks of stone and wood. The molave wood used is very costly and efforts have been made to find a cheaper substitute. Does it not seem reasonable that a ready sale could be found there for paving brick? It would be to the interest of the paving manufacturers of this coast to create this business.

Among the brickyards in the Northwest many additions and improvements are contemplated for next year. The Ballard Brick Company will erect several down-draft kilns early in the spring to take care of their increased business.

The Lake Union Brick Company, which was incorporated early last month for \$50,000, will at once erect their buildings and kilns, and have taken out a permit for \$3,500 improvements. Mr. R. G. H. Nordhoff will be the manager of the plant, and associated with him will be H. T. Linham and Cecil S. Ridge. Their works will be located on Westlake avenue, fronting direct on Lake Union.

Another new Seattle brick concern is the Puget Sound Brick Works, which is incorporated by Herbert W. Davis, Jr., Karl Kloss and E. J. Brandt for \$50,000. While the exact location of the new plant has not been given out, it will be somewhere along the shores of the Puget Sound.

The Denny-Renton Clay and Coal Company have their new

sewer pipe plant at Taylor now in full operation and are turning out some good pipe.

The Pocatello Pressed Brick Company, of Idaho, has just finished the changes made in their plant, and the samples of the new product have been shown around. There is no doubt that this new company is producing about the best brick in this part of the state and have good prospect of building up a large trade.

The Bearcreek Brick and Tile Company, of Bearcreek, Mont., are contemplating the enlarging of their plant. Their kilns will be made improved, and all the sheds are put in first class condition.

The Northern Clay Company, of Auburn, are running full capacity in their terra cotta departments, they having secured some very large contracts in the last few weeks which will keep them busy until early spring. They will furnish the terra cotta for the new Great Northern depot in Great Falls, Mont., and also for the new Oregon state insane asylum, which is being erected at Salem, Ore. Besides these contracts, they will have several large contracts in Seattle for the Northern Bank building and the Astor hotel.

George R. Gray, of Bellingham, is seeking a location for a brickyard along the shore line, and if a suitable location is found will erect a brickyard next spring.

SIWASH.

Seattle, Wash., December 1, 1909.

Written for THE CLAY-WORKER.

DEPARTMENT OF CERAMIC ENGINEERING, OHIO STATE UNIVERSITY.

THE department of ceramic engineering at Ohio State University is about to complete the first third of its sixteenth year's work. During these sixteen years its growth, the number of students attending, character of the work presented, has had a gradual but substantial growth. The number of students in attendance has now passed the one hundred mark. There are sixty-four students enrolled in the sophomore, junior and senior classes. There are nine students who are candidates for the degree of ceramic engineer this year.

Professor Edward Orton, Jr., who founded and is director of the department, is absent from university work for the present year. He has spent the fall months traveling through the western states and is at present occupied in the investigation of clays for paving brick manufacture. He expects to write a bulletin for the geological survey of Ohio on this subject, the same to be published in the near future. After the meeting of the N. B. M. A. and A. C. S. in February, he expects to go abroad for a few months' travel. He will return to his duties as director of the department of ceramic engineering in September, 1910. He will at the same time assume his duties as dean of the college of engineering.

The instructional force of the department has been increased by the addition of Assistant Professor H. F. Staley. He will teach the chemical courses given in the department. He has had experience as an industrial chemist, and also as ceramic chemist in a large enameled iron plant.

Mr. W. G. Worcester, instructor in the clayworking laboratory, is completing his report for the Ohio geological survey on roofing tile clays. His investigation of clays used in the roofing tile industry has been very thorough, involving several novel and new tests. Mr. Worcester has a reputation established in the roofing tile industry and any report or treatise that he writes on this subject is valued.

Associate Professor Purdy, who is, in the absence of Professor Orton, acting as director of the department, will in the future have charge of the ceramic laboratories and will devote his entire attention to the solution of practical problems in ceramics. As secretary of the Committee on Technical Investigation for the N. B. M. A., he is studying the drying properties of clays.



Graduation of French Ceramic Students.—According to the special decree of the Secretary of Public Education and Fine Arts, dated September 17 last, five students are graduated from the ceramic school, which is held in connection with the National porcelain manufactory of Sevres. The course closed last July, and the graduating students were all furnished with government diplomas and credentials.—*Moniteur de la Ceramique*, No. 19, 1909.

Helmstaedter Red Clay.—The Helmstaedter red clay, which is well known in Europe and also in America, has recently been discovered also to exist in new mines. Between Marienbirn and Helmstadt, on the land which belongs to the state and in close proximity of the railroad, has been found a dark red, very plastic clay. The vein is only twelve feet from the surface and is seven feet thick.—*Keramische Rundschau*, No. 34, 1909.

Weather Resisting Qualities of Natural Bricks.—That natural bricks and stone do not give much satisfaction, is again proven with the Emperor William Memorial church in Berlin. The stone used for the main cornice has deteriorated so much since the few years of its exposure that the outside has to be treated with some composition in order to save the effect of the decorations. If the cornice had been made of clay products or terra cotta this trouble would not have occurred.—*Deut. Topf & Z. Z.*, No. 72, 1909.

The Selling Price of Brick in Holland.—The regular brick selling price in Holland was 11 florins (\$4.25) for the year 1908. According to a table computed by the publication "Klei," the lowest price for brick was in 1887, with 8.07 florins, and the highest in 1904, with 14.38 florins. The prices increased steadily from 1887 to 1892. A small falling off occurred in 1893 and 1894, and from 1897 to 1905 there was an increase in price. The average price from 1883 to 1895 was 9 florins, and from 1896 to 1908 was 12.70 florins.—*Tonind Z. Z.*, No. 90, 1909.

Fireclay Products Classifications.—In order to get a uniform classification of the fire clay products used in the building of different kilns, a number of clay products manufacturers have combined in order to have a number of standard tests.

First, a division of the different materials used in making fireclay products, such as clay, quartz, magnesite, etc.

Second, standardizing of testing raw materials, and also the finished products.

Third, standard methods to be used in the tests and analysis of these materials.

Fourth, standard adoption of the different sizes to be used in making the fire clay products.—*Tonind Z. Z.*, No. 91, 1909.

Ceramic Schools of Japan.—While Japan has been known for its excellent artistic porcelains and pottery, which have been taken as an example for many foreign potteries, it has only been recently that this country has been paying attention to the great production of table ware in European styles. The government of Japan has sent to all clay-producing countries experts, who will familiarize themselves with the existing conditions along commercial and technical lines.

The ways of working and of manufacturing the compositions of bodies and glazes, the burning processes, the art of decorations, are all to be studied in every detail by these Japanese experts. In the state laboratory in Tokio all clays are tested to determine their suitability to production, and the methods of manufacturing are worked out in the technical schools of Tokio and Saga, while the ceramic school in Ishikawaken prepares the students for their future work. The clayworking industry of Japan has materially improved in the last few years as a result of the energetic action of the imperial government.—*Tonwaarenfabrikant*, No. 18, 1909.

Clay, Cement and Lime Exposition in Berlin in 1910.—The German Association of Clay, Cement and Lime Manufacturers will hold its second exposition in Berlin in 1910. The first exposition was held in 1906, and the success of that exposition is responsible for the holding of the second one. In the year 1910 it will be 200 years since the art of making porcelain was discovered, and the holding of an exposition at this time will celebrate this occasion. The management is trying to make this exposition as international as possible, and all foreign countries are specially invited to take part.—*Keramische Rundschau*, No. 35, 1909.

Brickmakers' School at Laubau.—The brickmakers' school in Laubau has just closed its regular school year. The graduating exercises were witnessed by many royal and city officials. Forty-four students took part in these exercises. This was the greatest number since the opening of the school fifteen years ago. The prizes, which are given by the Association of German Clay Manufacturers for the best students, could not be distributed as far as the first prize was concerned. Student Ernst Saaro, of Trossin, won the second prize, while the third prize went to Paul Huebner, of Hermsdorf. Most of the graduating students have already found good employment in various brickyards.—*Deut. Topf & Z. Z.*, No. 73, 1909.

The Largest Kiln in the World.—Within the district of the Royal German Mountain Inspection Department, Ruedersdorf, is located the largest kiln in the world. There has been quite an agitation among the technical world which branch of the industry has the largest kiln. The lime people claimed to have the largest one, while the clay industry people claimed the largest kiln on their side. A great many experts first came to the conclusion that England had the largest kiln, but recently it has been proven that the so-called "four corner kiln," for burning lime, in Ruedersdorf, can be taken as the largest kiln in the world. This kiln, which is fired with three fireboxes, has a flue of 295 meters, or 967.60 feet.—*Tonwaarenfabrikant*, No. 17, 1909.

Discord Among German Clayworkers.—The German Association of Clay, Cement and Lime Manufacturers held a special meeting of its members in order to investigate the charges which were lodged against the board of managers of the association. One of the charges was mismanagement, as it was shown that, with the same membership, the expense of running the association has increased about 4,300 marks. In 1906, with a membership of 1,077, it cost 2,661 marks to run the association, while in 1909, with a membership of 1,060, it cost 6,907 marks. Another complaint of the members was against the official organ of the association, which is claimed to represent only one part of the membership. One of the objects of the special meeting was to decide the question of separation between the clay and cement interests, as the two interests do not work in harmony with each other. The president of the association, Herr A. March, defended vigorously the actions of the board, and after a very exciting debate, in which the principals and members present took part, it was voted to sustain the board of man-

agers and give them a vote of confidence. While the action of the special meeting can be regarded as final as far as this association is concerned, it is very likely that the clay-workers interested in this movement will before long form a new organization, which will represent their interests more direct than the present association is doing.—Deut. Topf & Z. Z., No. 77, 1909.

Written for THE CLAY-WORKER.

NEW YORK'S BUILDING CODE.

Mayor McClellan, of New York, has been unable to secure the report of the engineers upon the proposed building code, which was to exclude cement from structural materials in New York city because the aldermen refused to vote the necessary appropriation. What the result will be under the

ably be scrutinized with more care than ever before, consequently it might be well for the fireproofing companies that want favorable consideration to renounce all connection with Tammany and devote their energies to convincing the engineers that their material is the best procurable for fireproofing purposes. Any direct influence of Tammany will be likely to result in certain defeat of the proposed changes.

It is uncertain what will become of the code now. Whether the new mayor and administration will coincide with the one that will go out of power shortly is a question which only time can determine. It is quite possible that the incoming mayor and his advisers will have some definite ideas upon this subject and they may see fit to express them in no uncertain terms. Assuming that this prediction is correct, it is then necessary to go farther and suggest that the man or the company that really wants to get its products accepted



Perspective View Clements Apartments, Cleveland, Ohio, an Attractive Four-Family Brick Flat.—Courtesy of The Ohio Architect and Builder.

new administration it is impossible to say, but there is some hope that the investigation can be made and the report secured. The situation does not present any very promising features at present and there is danger that even under the new administration the fireproofing interests will have difficulty in securing what they want from the engineers and from the administration.

The agitation against concrete and cinder fireproofing has continued, but, of course, in a great city like New York little is known about it outside of the comparatively small circle directly interested. The defeat of Tammany at the polls last month, by which the organization was deprived of all participation in the money portion of the administration for four years, has changed the political complexion considerably. Anything that Tammany advocates will unquestion-

ably be scrutinized with more care than ever before, consequently it might be well for the fireproofing companies that want favorable consideration to renounce all connection with Tammany and devote their energies to convincing the engineers that their material is the best procurable for fireproofing purposes. Any direct influence of Tammany will be likely to result in certain defeat of the proposed changes.

This much seems to be definitely established—the new administration is likely to be run upon what is nearer a business basis than the one that is going out. Practically all the mayor's advisers are leading business men and not politicians in the ordinary understood sense of the term. If, then, any project can be presented upon a business basis it is probable that it will receive more careful consideration than it would if it were based upon political grounds alone. In this respect, then, the outlook is more favorable to the fireproofing men. They can withstand any business test which can be applied and they may look forward confidently to winning if the proposition is put in this light.

SOME FINE EXAMPLES OF BRICK ARCHITECTURE

AT THE RECENT exhibition of the Cleveland Architectural Club, held in the Rose building of that city, some excellent photographs of equally excellent brick work were shown. Art in the construction of brick buildings there is gradually becoming an important factor. Many of the architects are close students of attractive brick work, and the buildings shown indicated unusual study and careful adaptation of methods.

One photograph showed a perspective view of the Clements apartments, designed by George H. Steffens. While it resembles a fine large residence, it is in reality a four-family flat building, devoid of the usual objectionable features to such structures. It is constructed of rough surface red

of the building is also of stone. The roofs, sloping over the street, are stained brown and given a wax finish. Altogether, the little building is a charming place of architecture for a small and comparatively inexpensive building.

An excellent view was shown of the magnificent home of Samuel Mather. It showed the squash court in the rear, looking from the residence itself. The brick floor and the brick walls and pillars, not to mention the one-story building in the rear, give a vision of unusual loveliness. The court, as well as the residence, was designed by Charles F. Schweinfurth, the eminent Cleveland architect.

Enamel Lined Clay Bath Tubs.—In making bodies and glazes for the manufacturing of clay bath tubs there are several points which must be considered. First, the tub



Squash Court, in Which Brick is Used in Many Unique Ways at the Home of Samuel Mather, Cleveland.—Courtesy of The Ohio Architect and Builder.

and dark brown shale brick set in Flemish bond with a wide white mortar joint. Trimmings are in stone. A terrace, with a brick wall about it, is an attractive feature on the front of the building. Inside several of the rooms have fine Welsh tile floors set with brass strips between them. Taken altogether, the building is one of the most attractive specimens of brickwork which was on exhibition.

Another unusual piece of work by the same architect is a one-story building to be used as a branch bank. Ordinarily it is difficult to lend much of charm or dignity to a one-story commercial building, yet this has been accomplished to an appreciable extent in this particular structure.

Shale brick in browns and reds were used with a Flemish bond and a mortar joint. The treatment of the entrance, which is on a corner is particularly unique. There is a plaster inlay above with a stone coping capping all. The base

should be able to resist pressure; and, second, the body should be such that it stands up under a rapid change of temperature. The body should be compounded along the same lines as fireclay products, and grog should be used to make the body suitable for work. Such a body should have from 60 to 70 per cent. of grog which will pass a 30 mesh screen, and from 40 to 30 per cent. of a good plastic stoneware clay. The bath tubs should be dried very slowly. It will be a material saving to burn these tubs first to a biscuit body at cone 1, and the glaze can be applied, and the glazed tub burnt to cone 8 or 9 for final process. A glaze which will give a good enamel at this heat is composed of a frit containing: Calcined soda, 186 parts; feldspar, 1112 parts; magnesite, 63 parts; oxide of zinc, 203 parts; whiting, 300 parts; oxide of tin, 450 parts; flint, 1740 parts. The glaze itself is ground with 381 parts of this frit and 77 parts of

kaolin or ball clay. The clay can also be calcined, but it should be borne in mind that every 100 parts of raw clay will only give 86 parts of calcined material.—Sprechsaal, No. 36, 1909.

Written for THE CLAY-WORKER.

BRICK AND BUILDING NEWS FROM KANSAS CITY.



AN INCREASE of a third in the value of building permits for the month of November, as compared with the same month of last year shows what is happening in Kansas City at the present time. The total estimated value of buildings for which permits were taken out last month was \$989,070, as compared with \$632,655 the corresponding month a year ago, or an increase of \$356,415. This brings the total value of building permits for the year, to date, up to \$13,000,000. It is also estimated that about half this value was spent for frame houses, while the balance went for brick and miscellaneous work. A very large proportion of the expenditure has also been for residences, showing a steady growth in the population of the city, for residences seem to be well filled, and the demand for new ones continues to be good.

The outlook for winter building is good, and a good many of the contractors expect to keep busy right through the winter season, with the possible exception of the most severe days, but there is very seldom more than a few days in the winter in this city in which building operations can not be pushed right along, if a little headwork is used by the contractor, to put his building in proper shape when the weather is fine, for the cold spells do not last for many days at a time. There are plenty of mechanics here to take care of the work at present, and will probably be plenty of work for them to do, but when the work opens up next spring it is expected that there will be a great deal more work than the home forces can possibly take care of, and that skilled workmen will be coming in from every direction.

At the recent meeting of the directors of the union depot it was decided to erect a depot that would cost over \$5,000,000, and that their expenditure for both the terminals and depot would be over \$30,000,000. They also stated that they would have 5,000 men at work by March. With this big work added to regular lines, and also the additional work which depends upon the building of this depot, it is very apparent that builders will be busy here for several years.

There is every indication at the present time that brick will advance in price from time to time this winter, and that they will be considerably higher by spring, and so scarce that the builders will be offering a premium for immediate delivery. The city yards have only been able to take care of about half the demand in the past, and unless some of them greatly increase their capacity they will not be able to hold up that average in the future, for the consumption of brick is greatly increasing here. Common brick are now being laid down here for \$7 to \$7.25 per thousand, f. o. b. cars, and information is at hand to the effect that about 25 per cent. of the gas belt brickyards have already been forced to close down by the shortage of gas, which is being sold to more profitable sources. Even if no more of them close down this winter, it is going to mean a great reduction in the output, and instead of Kansas being considered a dumping ground for the surplus it is likely to be paying prices which will make it be looked upon as a good market.

Kansas City yards are all running full time at present, and probably the only shutdowns this winter will be made as short as possible, so necessary repairs are made, because there will be plenty of demand for the output. There is no talk of any enlargements to the present time, but something of that kind may be expected in the future, for the reason that there is every indication that the home demand for

brick is going to be greater and greater, and that the gas belt brick will be scarcer and scarcer.

The Pittsburg Brick Company reports having sold to the McIntyre-Teese Construction Company 1,500,000 of their paving blocks to be used in paving streets in Wichita, Kas. The same concern sold 55,000 of its blocks to H. L. Miles for use in the streets of the same city. Other recent sales of their paving blocks are 90,000 to William F. Plumber of Springfield, Mo.; 1,500,000 to John Ritchie to be used in Salina, Kas., and 630,000 to the J. H. Knapp Construction Company to be used in the work of the Kansas City Southern railroad in this city.

The Kansas City Hydraulic Pressed Brick Company is building an additional down-draft kiln at its Diamond plant at the present time, and has other improvements in view. All four plants are still in full operation.

Robert Nesch, president of the Pittsburg Brick Company, returned from a pleasure trip to Europe the middle of November.

C. L. Connett of the St. Joseph Pressed Brick Company of St. Joseph, Mo., was a recent visitor to this city, and states that they have had a very profitable year in his city, and the indications are good for plenty of business the coming year.

K. A. W.

Written for THE CLAY-WORKER.

HACKENSACK BRICK ASSOCIATION.

The manufacturers along the Hackensack river have organized a new association and held their first annual banquet the evening of December 3. The organization is composed of the Mehrhof Brick Company, of Little Ferry, N. J.; the Hackensack Brick Company, Travianus & Gardner, Nicholas Merhoff & Co., Edwin Schmultz, I. E. Gardner, Philip Mehrhof, James W. Gillies and M. B. and L. B. Gardner. There were a number of invited guests, among whom were William B. Mackay, Jr., counsel for the new organization, Brewster Bros., Warren D. Mehrhof and C. E. Welsh.

The association was formed for the purpose of improving conditions in the industry along the river and to formulate some plan of selling whereby the independent dealing, which has resulted in so much price cutting and consequent loss of profits, can be eliminated. The following officers were elected for the first year:

President, Elmore N. Mehrhof; secretary and treasurer, William H. Travianus; counsel, William B. Mackay, Jr.

There was a good dinner, which all enjoyed, after which several made speeches, felicitating each other upon the good year just passed and looking forward to still better business during the year to come.

The first speaker was William B. Mackay, Jr., and he told of the inception of the organization, what it has already accomplished and what it is confidently expected it will accomplish in the future.

H. M. Post, of Paterson, was the next speaker, and he joined with Mr. Mackay in felicitating the association and predicting good things for it in the future.

Van Vorst Wells, secretary of the Bergen county tax board, was called upon and responded in his usual happy manner, giving the brick makers some interesting facts and amusing them with a funny story or two.

Nicholas Mehrhoff, eighty years old, a veteran among brick makers, interested his hearers with his reminiscences of brick making as it was in the early days. He told of his experiences in the business, which have been varied, but always successful, and predicted for the association great success and a powerful influence for good upon the industry.

It was said that the combined output along the river has been close to 100,000,000 this season, the largest probably in the history of the business in this vicinity. The dinner was voted a success, and it will likely become an annual function.



REASONS WHY.

IN THE management of clay soils, and, in fact, other soils that are likely to be saturated with an excess of water at seasons of the year when they need to be stirred or the crops cultivated, nothing will give such large returns for the labor and money expended as to thoroughly underdrain them. Lands that have passed their virgin condition of crop production require a careful study and better management than they did 25 or 50 years ago. When first brought into cultivation the soil conditions were very different. They were loose, open and full of vegetable matter. The leaves, grass and plant roots that had been developed in the ages past had gone into the soil. The shading of the land had much to do in bringing about the desirable physical condition that obtained in the new or virgin soils. Soils that have been long in cultivation without any special care only to sow and reap the productions, are in most cases compact, heavy when wet, hard when dry and unsatisfactory in their productiveness. These changed soil conditions are the result of ignorant or indifferent methods of tillage and in a failure to supply the fertility used in growing crops, and in the surface washing of the lands, the latter the cause of the greater waste. The rains have run off over the surface, instead of passing down through the soil, each rainfall making the soil more compact and harder to work. As farmers, we usually try to improve the soil conditions by the use of manures and fertilizers and better tillage. It is much better practice to underdrain such soils and thus provide for the passing of the water down through the soil to the drains below. Good tillage can hardly avail much without sufficient underdrainage.

The important benefits of tile drainage, briefly summarized, are, first, drainage removes the excess of water from the soil, thus rendering it open and more easily pulverized. A poorly drained soil is seriously injured by tramping or working it when it is wet. A well-drained soil is much improved by the passage of the water through it, followed by the entrance of the air into the soil spaces, which invariably follows. It is a well-known fact to those who have practiced thorough underdrainage that the soil becomes open, more easily tilled and greatly improved physically. The well drained soil will retain more of the needed moisture for crop growing in dry weather and less of the excess of water, which is injurious to crops, in wet weather. Thorough drainage lowers the water level in the soil, giving the roots a greater distance to penetrate for food and moisture when needed. The underdrainage of the soil promotes the aeration of the soil; the oxygen of the air is necessary to the living organisms in the soil which add so much in preparation of plant food. Living organisms are excluded from a saturated soil. The air acts on the minerals of the soil and also aids in the growth of desirable bacteria, and, it is claimed, destroys the growth of injurious bacteria, which latter will grow in a sour soil.

It is a well known fact that the well-drained, open, porous soil is several degrees warmer than a wet soil. It follows that the well-drained, warmer soil may be plowed and fitted for planting the crop several days sooner in the spring than it is possible to prepare the wet soil, thus lengthening the season for the growth and maturity of the crop.

The higher temperature of the soil also promotes a more rapid growth of the crop and prevents to a large extent the

injurious effects of frost in the early fall season, thus lengthening the season for growth and maturity at both ends of the crop-growing season.

Emerson very sharply stated the truth when he said, "There are farms underneath our farms that we know not of until we tile drain the land."

MORE DRAIN TILE AND BRAINS.

Most farmers who would be shocked at the loss of one-fourth of a matured crop would think little of the loss of the producing power of the same amount of grain; or, in other words, a failure to make available the fertility in the soil to produce one-fourth more grain by underdrainage and better tillage. Yet such is the actual results of much of the soil and crop management the country over. The crying need is more drain tile and more active brain work.

BOTH NEED IT.

Most farmers ditch out their black land and let the clay soils go without ditching. While, in fact, the clay soils need draining as much as black soils, and when the clay soils are well underdrained they grow as good crops, in most cases, as the black soil. The adage, "Drain well, drain deep, and you'll have corn to sell and keep," is true.

Enter lateral drains into main drains at an acute angle. By doing so, the water of the lateral drain and main are brought together, flowing, as near as possible, in the same direction.

DRAINAGE BEST SECURITY.

Debts made for buildings that may burn, for implements that are allowed to rust and decay for want of shelter, or for more land that can not be properly tilled, especially if wet and cold, or for live stock that may die, may and have ruined many men in business lines, but it is not recorded in the history of events that like losses of money values accrue to those who properly tile-drain their land and by so doing increase their crop productions 25 or 50 per cent. Sure and better crops enable the good husbandman to more easily pay the interest and principal of his debts.

NEVER.

Never allow others to lay your drain tile, if you can do it yourself, and know how it ought to be done. There are men who can be entrusted with this important part of the work, but they are not numerous in every community. However, there are men who think they know, men who claim to be experts, but before you trust them, know for a certainty that they will do it right. The work of laying the tile is the key to the best success of the undertaking, and, if well done, the drain will be a source of satisfaction and profit in the many years to come. If the tile are poorly laid the work will be a sad disappointment, and the work may have to be done over.

BEGINNING WELL.

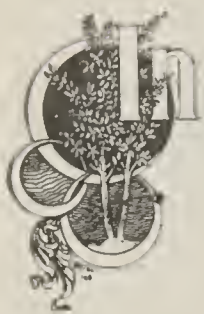
A writer in the Farmers' Guide says: "We are preparing to do some tile draining the present fall and winter on a farm that has been cleared about sixty years and perhaps seventy-five years. The main lines have been drained in a way almost from the time of removing the timber. These lines contain some tile, but they are inadequate, are too shallow, and crooked. An engineer with instruments is laying out a complete drainage system under our direction, grade stakes are set and a map and profiles will be made. A carload of tile has been bought and we hope in the coming year to show Guide readers a map of our drainage system."

Written for THE CLAY-WORKER.

THE DIESENER CLAY CLEANSER.

A New and Successful Departure in the Preparation of Plastic Surface Clays.

BY RICHARD G. HOFFMANN, LAGRANGE, ILL.

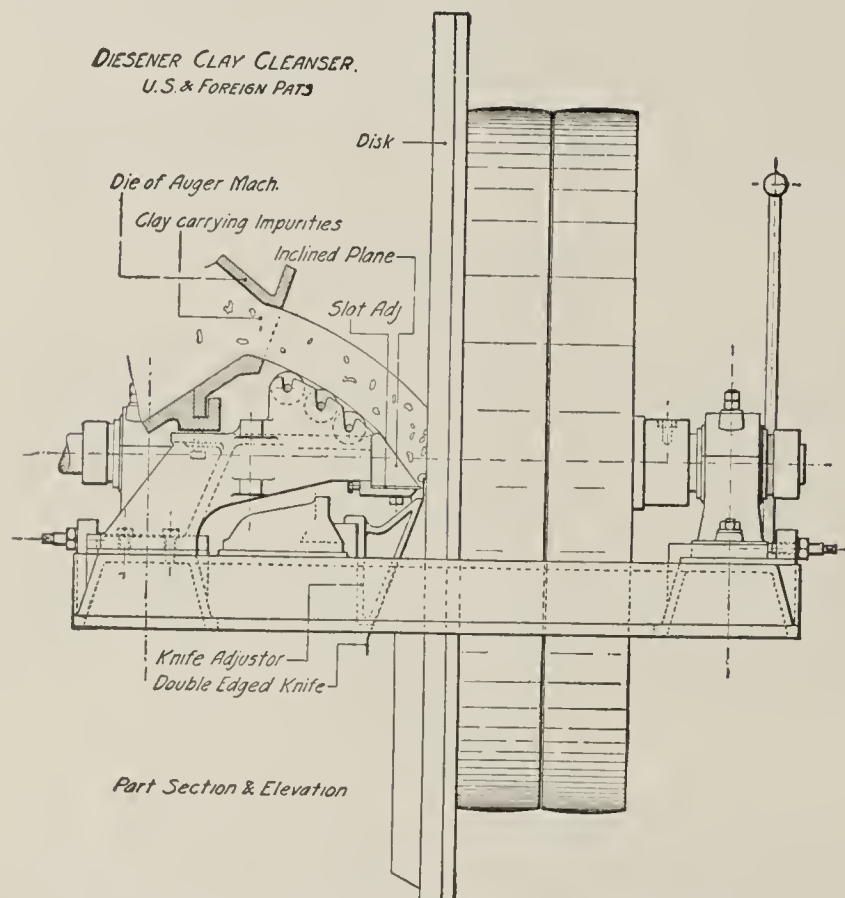


THE PREPARATION of plastic surface clay, before it goes to the machines or molds in the manufacture of brick, sewer pipe, terra cotta, etc., the purpose is to reduce the different kinds of clay coming from various strata in the clay pit to a uniform pure and homogeneous mass.

We know that our common clay is rather complex in its composition, containing all grades from the sandy yellow and lean clay to the fat blue, carboniferous clay.

The clayworker, therefore, not seldom faces the problem of uniting and mixing two kinds of clay which are so different in their appearance as to cast doubt upon the appropriateness of their joint name.

Although in the United States the value of proper prepa-



Sectional View of Diesener Clay Cleanser.

ration is not as generally acknowledged, or at least not as extensively employed as in Europe, it is admitted by the best clayworker that the secret of producing "first quality" rests largely upon the perfection with which the clay is made pure and homogeneous.

As has been emphatically pointed out by Brongniart and Tuerschmidt, homogeneity is the soul of the manufacturing process in the pottery industry, the A and Z in brick producing, the invariable aim of every clayworker, the quality without which there can be no success and no welfare, and which alone is the whole secret of the art.

The oldest, but still most efficient, method enabling the obtaining of a thoroughly homogeneous clay is by weathering, by exposing to the influence of frost, rain and sun. By the agency of these the material is broken up and disintegrated into very small particles. This allows a rapid and thorough mixing and tempering by pans, disintegrators, pug mills, or other suitable machines.

The clay can still be improved by moistening with water and further ageing in soak pits, permitting it to "sour." This process may be extended or varied according to the goods

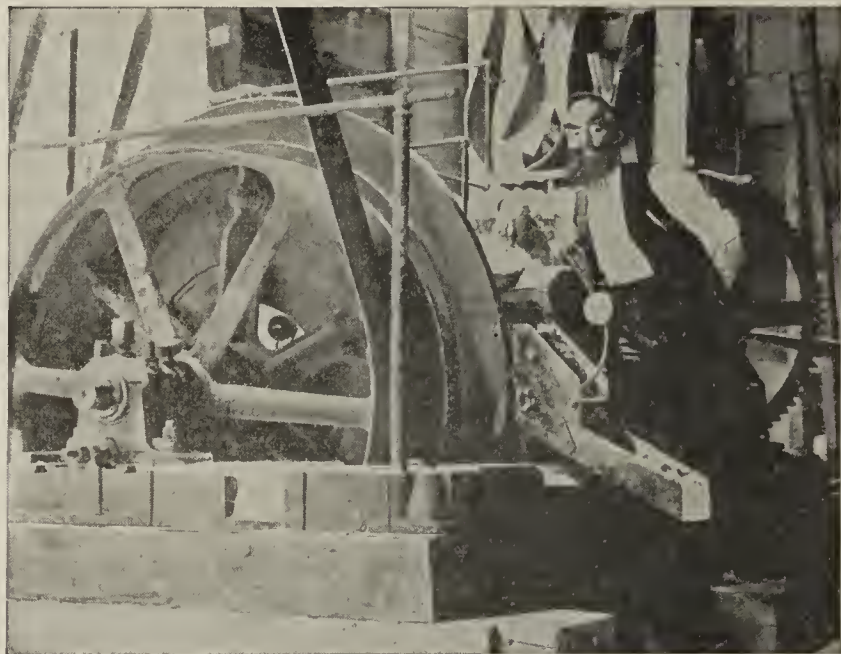
for which the clay is used, and according to the expenditure which can, at a profit, be incurred.

In this essay we shall first consider several different methods of pugging clay and their peculiarities. Let us first assume that the clay be comparatively pure and contain only traces of impurities like lime, gypsum and iron ores. To prepare this clay (especially if it is not a touch clay, and impermeable to water), the pit or the common pug mill will give satisfaction. The latter is often combined with disintegrators to break up the big lumps of clay.

If two or more diverse and very heterogeneous clays have to be mixed in a certain fixed ratio, the wet pan with solid bottom will give best results. This method of preparation, however, is more costly than the use of a pug mill when we consider the output and power consumed. Furthermore, the wet pan can not be operated automatically, and it requires from one to two or three men to feed it and empty it.

A modification of the wet pan is built with a perforated bottom. This style has under similar conditions a larger capacity, as it can be charged and emptied automatically, but its mixing properties are not as perfect as those of the solid bottom pan.

Another style has been designed with several bottoms, located one above the other, but secured within the same frame and driven by the same shaft. The crude clay is fed into the uppermost pan, having numerous slots, and it is driven through these to the second bottom, having finer slots, and finally to the lowest bottom, from which it goes to the next process.



The Diesener Clay Cleanser in Operation.

Instead of using mullers for pressing the clay through the perforated bottom of the pan, another machine uses a pair of rollers, each consisting of strong cylindrical ribs supporting a cylindrical surface made of perforated sheet metal. The clay drops between these rollers and is forced through the slots into the rollers themselves. From the inner surface the clay is scraped off and removed into chutes. The rollers are pressed against each other by means of strong springs, which allow the rollers to increase their distance every time a stone drops between them which is too big to pass through the slots into the rollers, and is consequently ejected.

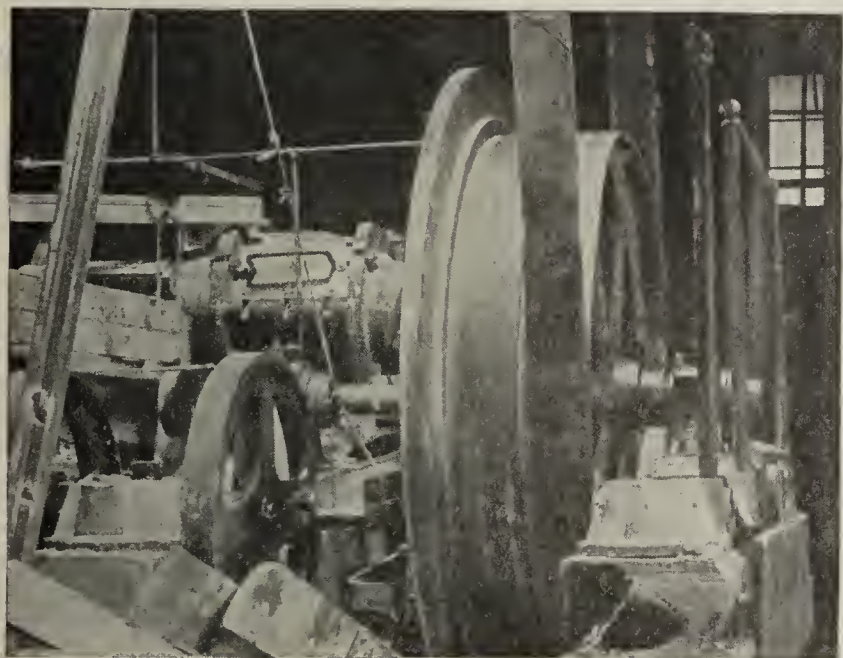
This machine is said to consume less power than the previous, based on the output given. On the other hand, it is evident that it can not compete with the wet pans, if tough clay has to be worked. It works to best advantage on clays which have been well weathered or thoroughly soaked and take water readily. It is claimed that the cost of maintenance with these machines is very small, as the cylindrical sheet metal can be replaced at little cost and trouble as soon as the slots are worn out too much.

The latest in the design of pans has a solid bottom, upon which two heavy mullers run with attached scrapers so arranged that the clay is discharged automatically as soon as it is ground down to a certain size. The charging of this pan is designed to be automatic. The scraper, which defines

the smallness to which pebbles, etc., shall be reduced by the mullers, throws everything back under the mullers which can not pass between the bottom and this scraper. This can be set at one-sixteenth of an inch from the bottom, or if more output and less fineness is wanted, the adjustment of this scraper can be changed in a few minutes.

All the above preparatory machines, if properly selected for the material in question, will give satisfactory service. But the question remains, will they do on clay that is very tough and contains pyrites? Or on clay that is very sandy and filled with pebbles of limestone? Will they do for the manufacture of tiles, or refractory ware, or vitrified ware, sewer pipes or even common drain tiles, when pure clay is not available.

It is certain that for this class of work the pit and the pug mill will not do, even if combined with a powerful roller crusher; nor will the pan with the perforated bottom or the machine with perforated rollers do. This is true for the simple reason that these devices DO NOT guarantee freedom from lumps of fat clay, or particles of pyrites of the size of peas or handfuls of limestone pebbles, the presence of any of which will spoil a certain percentage of the goods. These, however, cost too much money in every phase of their manufacturing to allow of taking any chances, and we must em-



Diesener Cleanser Operating at the Rate of Ten Tons Per Hour.

ploy a method of preparation that does not "trust to luck."

This guarantee that the prepared clay will contain nothing detrimental to making of flawless burned goods could heretofore only be given by the screen and only with clays in which just a few per cents. of these undesirable ingredients occur, or by the washing process.

To use the screen the clay must be piled up, dried, milled or ground and then screened. The size of mesh is based upon experiments as to what size pyrites or limestone particles can be safely allowed to pass through.

It is evident that in this case the impurities are still in existence in the clay, although in powdered form. If they would be abundant, they are liable either to impair the tensile strength of the goods if the impurities are lime, or the refractory properties if they are pyrites. We have diminished the size, but not the percentage of the impurities.

By far the best method of removing these impurities, if they are not soluble in water, is still the washing process. It is done by combining washing tanks with settling pits or with filter presses. In separating the real clay from the rest of the mass, this method is indispensable to the pottery and chinemaker, and it would be the ideal process for every clayworker, if it were "adjustable" so that the degree of purification could be arranged so as to suit the purpose. But unfortunately the washing process removes with the impurities the valuable quartz and feldspar sands, etc. To prepare the washed clay for its use, it has to be mixed with these

sands or "grog" and made homogeneous in pans or pug mills.

To the foregoing methods which either grind the impurities to powder in order to render the same harmless or which remove the same by washing and thus prepare the green clay for further use, there has been added in the last few years the Diesener process. This process uses a machine called the Diesener clay cleanser, which prepares clay as it comes from the bank, makes it homogeneous, and in the same time removes the impurities as far as they are of larger size than the quality of the goods permits.

In the use of the Diesener method, the clay may be worked as it comes from the bank without weathering and it does not matter if it be dry or wet. The clay is first put through a pug mill to break it up, mix and water it. From this pug mill the pugged clay falls into the hopper of an auger machine and comes out in the form of a bar. This bar of clay, still containing all its impurities, is now passed through the Diesener clay cleanser and on leaving it is pure and in perfect condition for the goods in question. If the clay is very tough and impermeable to water it may be crushed through a roller crusher before being sent through the pug mill. The rolls of the crusher should be set apart about one inch.

The pug mill may have one shaft and be 16 feet long or have two shafts and a pugging trough 6 feet long. Either one may do, the selection being made according to the speed with which the clay slacks.

It is very advisable to select the pug mill so that its capacity is greater by 50 per cent. than the capacity of the clay cleanser. In this case the clay is allowed to soak in the pugging trough for a longer time than if a smaller pug mill were used. The better the pugging and soaking is done, the greater the output will be under similar conditions and the less power required to drive the clay cleanser.

I want to state right here that the best way to prepare clay for the Diesener clay cleanser is by means of pug mills. The pug mill cuts the lumps, it "opens" the clay and accelerates the slacking, but leaves the impurities unhurt; while mixing in a common wet pan compresses the clay and makes the clay cleanser use more power for the same output. Besides it crushes down the impurities and decreases the efficiency of the clay cleanser. For instance, instead of removing a dozen pieces of pyrites of the size of a walnut, it may now be necessary to remove a hundred fragments of the size of a pea or less. As it is to be understood that the whole clay has to go through one slot, it is easy to see that the fifty odd fragments of a stone of one inch in diameter, if laid in one line may block five or ten times one inch of the length of the slot.

The auger and pug mill may be combined. If we are working a sandy clay easily slacking in water, a combined brick machine with medium pugging trough will do. For tough clays or a mixture of different kinds of clay a separate pug mill of generous capacity will give better service.

As said above the auger machine or auger pug mill issues forth a bar of clay usually about 22x4 inches. This should be preferably in stiff mud condition, if the clay is very plastic; or in soft mud condition if sandy.

The Diesener clay cleanser operates as follows: The bar of clay goes down an inclined plane and is pushed against the rotary disk of the cleanser and "sucked" by it through a slot (see sketch No. 1). The material of the disk has a great influence upon the efficiency of the machine, as some iron alloys have been found to take a better hold on the clay than others. At present an iron is used that gives the best results on a number of various clays. The width of the slot is within certain limits adjustable by moving the slot adjuster towards or away from the disk. The width of the slot is governed by the size of the impurities to be removed and by the percentage at which they may occur in the crude clay.

As shown in the sketch, the stones are removed by a stone pusher or a knife that reaches from underneath into the slot. Consequently the knife must be thinner than the slot and if a slot of 1-16-inch is used the knife will not be strong enough to remove a stone larger in diameter than about half an inch or one inch. Pebbles of larger size, however, may be ejected or crushed before the pugging process

by a roller crusher with the rolls set at $\frac{1}{2}$ -inch or $\frac{3}{4}$ -inch. This may be done if the total impurities in the clay amount to only a few per cent. But if many pebbles are in the clay, this crushing would decrease the output of the cleanser too much. In this case it is more economical to use two Diesener machines in series, the first with a slot of $\frac{1}{4}$ -inch for removing the coarse stones and the second with a slot of 1-16-inch for the smaller impurities.

It may be found sometimes that a slot of 3-16 or $\frac{1}{4}$ -inch is sufficient to purify the clay, on account of its being practically free from impurities of smaller size. The advantage of using the wider slot and thus securing a larger output may more than compensate for the occasional loss of a brick spoiled by a particle of limestone that has been allowed to remain in the clay.

While the lime pebbles may not do so much damage in a brick, their occurrence in sewer pipes or terra cotta might be detrimental. Therefore, manufacturers of clay goods of a better class can not afford to jeopardize their profits by taking chances and must use a slot of 1-16-inch.

As soon as the clay passes the slot, it drops in shape of shavings or snowflakes or if it is so wet as to stick to the disk it is thrown off by an attached scraper.

These clay flakes show a remarkable phenomenon: It is not seldom that flakes having gone through a 1-16-inch slot "swell" so much as to make it appear that the slot is as wide as 3-16-inch. The Diesener clay cleanser, therefore, tends to make the clay "long" and more plastic than it was before.

From the Diesener machine the clay goes either into the hopper of the press or into the auger of a second Diesener clay cleanser.

A complete outfit for preparing and purifying the clay according to Diesener's method will have to be selected according to the clay and the character of the goods, and might consist of the following combinations:

(1) Of one auger machine and one Diesener clay cleanser for a clay easily slacking and sufficiently purified by passing a slot of 3-16 or $\frac{1}{4}$ of an inch; or (2) one auger pug mill and one Diesener clay cleanser for a tougher clay slot the same about 3-16 or $\frac{1}{4}$ of an inch; or (3) of a roller crusher, rolls set apart $\frac{3}{8}$ of an inch, an auger pug mill and Diesener clay cleanser for clay, containing only a few per cents. of impurities, these being more than $\frac{1}{8}$ -inch smaller diameter, slot adjusted $\frac{1}{8}$ -inch; or (4) one auger pug mill with Diesener clay cleanser having a slot $\frac{1}{4}$ -inch and another auger with Diesener machine having a slot of 1-16 or 3-64 of an inch.

The last arrangement will prepare almost any clay with average amount of dirt. It is seldom that conditions make advisable the use of more than two Diesener machines in series.

There is scarcely one phase in the process of manufacturing better clay goods, which deserves more attention on the part of the works manager, than the manner in which the crude material is prepared. It is here that the Diesener clay cleanser will yield savings, not only considered for itself in comparison to other preparatory machinery, but that it will eliminate troubles along the whole process. For example, by preventing the presence of the stone, it has also prevented the blocking of the die, or the breaking of the wires of the cutter or cracking of the goods in the dryer, or their exploding in the kiln. Laminations are absent in clay that has passed a slot of 1-16 of an inch. The Diesener process facilitates the drying of clays, which, otherwise prepared, dry very slowly.

The Diesener clay cleanser equals the wet pan in the thoroughness of mixing, but in addition it purifies the material. While the pan works intermittently and requires from two to three men to operate it, the Diesener clay cleanser works automatically and continuously. Since it has been admitted by more than one irate manager that his pans do not

smash the gravel or lime or pyrite pebbles to a smaller size than $\frac{1}{4}$ -inch, one Diesener clay cleanser working with a $\frac{1}{4}$ -inch slot would prepare as much as 3 pans of 9-foot size and save 3 times over the services of 2 or 3 men and, instead of requiring 25 to 40 horsepower for each of the three pans, it will require only from 6 to 12 horsepower for the cleanser itself, to which must be added from 15 to 25 horsepower for the auger pug mill.

And the last, but not least, it will actually remove the dirt, instead of merely pulverizing it.

Compared with the washing process, the Diesener clay cleanser method reaches a degree of purification that would suffice under many circumstances, even for the manufacturer of earthenware or stoneware or paving tiles. For these clay goods it would be necessary to use an outfit as specified under No. 4. This outfit would give about 100 to 250 or more tons per day of ten hours if operated with a slot of 1-16 of an inch, or about 60 to 90 tons if operated with 3-64-inch. This outfit, of course, could not remove every little bit, but a pyrite that passed through a slot of 1-16 or 3-64 of an inch would scarcely be able to do any harm.

But, then, the Diesener clay cleanser would leave in the clay all the valuable ingredients, the sands of quartz or feldspar, which give the "backbone" to the goods and which, once separated from the clay, must be mixed into it at great expense, but nevertheless rather imperfectly.

Figured on the output, the installment as well as the operating expense, the Diesener method could be compared very favorably with the washing outfit, as the only expense which the Diesener clay cleanser involves is a trifle for the knives, which on no account would reach the cost of the filter cloth.

The Diesener clay cleanser requires no more oil than any other brick machine, the above mentioned knives can be made of hoop iron, the disk has to be faced one or two times a year, and, while in some places it lasted only three years, there are other factories where they estimate that they will use the same disk for eight or ten years. An automatic facing equipment ought to be ordered with every first machine.

The results which have been obtained in some of the most famous factories in Europe entitle the inventor, Mr. H. Diesener, to claim for his method that on plastic surface clays, not only does the Diesener clay cleanser show a marked saving over other processes in operating expenses, but, as compared with any installation, that it will do the same work and at the same rate and to the same degree of perfection, the Diesener clay cleanser has the lowest first cost as well.

CONNECTICUT BRICKMAKERS CLOSE A BUSY SEASON.

Approximately 100,000,000 brick were made in New Britain, Conn., and vicinity during the season now ending, and including the yards in Middletown there was probably a production of 120,000,000. The sale of brick has been enormous and manufacturers are anticipating an excellent year in 1910.

When the 1909 season opened there were many yards which had 50 per cent. of their 1908 production on hand. This, with the brick made during the year, has all been sold.

The Central Connecticut Brick Company, at New Britain, is the clearing house through which sales are generally made. The company is made up of about eleven subsidiary companies and their total output is 100,000,000 a season. The yards are situated in New Britain, Clayton, Berlin and Middletown.

It is estimated that the production of brick in this section of Connecticut leads to the consumption of approximately 20,000 cords of wood in a season.

The price of brick in 1909 ranged from \$5 to \$6.75 a thousand. The price is high at present.

Written for THE CLAY-WORKER.

PITTSBURG AND WESTERN PENNSYLVANIA BRICK AND BUILDING NOTES.



WING TO THE unusually warm and open fall that we have had throughout all of western Pennsylvania, the brick business in all of its branches has been particularly good up until the first of this year, and the brick manufacturers have been busier on contracts and orders than they have been at this same season in this part of the state in a long time. There was really no cold weather at all until shortly after the first of this month, and the building record has been particularly good, while road construction and other forms of construction in which quantities are used has gone on without interruption. The fall has been very dry, which has also been a considerable help, so that, when everything is considered, it will be seen that it was what might really be considered a "fall made to order for the brick manufacturer."

Several of the leading manufacturers in Pittsburgh, in talking to the writer, said that their stocks have been entirely wiped out, and that they have nothing whatever in their sheds now, as everything is being shipped direct from the kilns. They have been so busy that it has been impossible to build up the stocks, even though the plants are and have been for several months running to their capacities.

Cold weather has now arrived, however, and it is thought that during the next three or four months most of the manufacturers in this end of the state will be able to bring their stocks up to the standard and size usually carried at the beginning of the building and contracting season in the spring. Nearly every brick manufacturer in this vicinity has a large number of good orders on hand, however, which must be made up, burned and shipped during the winter, and in several cases the total volume of such orders comes very near being the capacity of the different plants. Therefore, some of these same manufacturers are sure to find themselves with greatly reduced stocks of standard sizes and shapes about the first of next April. This can not be helped though, and the contractors who have street and road paving contracts on hand for next spring are already commencing to see that there is in all probability going to be some little trouble in securing sufficient brick on short notice. They are, therefore, commencing to place orders now on which deliveries are to be made about the first of next April and May.

The demand for common building brick, which has been particularly good all fall, is now commencing to fall off, and it is expected that it will take a rapid drop for the next three or four months. Stocks of these grades of brick will be easy to build up, and spring will see nearly all of the local manufacturers in excellent shape to handle large or small orders and contracts. There has not been much change so far in the demand for pressed and the finer grades of building brick, including the light colors. Many residences and buildings using these kinds of brick are being built here, and they have so far progressed that even though the weather is cold, the brick contractors will not give up laying them.

The paving brick manufacturers are just as busy now as they were two and three months ago, and are nearly all operating their plants to their capacities. Paving contractors all over this end of the state, and there are still a large number of them laying brick on streets and roads, have not even thought yet of discontinuing work, and are constantly calling for quicker deliveries. There is practically nothing in stock, with the exception of small quantities of hillside paving brick in the works sheds, so that plants manufacturing this class of product are all very busy, with the certain prospect of

running for the remainder of the year, even though they should not receive another current contract.

There is also a great demand for fire and other refractory brick; in fact, a stronger demand than there has been for this class of material for nearly three years, and plants that have been idle for from eighteen months to double that time are now operating on full time daily, with some few of them working two shifts of men, day and night. This large demand is occasioned by the general resumption of work in practically every iron and steel mill in the Pittsburgh district, making a very large demand for this class of brick and shapes for blast furnaces, stoves, open-hearth and crucible furnaces, etc. Nearly all iron and steel mills carry extra linings and many extra shapes in stock all the time in case of emergency, and as the terrific heat soon burns out millions of fire and silica brick in this district when the mills are busy, there is always plenty of demand for fire and silica brick.

The fireproofing business, according to the several large local manufacturers, has fallen off somewhat in this immediate district, but this loss has been more than evened up by the increased demand from some other parts of the country, particularly in parts of the south. Still some very good local contracts are being booked for delivery at once, and the local plants are running at about three-fourths of their capacity.

The sewer pipe business, which has been heavy continuously for the past six months, has only started to fall off, but there is no change being made in the operating time at the plants. Stocks of all standard sizes have been forced down so low that it will require the entire winter or dull season for most of these plants to again lay in the proper sized stocks. The demand for small tile has been unusually good, and there is a real scarcity for sizes up to and including 6 inches now.

In conclusion, it might be added that possibly never before has the outlook at this time of the year been so bright in the clayworking industry, and that it looks particularly bright after the long period of business depression and financial stringency, in the hands of which this entire section has been held as with a death clasp since October, 1907.

At the general offices of the National Fireproofing Company, in this city, it is reported that the company's plants are now running on better time than they have been at any other time in two years, and that additional capacity has been put on at several of the plants this month.

Important improvements are now being made at the plant of the Eureka Fire Brick Company at Mt. Braddock, Pa., and these will be completed shortly after the first of the year. One of the most important of these improvements is the new shape floor that is now about completed, and which will give the plant an additional 10,000 per day capacity. This floor is 50x75 feet and modernly equipped in every detail, making it one of the best in this state. Other parts of the plant are being thoroughly overhauled, and when these improvements are all completed the plant will be as modern and well-equipped as though it had just been built. During the past year or two there has been a considerable amount of new and latest improved brick and shape machinery installed, which brings the plant entirely up-to-date, although it has been built and in operation for some years. The company is very busy at this time, and is operating about to the present capacity, with a large volume of advance and future business on the books.

Work has been started on the reconstruction of the large main building of the Pearl Clay Products Company, at Kush-equa, Pa., and will be pushed with all possible speed until the structure is completed and again ready to place in operation. It will be remembered that this building was totally destroyed by a disastrous fire which visited the plant during the early part of November. The company has ordered new equipment, as all of the machinery in the building was prac-

tically ruined, and it was decided to equip the plant with new and the latest improved machinery on the market today.

At a meeting of the stockholders of the Hayes Run Fire Brick Company, held the latter part of November at Phillipsburg, Pa., it was decided by an almost unanimous vote to rebuild the plant at Hayes Run, Pa. This plant was completely destroyed by fire some months ago, but no steps were taken at that time as to what the future policy of the company should be. Plans will be prepared at once by a competent engineer, bids asked for, and the contract awarded as soon as these plans are accepted. Work will undoubtedly be started on the plant shortly after the first of the new year, and every effort will be made to have the entire plant completed and ready to place in operation in time to secure the company's usual share of contract business for 1910. The stockholders at the above-mentioned meeting voted an issue of an additional \$30,000 in preferred stock, the proceeds of the sale of which are to be used for the reconstruction of the plant. The stock was all taken up by the present stockholders.

Floyd, Rose & Co., a new engineering inspection company, has opened offices in the Fulton building, Pittsburg, and

tains its general offices in the Empire building, Pittsburg, is making a large number of important improvements at the plant at Kittanning, Pa. Part of the old plant is being torn down, and a new and modern plant is to be erected at once on this site. The remaining section of the plant will be kept in operation as long as possible, and will then be demolished to be rebuilt as the first part has been. The company will build a fine modern power plant separate from the main building, and in this plant will generate electricity with which the new plant will be operated. The haulage system that is to be installed will also be operated by electricity, and orders for this equipment are now being placed. When these improvements are completed the plant will be one of the most modern in the Armstrong county clay belt, and it will have a daily capacity of about 150,000 9-inch building brick.

The Zanesville Floor and Wall Tile Company, Zanesville, Ohio, has been formed and incorporated under the laws of that state with an authorized capital stock issue of \$10,000, and will engage in the manufacture of fireproofing, floor and wall tile, glazed and unpolished tile, and other clay products. The incorporators of the new concern are W. W. Harper,



Glimpse of Kiln Yard of the Barber Asphalt Paving Plant, Des Moines, Iowa.

will make tests of a chemical, physical and electrical nature on all kinds of materials, such as iron and steel, fire and other classes of brick, furnace linings, clays, cements, etc. Mr. Rose, the head of the new concern, is a well-known practical engineer, having formerly been general superintendent of the plant of the Portsmouth Steel Company at Portsmouth, Ohio, and assistant superintendent of the plant of the Carbon Steel Company here.

The United Fire Brick Company, Arrott building, Pittsburg, reports that the three large plants of the company in Fayette county are all being operated to their capacities, and that the orders on hand will insure this same condition for some months to come. The company is furnishing a large number of high-class fire brick that are being used in the construction of coke ovens in Fayette county, Pa., and at the present time is shipping brick for 200 ovens for the Tower-Hill-Connellsville Coke Co.; for 100 ovens for the Jamison Coal and Coke Company, Greensburg, Pa.; for seventy-five ovens for the Pittsburg-Buffalo Co., at Marianna, Pa.; fifty ovens for the Mt. Pleasant Coke Company, at Mt. Pleasant, Pa.; the Colonial Coke Company, at Smock, Pa., and the fire brick for improvements and relinings at the plants of the Colonial Iron Company and the West Penn Steel Company.

The Kittanning Brick and Fire Clay Company, which main-

J. F. Brown, J. W. McCoy, J. B. Owens and H. C. Van Voorhes, all of Zanesville. Further announcements as to the future intentions of the new corporation will be made within a short time.

The Star works of the Harbison-Walker Refractories Co., Pittsburg, is being operated to its capacity now, as are several of the other plants of this company which make a specialty of blast furnace and stove linings, for which this company has a large number of advance orders booked from iron and steel companies all over the United States.

A. SMOKER.

OHIO FACE BRICK MANUFACTURERS ELECT OFFICERS.

At the meeting of the Ohio Face Brick Manufacturers' Association in the Chittenden hotel, Columbus, Ohio, December 8, the following officers were elected: J. M. Adams, general manager of the Iron-Clay Brick Company, Columbus, president; S. M. Gould, superintendent of the Ohio Mining and Manufacturing Company, Shawnee, vice-president; L. G. Kilbourne, president of the Columbus Brick and Terra Cotta Company, treasurer, and R. L. Queisser, Cleveland, secretary.

Written for THE CLAY-WORKER.

AN INSPECTION TOUR THROUGH ONE OF DES MOINES, IOWA'S, FINE BRICK PLANTS.

THE IOWA BRICK and Tile Asociation will meet in annual convention January 12, 13 and 14 at Des Moines, Iowa., where some of the finest plants in the Hawkeye state are located. One of these many interesting clay product manufactories is the Barber Asphalt Paving Company's paving brick plant. Their old brick plant located in Des Moines was entirely demolished during the year 1906, and a new plant was constructed near the site of the old.

The work of reconstruction was started January 1, 1906, and finished July 29 the same year. Owing to a delay in the arrival of certain necessary equipment, the plant was not put in operation until August 13, 1906. Since that time it has been in constant operation, many added improvements being made from time to time as the work demanded, until today the plant is almost ideal in every feature.

The latest improvements have been the installation of a large Chambers end-cut brick machine, with indenting cutter and automatic edger, and a complete hydraulic plant for

time overflows there is something wrong in the spiral pipe and a valve is immediately turned, checking the supply of water to the pit and another valve opened, which admits perfectly clear water into the 12-inch reservoir, which, with the head obtained, cleans the line without any fear of choking. This plant is unique in its ability to dispose of all the stripping through a 6-inch underground pipe.

There is much more in connection with the plant which would be interesting to those interested in hydraulics, such as the method of taking water from the river and the prevention of hammering in the pump with so long a suction line, including as it does an 18-foot lift.

At first a 12-inch sewer already on the plant was used experimentally, but, while this sewer would carry away the drift, clay, small rock and so forth, it would not carry away sand. The sand would deposit at the bottom of the pipe and eventually choke it. The sand was just as clean as though it had been taken from the river, and there was not mixed with it pebbles, clay or anything, showing that everything was carried off but the sand. The spiral pipe of small diameter was therefore resorted to to accomplish two things:

First, to create a head back of the 6-inch pipe.



Barber Asphalt Paving Company's Fine Paving Brick Plant, Des Moines, Iowa.

stripping, which is quite interesting in that it varies somewhat from any other method adopted by brick companies

The plant is so located and crowded, so to speak, that they can not deposit the effluent from their pit near the plant. Hence they are compelled to carry it some 1,300 to 1,500 feet underground.

They have installed a 14 and 20 10¼x15 compound center packed Worthington pump which is operated with a steam pressure of 90 pounds and maintains, with two leads of hose, a water pressure at the pump of 125 pounds. In connection with this is an 8-inch suction line 750 feet long running from the river to the pumphouse, a 7-inch discharge line 1,400 feet long running from the pumphouse to the clay pit, and a 6-inch spiral pipe to carry away the effluent.

At the pit there is 30 feet of 12-inch spiral pipe with a reducer from 12 to 6 inches 6 feet long which acts as a reservoir to furnish a head. This pipe stands at an angle of somewhat greater than 45 degrees to the horizontal. Where the 6-inch reducer connects with the 6-inch pipe there is interposed a 6-inch "Y," whose branch reduces to 2 inches and is used as an air vent and also as a safety valve. Twenty-five feet of pipe is carried from this "Y" and if this pipe at any

Second, to give a spiral motion, if possible, to the water, so as to keep the sand agitated and to give greater velocity so that the sand would not have an opportunity to settle.

The clay pit has always been a tough proposition, but it is believed now that they have it thoroughly whipped.

The clay pit comprises eight distinct strata, whose total face varies from 65 feet to 110 feet in height. These strata may be tabulated as follows, starting from the floor of the pit where it is now being worked:

Smooth blue shale	20 ft.
Bastard fire clay	6 ft.
Seamy shale	2 ft.
Upper blue shale	30 ft.
Brown oxidized shale.....	7 ft.
Sandy clay	9 ft.

Below the present floor the supply of shale is apparently inexhaustible, as borings show excellent paving brick shale for a depth of something over 80 feet. The different stratas of shale are separated by thin layers of soft sandstone. There is but little seepage in the pit, in fact it is so small as to be negligible. However, to prevent the accumulation of water from heavy rains, a 4-inch centrifugal pump has been in-



Horseless Method of Transferring Block to Kilns.

stalled. All storm water, after it drains into a sump, is pumped out by this centrifugal.

The shale is quarried by means of a 75-ton Marion steam shovel and loaded directly into 11¼-yard Atlas side-dump steel cars. The cars discharge to a 24-inch belt conveyor, which in turn discharges into a hopper, from which the material is carried to the pans by means of two belt conveyors. Three pans are now installed, provision being made for a fourth if increased output is desired. The ground material is carried to two 8½-foot piano wire screens by means of two vertical elevators. These screens have proved themselves unusually efficient. The screened material resolves itself upon a belt conveyor while the tailings are returned to the dry pans. The belt conveyor above mentioned discharges into a spiral conveyor enclosed in a tight box, into which live steam is admitted to develop all the plasticity in the clay, unify it, so to speak, and eliminate materially any tendency to lamination. Thence it is discharged onto another conveyor, which carries the material to a hopper directly over the pug mill.

The buildings comprising the plant consist of a pan room, machine room, engine room, boiler room and brick stack, waste heat dryer, 12,000 gallon surge tank elevated on timber bents, apparatus house, combustion furnace, fourteen round down-draft kilns and other structures, such as fireproof oil house, pumping station, water supply crib, etc.

Pan Room.

The pan room, which is 68 feet by 28 feet and 14 feet from floor level to the bottom of the roof trusses, is a frame building resting on a white oak pile foundation. The heavy timbers of the building are yellow pine—the light timbers Washington fir, and the siding, California redwood. The roof of this, as well as of all the other buildings, is covered with a heavy 6-ply felt, composition surface.

The pans have a suspended setting on steel and concrete foundations. Material passing through the pans is carried to the elevator boots by gravity, thus eliminating the power required where bottom scrapers are used.

Machine Room.

The machine room is 115x50 feet, of brick and steel construction. A return track from the kilns enters the machine

room at the east end of same and continues on through the building to a turntable, and into the pan room and along its entire length. By this means all rejected brick brought back from the kilns are returned to the pans. An underground conveyor catches all rejected brick from the delivery table and represses and they are returned to the brick machine without handling.

The roof trusses are carried by the machine room wall on the south side and by steel columns on the north side at entrance to dryer. The roofs of machine room, engine room and boiler room are louvre roofs, the louvres themselves being of sheet metal.

The counter-shafting in this room is carried by drop hangers, which are bolted to 2-inch hard maple timber. These



Cooling Shed at Discharge End of Dryer.

in turn are bolted to special steel hanger brackets, which run between the steel trusses. The hanger brackets are stayed and braced with steel rods, to prevent any lateral or vertical deflection. To aid in making repairs, alterations, and for oiling, suspended runways are provided for each line of shafting. Line shaft piers in this room vary from eight feet to thirteen feet in depth below floor level. The piers, where heavy pulls occur, are reinforced with steel rails. An oil line from a reservoir to the repressers, supplies these latter machines with oil. The machinery equipment in the machine room consists of a 14-foot outboard bearing Bonnot pug mill, Chambers end-cut machine with indenting cutter and automatic edger, and four Bonnot represses.

Through the machine room runs a covered trench, which serves as a storm and drainage sewer and also a conduit for water and steam pipes. All rainfall on the building roofs is carried to this sewer by conductors. This trench continues through the boiler room and engine room to the apparatus house. All the buildings are equipped with special fire hydrants and hose to be used in case of fire.

Engine Room.

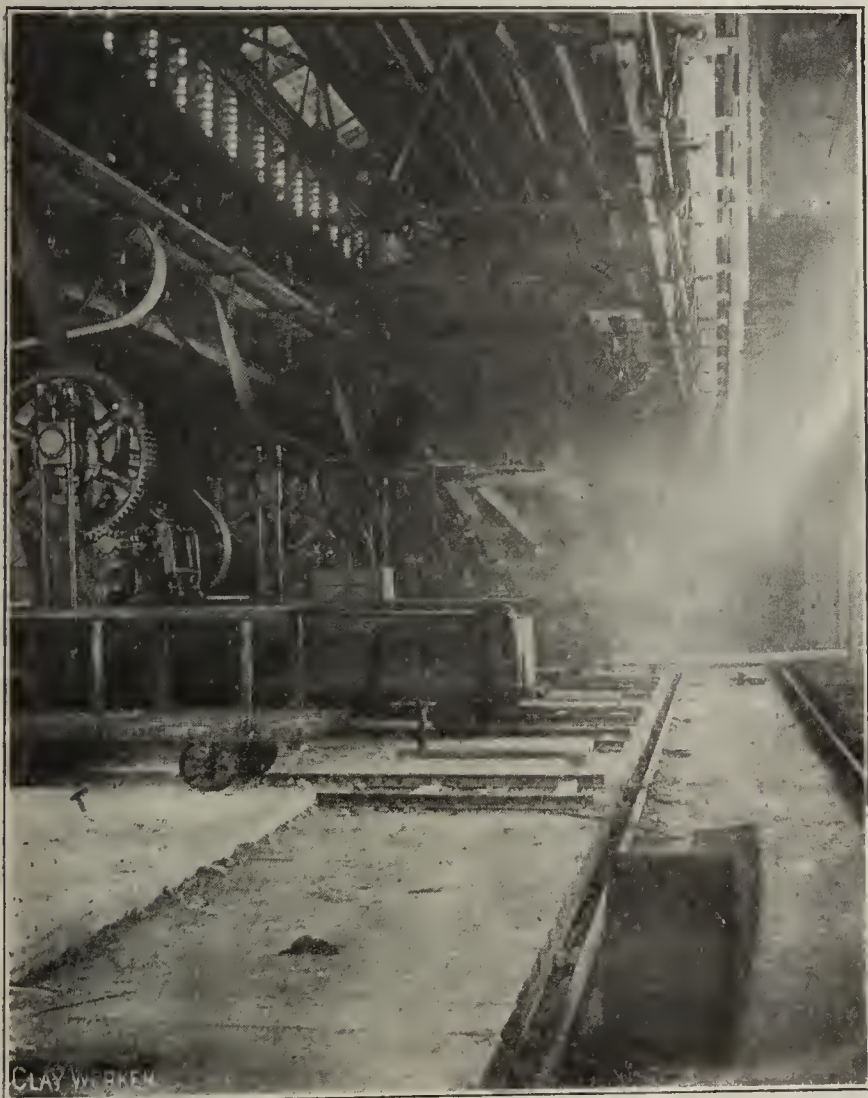
The engine room and boiler room are similar in construction to the machine room. The floor of the engine room is concrete, with a cement finish. In this building are in-

stalled one Sioux City Corliss engine for driving the main line shaft, one 10x13 Rogers throttling engine for driving the exhaust fans which exhaust the moisture from the drying tunnels; one Erie City engine for driving a 60 k. w. generator. This generator furnishes power for lights, running a water supply pump, stone crusher, etc.

Boiler Room.

In the boiler room are installed two 72x18 Murray Iron Works boilers and one 56-16 Kewanee boiler. These boilers have suspended settings. There is also in this building a Sorge-Cochrane feed water heater and two Worthington duplex boiler feed pumps. The feed water temperature averages about 200 degrees. All the steam piping has easy bends. Steam is taken from the boiler at 125 pounds pressure, into the main high pressure steam header. This pressure is used for running the big engine and the centrifugal pump in the clay pit. The boiler feed pumps and small engines obtain their steam at 80 degrees from an auxiliary header. This auxiliary header takes its steam from the main header through a by-pass and pressure reducing valve. Provision is made for feeding the boilers through the blow-off pipe, if anything should happen to the principal feeding system. The blow-off pipes are connected up to a blow-off basin, whose top is flush with the boiler room floor. This blow-off discharges directly into a sewer.

It is the intention to build a coal storage house in connection with the boiler room, in which to store steam coal.



Machine Room, Barber Asphalt Paving Company's Plant.

It will be taken to the boilers by means of a special coal car. The feed water heater is of much service in taking from the water many of its impurities and at least 95 per cent. of the suspended matter. It serves most excellently and the company found that after a four-months run the amount of scale on the boiler tubes was little thicker than a sheet of newspaper.

Boiler Stack.

The boiler stack is 127 feet high, with an interior flue diameter of 54 inches. The chimney is built with an outside shell and inner core, and is designed to withstand a maximum

wind pressure of 55 pounds to the square foot. It is said to be one of the finest pieces of chimney construction in the United States.

Two methods were used in keeping the boiler stack perfectly aligned during its construction. A template was furnished the bricklayer so made that when one of its edges was vertical the other had the exact batter of the stack. These templates were given the bricklayers to be used with every course of brick. In addition to this, two stakes each were placed on two intersecting lines, whose point of intersection was the center of the stack. At every 10 feet of vertical height the stack was lined up by means of a transit. It followed that at the end of the work the stack was only three-eighths of an inch out of plumb. A steel clean-out door, 5 feet in height, opens into the stack just a few inches above the yard level.

Waste Heat System.

The waste heat system for this plant was designed by the L. E. Rodgers Engineering Company of Chicago. After a kiln is finished, connection is made through the kiln wicket to the heat ducts, by means of a gooseneck. The heat is then induced from the kiln by a 13-foot induction fan, which has a peripheral speed of approximately 8,000 feet per minute. After passing through the fan the heat is forced into a discharge duct, from which it enters the drying tunnels through rectangular ports. The tunnels have a temperature of from 200 to 2,200 degrees at the discharge end and about 110 degrees at the receiving end. At the receiving end of the dryer is a tunnel which carries off the moisture from the brick, through vent stacks at either end, in which are installed disc education fans.

The heat ducts have a rectangular cross section and are constructed with brick side walls and reinforced flat concrete top.

Apparatus House.

The apparatus house is a brick building with reinforced concrete roof. In this building are installed the induction fan and a 13x16 directly connected Rogers horizontal throt-



South Line of Kilns. Goosenecks in Use.

tling engine for driving same. The induction fan is an overhung wheel.

Dryer.

The dryer is a building 100x70 feet as at present constructed, provision being made for five extra tunnels. Over the ports, which admit the hot air from the feeder ducts into the dryer tunnels, are placed strips of expanded metal rigidly fastened down to prevent brick from falling into the ducts from the cars.

This building has brick sidewalls and reinforced concrete, hollow tile roof. The hollow tile prevents radiation of heat and condensation. The floor of the dryer has eye beams set in concrete, to which the rails are fastened by means of patent Roger rail clips. This makes a very rigid floor, eliminating in so far as possible the liability of wrecked cars.

Kilns.

The kilns have an inside diameter of 31 feet and are very heavy in construction. They rest on a concrete foundation, which has a 4-inch inside lining of brick, to protect the concrete against the intense heat obtained. The kilns have a capacity of 85,000 wire-cut brick. There are four kiln stacks, each 60 feet high. One stack serves four kilns and each stack has four flues 3 feet square. The main underground flue is 3 feet wide, 2 feet 9 inches to spring line, with an arch covering of $\frac{1}{4}$ rise. This flue is lined with fire brick, as is the heat well. The heat well has an inside clear measurement of 16 inches. It is 28 feet long and 4 feet deep. The floor system consists of a series of parallel flues separated from each other by a single row lock of brick, laid lengthwise on the flat. These flues are seven courses high. They are covered with brick on edge, with admission ports into the flues, regularly located. The flash wall is an independent wall of fire brick, which serves to protect the bags against collapse and also to protect the walls of the kiln. The kiln crown is a spherical dome with $\frac{1}{4}$ rise. It consists of fourteen courses of fire brick starting from the spring line; the balance of the brick are No. 1 repressed paving brick. There is only one vent hole in the crown, this being in the center where the kiln is measured for shrinkage. The whole crown is covered with a course of brick on the flat, then grouted with Portland cement grout. The thrust of the crown is taken up by four steel bands, held together by Tectonius lugs. In addition to these bands, there are bands to protect the door arches and the fire arches.

Water Supply.

The water supply for the plant is obtained from the Racoon river. A crib, protected against a washout by a clump of willow trees, was built about 25 feet from the shore line of the river. The crib was started by putting in sheet piling, in the form of a square 22 feet on a side. As the piling was driven down the excavation was carried on simultaneously. The well thus obtained was kept fairly dry during the process of digging by means of a 5-inch centrifugal pump. After the excavation had been carried sufficiently deep a crib 12 feet square, built of 6-inch cottonwood timbers with 2-inch interstices, was carried 8 feet below low water elevation. The space between the crib and sheeting was filled in with broken stone, brick bats, etc. The water obtained from this crib, having filtered through sand and broken stone, is very clear and pure. The supply is pumped through 700 lineal feet of suction and 900 lineal feet of discharge, by means of a vertical triplex pump, to a surge tank. This tank stands between the boiler room and dryer. The bottom of the tank is 32 feet above the boiler room floor and 90 feet above the river. It is carried on timber bents. With the exception of the pan room, all structure foundations, machine foundations, line shaft piers, etc., are concrete. Wherever there is a fire risk the buildings are made absolutely fireproof, being

constructed entirely of brick, steel and reinforced concrete. All brick work where common brick are used, is laid up in Portland cement mortar. Structurally and mechanically the plant is a model.

The product of the plant consists of:

Vitrified repressed paving block.

Vitrified paving brick.

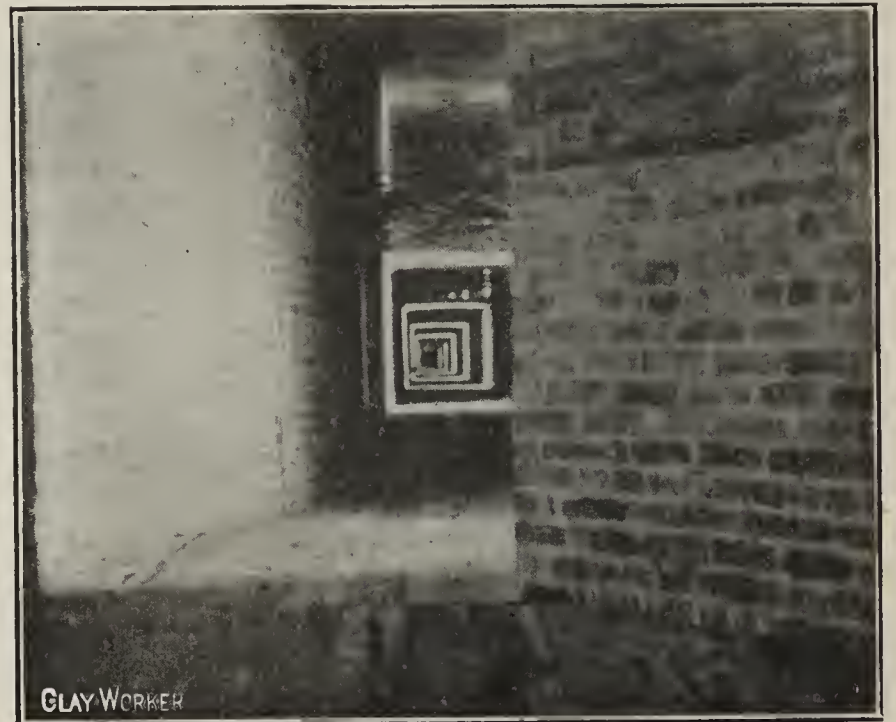
Vitrified nonrepressed face brick.

The pavers burn to a rich chocolate brown; the face brick are somewhat lighter in color, having a lively appearance and having almost as smooth a surface as enameled brick. The face brick are very popular and peculiarly adapted to this locality, because of their nonabsorbent qualities. The soot and grime with which this atmosphere is impregnated will discolor an absorbent brick, while with the non-absorbent all discoloration is washed away with every rain.

NEW DEPARTMENT OF MINING ENGINEERING.

The department of mining engineering of the University of Illinois has recently issued a circular descriptive of the course in mining engineering lately established at the university. This circular can be obtained by applying to the registrar of the university, Urbana, Ill.

The bill establishing the department of mining engineering



Main Heat Duct, Barber Asphalt Paving Plant.

in the state university was passed by the last Legislature of Illinois, and was cordially supported by the United Mine Workers of America and the Illinois Coal Operators' Association, so that the department can truly be said to have been established in response to a demand coming from all branches of the mining industry.

The department of mining is especially fortunate in having located at the University of Illinois the first substation of the general testing station of the technologic branch of the United States Geological Survey. At this station mine bosses and others are trained in the use of oxygen helmets. The station is a great advantage to the students in mining engineering, as it brings them in contact with the men engaged in mining practice from all parts of Illinois and the surrounding states.

The department of mining engineering stands ready at any time by lectures or other means to co-operate with and assist any organization in the state that aims to help those who are preparing to take the state examination for mine manager, or examiner, or for hoisting engineer, or which aims to assist the ordinary miner to better understand his daily work.

Written for THE CLAY-WORKER.

THE CHICAGO SITUATION.



THE BEST YEAR we have ever had," is the verdict rendered almost without exception by the makers of brick and dealers in building material in and about Chicago. As was predicted last month, the building records of the city are going to be smashed again by the new one of 1909, and, as a natural consequence, the books of the men who have been most closely connected with the past eleven months of unequaled activity show greater profits than ever before, and infinitely greater amounts of business transacted.

For this period, one month short of the full year, the records of the city Building Department show that \$83,736,810 was the total estimated cost of buildings for which permits have been taken out during the year. In short, the building record for the year was knocked clean beyond the horizon on the first day of December, and every bit of business turned this month simply is swelling the grand total of achievement. Last year for the whole twelve months this total reached only \$67,108,410, or \$16,628,400 less than for the first eleven months of 1909. The gain in this item over the corresponding months of 1908 is \$21,095,670.

Up to the first of the month these estimates covered a total of 20,751 buildings for which permits were taken out, as against 9,077 buildings for all of 1908, an increase of 1,674 to December 1 alone, with a total frontage of 297,818 feet, as against 268,926 feet frontage for all of 1909.

The bulk of last year's building was in the apartment house line, more than \$30,000,000 of the total estimated costs being credited to investments in this type of building. This year the work has been more diversified, although, to the surprise of all, the apartment building activity has held up remarkably well considering the great number of vacant flats which followed the flooding of the market last year. It has been a great year for downtown skyscrapers, industrial and commercial buildings, and factories and individual dwellings. Two-story apartments also have been popular.

With this increase in prosperity has come a distinct step in advance for artistic work, and particularly fine results have been achieved this year in the use of brick and terra cotta. The rough-surfaced bricks are in great demand, both the rugged pavers and the still rougher wire-cut face brick. Private residences not only in Chicago, but in Duluth, Cleveland and many other western cities are being supplied with the Orientals, by the Bonner & Marshall Co., and the McLaughlin Building Material Company is furnishing their Persian wire-cut face brick for the exterior of the new disposal station of the George W. Jackson Company, at Madison street and the Chicago river. The use of this class of brick, and the attention which architects and builders as well as material men are giving to pattern effects in exterior walls nowadays, indicates great progress over the architectural ideals of a decade ago. Then the exterior amounted to comparatively little, especially if the walls were of brick, and the whole attention, artistically speaking, was devoted to the securing of interior effects. This was not always the case, but it marked the trend of the times. Now brick is more sought than any other building material where pleasing and striking effects are desired, and these effects are desired not only for private homes, apartment dwellings, park and other public buildings, but for office structures and even industrial plants and factories. The fact that the leading material dealers in Chicago are something more than mere selling machines has had a lot to do with this growth. Many of them are themselves experts and artists in the massing of shades and colors, and the blocking out of patterns. They are possessed of high qualities of constructive imagination, and the contractors and even architects feel that they can consult with them freely and be confident of advice that is honest and profitable as well.

The weather up to the first week in November during the whole autumn and early winter has been all that the most greedy dealer and builder could desire, being moderate

in temperature with no snow and little rain. As a result, all have been kept busy with orders not only from the city, but from the suburbs and all parts of the state. An order for 225,000 No. 1 repressed pavers has just been entered by the McLaughlin Building Material Company for the new State Normal School at DeKalb, which is about to be erected. The same company is supplying 100,000 of their Bradford red impervious brick for the new Roman Catholic Church under process of construction for Father Lutteral, at Fifty-first street and Washington avenue; the face brick for Miller & Hart's new packing plant at the Union Stock Yards, and the Richmond sand-mold brick for the new building of the Emerson Typewriter Company at Woodstock, Ill.

Chicago records for the use of paving brick will be broken by the end of the year, according to statistics supplied by the Board of Local Improvements today. Already the total for this kind of work is considerably in excess of 300,000 square yards, or about nineteen square miles, and there will probably be at least one more letting of paving contracts before the close of 1909. These figures include the jobs completed and the contracts let on which work is now actually under way. To cover this area a total of about 12,605,200 paving block has been needed.

The largest single job of brick paving ever put down in Chicago is just completed and ready for its acceptance by the Local Improvements Board. It extends over South State street from Thirty-ninth to Sixty-third street, an area of 83,600 square yards, or more than five miles square. The furnishing of the brick for this contract was split three ways, the Purington paving blocks, the Athens (Ohio) pavers and the Carlyle pavers each being used for a third of the work. All of these brick were furnished to the Union Paving Company by the McLaughlin Building Material Company.

Next to the State street job, the paving of Fullerton avenue, on the North Side, from Humbolt boulevard to North Fortieth avenue is the biggest paving enterprise undertaken by the city this year. This covers an expanse of 27,545 square yards and took in excess of 1,150,000 paving blocks. In addition, there is the Exchange avenue system, including eight blocks, for which the Purington pavers have been used to the number of more than 500,000. South Fortieth avenue from West Sixteenth to West Twenty-sixth street; Winston avenue from West Ninety-fifth street to Vincennes road, and North Ashland avenue from Irving Park boulevard to Belmont avenue, varying from 13,000 to 16,000 square yards each, constituting the larger brick paving contracts finished or let this year, and the outlook for the next year is better, according to the paving brick men. The Winston avenue job, for which the Federal Improvement Company is contractor, will take 600,000 of the Carlyle Sciotoville blocks, and the Fortieth avenue job, D. A. Thatcher, contractor, 800,000 of the same. The McLaughlin Company handled the brick for these orders also.

One of the features of the year's paving work in this city is the extent to which brick has been used for pavement in alleys. Owing to the scattered and fragmentary nature of much of the work, accurate totals will not be forthcoming before the first of the year. Several single jobs, however, run as high as 9,000 square yards, and it is estimated that the total square yards of alley paving laid down in brick this year will not be far from 100,000. It is found that this pavement in alleys is conducive to cleanliness and increased sanitation, and it is believed that the material will stand the wear and tear better than any other that could be used.

In addition to brick for paving purposes, the city is using them in a great number of public enterprises which it has under way. In the new city hall nearly 1,000,000 common builders will be used, and about 400,000 of the white enamel brick for surfacing the courts and light and air shafts. The latter are to be furnished by the McLaughlin Building Material Company. Besides all this, the Lawrence avenue intercepting sewer and the southwest land tunnel will require a lot of common brick in their construction, and incidental engineering projects of the city of a minor nature, together with the erection of a new police station and an engine house or two, has sent more brick business city hallward than has been noted in many a long year.

SCRIP.



THESE COLUMNS ARE OPEN TO ALL. THE FULL NAME AND ADDRESS IS REQUIRED, BUT WILL NOT BE PUBLISHED EXCEPT WHEN PERMISSION IS GIVEN. THOSE DESIRING TO COMMUNICATE PRIVATELY WITH ANY CORRESPONDENT WHOSE FULL NAME IS NOT GIVEN CAN DO SO BY ADDRESSING LETTERS CARE OF CLAY-WORKER.

Wants a Material to Darken Clay Product.

Editor THE CLAY-WORKER:

Our clay is deficient in iron and we have to burn them too hard to bring out the color. Is there any compound that is manufactured that would give us the desired color. If there is, please refer us to a place where we can get it.

THE ZUBER DRAIN TILE CO.

Pittsburg a Good Choice.

DEAR MR. SECRETARY:

On the receipt of THE CLAY-WORKER, I learn for the first time that the coming clayworkers convention is to be held in Pittsburg. I beg to congratulate you on your decision in this matter. Perhaps no other city in the United States is so well suited, for many reasons, as is Pittsburg. The location assures all clayworkers in advance of a successful convention.

Very truly yours,

Kittanning, Pa.

G. W. MCNEES.

The Clay-Worker Abreast of the Times.

T. A. RANDALL, INDIANAPOLIS, IND.:

Dear Sir—We are glad to renew subscription to THE CLAY-WORKER, and enclose \$2 for the ensuing year. Your paper is always read with both pleasure and profit. We congratulate you in keeping abreast of the times. We have nothing new to report here; had a good business during the year. Our brick are in good demand and sales satisfactory.

SPRINGFIELD PAVING BRICK CO.

Business Flourishing in Nebraska.

FRIEND RANDALL:

Your letter with bill for \$2, subscription price of THE CLAY-WORKER, at hand. Enclosed find check.

I had a good run on the yard; made all the brick I possibly could. Had a splendid spring and fall trade. It was slow in the summer, but we piled up brick for winter and spring trade. I think the month of October was the best month I have had since I have been in Nebraska—about twenty-eight years.

With best wishes for THE CLAY-WORKER and yourself, I am,

Yours very truly,

November 29, 1909.

W. H. BUSHELL.

Good Location for Drain Tile Plant.

Editor THE CLAY-WORKER:

Will you kindly advise us if you know of any tile manufacturing company that is looking for a location for a new plant, at a point where there would probably be a very good local trade?

We are desirous of getting such a plant established at Wilson, Ark., a point thirty-eight miles north of here, the junction of the St. Louis division of the Frisco railroad and the Wilson Northern railroad. There is quite an amount of farm land in that neighborhood and the people are lately becoming interested in the subject of tile drainage, but on account of the distance of any factories, making the prices

practically prohibitive, they are prevented from giving same a trial.

If you know of any factory that would be interested, we would be glad to have you give us their address.

Thanking you for your trouble in the matter, we remain,

Yours Truly,

Memphis, Tenn.

R. E. LEE WILSON.

Clay-Worker Mascot a Good Collector.

Editor THE CLAY-WORKER:

I am getting tired of seeing that dragon sitting in the corner of your envelope about every so often, so while I think of it will remit \$4 for THE CLAY-WORKER, including one year in advance.

We have closed down the machines for the season, but will keep a crew shipping all winter. We have an improved cable system since you were out here, and it is the most perfect in the country, simply and cheaply installed. Two men handle 50,000 brick per day, where with the old way of trucking, it would keep ten or twelve on the run, for it is a long distance to truck on our yard. We also take the dry brick from the racks to the kilns with the cable, turn three or four corners and never drop a pallet and no men in sight. We are using about 8,000 feet of cable. This system can be used on any rack and pallet yard, and any plant of this kind that don't use it is a back number. This has been a good season, good brick and good sales, and although we had a record run our stock is low.

J. D. PRATT.

An Old Face in a New Place.

Editor THE CLAY-WORKER:

Dear Mr. Randall—You, no doubt, will remember me in my connection with the Bonner & Marshall Co. at Chicago and with the Akron Roofing Tile Company, of Akron, O., and as I know that you like to hear once in a while from the old boys of the Central States, the thought just occurred to me that I would drop you a line.

We are at the present time making a common, face and paving brick. Our plant is well equipped and we expect to do a big business on this coast during the next few years. Our plant is virtually a new one in every respect, we having taken over the old Hilton Brick Company's plant and thoroughly remodeled and reorganized same on a modern scale. Our subscription to your valued magazine is in the name of the Hilton Brick Company. It should be changed to the Pureclay Brick and Tile Company, as we want to continue our subscription, and we would thank you to advise us just how we stand on your books.

Our friend Marshall was out this way some seven or eight weeks ago, and I had the pleasure of spending a day with him, and was glad to see that his health was so much improved.

If at any time I can be of any service to you in this vicinity I am yours to command.

Wishing you the compliments of the season, I beg to remain,

C. W. RANDALL, Manager,

Pureclay Brick and Tile Company.

San Francisco, November 18, 1909.

A Brick Plant Needed In Oklahoma for Rush Work.

GENTLEMEN:

We have a proposition like this: Eighteen miles southeast of Talihina, LeFlore county, Okla., on the Frisco road, a job of the rush order; four buildings for a power station and a stack 12x12 and 100 feet high, taking 400,000 good building brick. It's in the bend of the Kismuchi river, a horseshoe one-half mile across the point. One-half mile back, good clay about 18 inches deep. It's in the mountains—Potato hill of Sans Bois range, Ozark mountains. The plant must be built

in a hurry and engineers wish to build of concrete building block and stack of patented process. The company has about thirteen other plants under construction of brick bought in the open market.

We believe a good sand-mold brick can be made by machinery and dried in a wooden dryer and burned with pine wood in or about the allotted time with a 20,000 capacity machine, along the old Quaker or American lines, under some good man with plenty of energy.

We turn to your valuable journal, hoping that someone may want an opportunity to do this, and someone want to sell new or old machinery that will do it. To stop concrete, we must be in a position to show what can be done before January 1, 1910. Can and will you help? Parties must give full particulars as to salary, qualifications and shipping weight of machinery. Terms of payment for machinery would be sight draft on delivery, as time is the great element just now. I hope we have made our trouble plain and that we can hear from you or your clients. The machinery can not be used at this point after completion of the job, and would be for sale or return in good condition, less a good reduction for lease or hire.

HUGH GILLEN.

Kinta, Okla.

Written for THE CLAY-WORKER.

THE NEED OF A NATIONAL BUREAU OF MINES.

Recent mine disasters call attention to the need of general national investigations for the benefit of not only local mining, but all branches of the mining and quarrying industries. This calls attention to the fact that investigations for these industries have been long neglected by the general government as well as the states. The government is spending during the current year \$18,000,000 to help the various agricultural interests, and has long since established for this work a cabinet department with a dozen permanent bureaus, each supplied with a staff of well-trained experts, whose work covers every state and territory. It can not be denied that this money is well spent and is probably the best investment the government has ever made. The amount of information furnished the American farmer upon every conceivable subject is stupendous, and he has brought to his door without charge the results of the farming experience of all countries and the conclusions reached from ingenious and accurate investigations.

Now farming and mining are the two great foundation industries. They furnish the real wealth for the support of the nation. What has Congress done for the mineral industries? For some years it has supported a Geological Survey that has been making topographic and geological maps, investigating ore deposits, measuring streams, studying underground waters, and collecting mineral statistics. The character of this work is known the world over, and the survey has earned an enviable reputation for its thorough and efficient work. Nearly all of this work has been as helpful to the farmer, the railroads and cities needing water supplies as it was to the miner and the men who are trying to develop the various mineral resources. We have always been glad to get the statistics as to what has been done, but what the mineral industries now need is technical investigation of the many perplexing questions that confront those who are compelled to make use of the raw products offered by nature, with their infinite variations and peculiarities.

What the Clay Industries Need.

Our own clay industries need technical investigations which can not be carried on by private individuals, corporations, schools or even states, owing to their magnitude. While the states can do much through their geological surveys as regards the location and the geology of deposits, the value of their work would be greatly enhanced by co-opera-

tion with a federal bureau which could carry on tests and investigations suited to the needs of the separate states. Again, such a bureau would do for the clayworker what the Department of Agriculture has done for the farmer.

A correlating influence of this kind could not help but tend to unite the conflicting interests of the clay industries. It would show them where they are working in the wrong direction; it would educate them for better things, and would enable them to meet better the increased field as well as the growing competition which the future will undoubtedly bring to the worker in clay. While comparatively few could attend technical schools, all could be benefitted by the literature and information offered by such a government bureau. We can not take the space to point out all of the problems the solution of which would greatly benefit the industry as a whole. We need only point out the question of fireproofing. Do we realize how greatly a thorough federal investigation of this question would help the clay industries? Though apparently a simple problem, it has many sides to it which render it too costly an investigation for individual corporations.

Again, the study of resistance to frost and weather to the chemical agencies of the soil, sewage, etc., resistance to abrasion and many others could not help but be great factors in educating the great public reached by the government bulletins to the advantages of clay, and ultimately would greatly benefit the country as a whole.

In addition, there are many problems which concern the manufacturer individually, such as the testing of his clays, their proper manipulation, the study of the proper combustion of coal, the use of gas producers, and the continuous kiln, etc.

Last, but not least, the representation of the clay industries in a government bureau would lend dignity to our business. In ranking on an equal basis with the other mineral and mining industries, we would at once attain that standing to which we are entitled.

What Should Be Done

The people have often repeated their demands for a bureau of mines, similar to those of other civilized countries. It is specially advocated in the national platform of both parties. The question is again to be brought up before the present Congress. It behooves every man interested in the welfare of the great mineral industries to work with his senator and congressman for the passage of a bill authorizing the establishment of a bureau of mines. You are as much interested in this matter, Mr. Clayworker, as the miner and others dealing with the mineral raw product.

DUNN BRICK WORKS PASSES INTO NEW HANDS.

A company of Erie men have purchased the plant of the Dunn Brick Works at Erie, Pa., which has been operated by Miss J. M. Dunn since the death of her father in April, 1908. W. H. Miller, who has had the management of the business for Miss Dunn, is secretary of the new concern. The business will be continued with the same employes and under the same name.

SUBSCRIPTION TIME.

Do you know, dear reader, that when you buy magazines from month to month you are paying from one-fourth to one-half more than you need to? See our money-saving club offers on pages 626 and 627.

	Our Price
CLAY-WORKER	\$2.00
Pottery & Glass.....	2.00
Outing	3.00
Value	\$7.00
	\$3.95

Written for THE CLAY-WORKER.

MILWAUKEE AND WISCONSIN BRICK NEWS.



ALTHOUGH ALL of the producers of clay products in Wisconsin have ceased operations for this year, most of the plants are showing considerable activity and not one is without signs of life.

In anticipation of the greatest year in history, they are taking advantage of the dull season to make needed improvements, build new additions, extend their yards, and make ready for the earliest possible resumption of operations next spring.

The year 1910 will be, without doubt, the most active year for the brick and tile manufacturers in the northwest, just as 1909 broke all previous records. But 1909 was remarkably active because the two years before had been dull and stagnant as the result of the panic. Next year, therefore, will have to be compared to 1909, which was really a good "average" year, the effects of the financial unpleasantness having worn off. The present and passing year can hardly be compared to 1908, but even standing alone it was a remarkable period.

Milwaukee alone has a building record of more than \$1,000,000 a month, and the total for the year will be not less than \$12,500,000. These figures are taken from the records of the Building Inspector and represent the total amount of the permits issued by him. The cost of buildings stated when permits are applied for is naturally conservative, for fees are based on the cost, so that a liberal estimate of the total cost of new buildings erected in Milwaukee during 1909 is \$13,000,000 or more.

This seems to be a pretty fair showing for a city of 375,000 inhabitants.

In addition, \$1,070,000 was expended by the city of Milwaukee for paving from August 1 to November 25. This represents 157 contracts. A fair percentage of this is brick paving. Next year the city is planning on an expenditure of about \$2,000,000 for pavements.

The big building brick supply houses in Milwaukee and elsewhere in Wisconsin share the prosperity that has been experienced by the manufacturers of this territory. For the most part, either the manufacturers or the jobbers have often been pressed to fill orders. At no time during the building season was there any indication of a surplus on the market. The brick were purchased in many cases before the clay went into the wagons in its raw state. There are several instances on record where the entire output of a big yard was purchased for the season to supply a single building project.

It is regarded as noteworthy that when the big manufacturers in Milwaukee and its suburbs—and this territory contains some of the largest manufacturing plants in the world—desired to build additions and new buildings, brick was invariably chosen as the building material. Promoters of other construction methods claimed that the only reason for this was that the existing buildings were of brick construction, and that it would not have been advisable to change the construction method in erecting new buildings. However that may be, it does appear that the conservative and substantial manufacturers do not care to experiment, especially when hundreds of thousands of dollars are at stake.

Milwaukee manufacturers recently were taught a good lesson in the construction of chimneys and smokestacks which again pointed forcibly to the value of brick as the construction material for this purpose. The power house of the Pabst Brewing Company was wrecked by the explosion of a battery of four large boilers some time ago. A frame elevator about 80 feet high and 40 feet square was moved 4 feet from its foundations, although its dove-tailed construction prevented it from toppling over. This elevator was across the

alley from the power house. The two brick smokestacks, the tallest in Milwaukee, and situated on either end of the power house, stood unscathed, not a brick being out of place. One stack is about ten years old; the other three. The force of the explosion may be judged not only by the moving of the elevator, but by the fact that one of the huge boilers was carried into the air and landed on the roof of another elevator 65 feet high.

The remarkable resistance of the brick chimneys excited wide comment, and many instances of similar resistance have been brought to the notice of the public thereby.

It is expected that more brick paving than usual will be laid in Milwaukee next year because of the many protests against asphalt or bitulithic pavement on grades of even slight degree. The especial object of bitter criticism is Wisconsin street, between East Water street and Broadway. Every day, especially during the fall and winter months, the crowds passing on this principal thoroughfare express their indignation after witnessing the pitiful efforts of well-shod animals like fire department horses to haul their loads up the grade.

Mason street, paralleling Wisconsin street one block north, is of necessity used more than Wisconsin street, for the simple reason that it is paved with brick. These two blocks are perhaps the most striking examples of the worthlessness of asphalt, and the worthiness of brick on grades of all kinds.

It is interesting to note in this connection that the Mason street pavement was one of the first brick pavements to be laid in Milwaukee. When James Bryden, a retired capitalist and well-known philanthropist, was a member of the Milwaukee Common Council eighteen years ago, he laid a sample block of brick pavement on Mason street, and although the traffic is as heavy as on most streets, the street is in excellent condition, and many experts in brick paving who have been asked to estimate the date it was laid have been puzzled. The answers usually range between eight and ten years. The central fire station is just around the corner, and Mason street is generally used in responding to alarms, except when necessity exists to take Wisconsin street asphalt pavement. Fire department wear and tear is perhaps the hardest on any pavement, but Mason street brick has stood up and is pointed to as the best example of pavement in Milwaukee.

William Glatz, president of the Oshkosh (Wis.) Brewing Company, Oshkosh Pure Ice Company and other industries requiring much heavy teaming, has offered to give \$200 or more toward paving Doty street, a leading thoroughfare from the farming district into the center of Oshkosh, with brick, if automobile owners and the City Council will appropriate the remainder. Recently farmers started agitation for improved highways, and admitted that bad roads are responsible for higher prices for grains and farm produce that are hauled to Oshkosh by team. The proposition is to pave Doty street from Sixteenth to Twenty-fifth street. This street is now paved with brick from the Main street bridge to Sixteenth street.

Wisconsin brick and tile men wish their fellows all over the United States, through THE CLAY-WORKER, a Merry Christmas and a Happy New Year.

A. BADGER.

THE SCHURS OIL BURNERS HIGHLY RECOMMENDED.

The Union Brick and Gas Company, of Cherryvale, Kans., has seventy-eight Schurs oil burners on their plant. In a recent letter to the Illinois Supply and Construction Company, of St. Louis, Mo., the agents for this well-known oil burner, they recommended them highly. The letter said in part: "The results we are getting with the Schurs oil burners are fully satisfactory. All of the seventy-eight burners are in commission every day, and by their employment we get better burns in both up-draft and down-draft kilns than we ever did with gas, which is saying a good deal. We use compressed air for atomizing and have used oil of as low as 18 gravity. We know of no other burner on the market that will do this with any degree of satisfaction. We get as good results in

zero weather as we do in weather 90 degrees above; we water-smoke with oil and have no trouble, now that we have learned to handle it. The Schurs burners are dependable and pretty near fool-proof."

This certainly speaks well for the Schurs burner. The Illinois Supply and Construction Company will gladly send anyone interested all the information desired if they will communicate with them. See their ad on page 616 of this issue.

THE TEXAS FIRE BRICK COMPANY'S PRIZE EXHIBIT.

At the San Antonio International Fair, held recently, the Texas Fire Brick Company won the first premium on face and fire brick. Their exhibit was unusually attractive, being up-to-date and very creditable, as the accompanying illustration shows. The exhibit consisted of high-class manganese face brick in buffs and grays, also high-grade buff face brick



Prize Exhibit of Face and Fire Brick.

and fire brick. The brick were laid up in different colored mortars, each type being displayed in separate panels. On a table in the center of the exhibit space was shown various shades of brick, while about the walls above the exhibit were placed diplomas and four large photographs of the Mary Gates Hospital, Port Arthur, Texas; Port Arthur Dormitory, Port Arthur Business College, and the Carnegie Library, all of which were built in a Spanish style of architecture after the plans of Mr. C. A. Logan, of Houston, Texas. These buildings required 300,000 face brick, furnished by the Texas Fire Brick Company, whose plant is at Lasher, Texas, near Elgin.

"A penny saved is a penny earned." One way for clay-workers to save is to sell discarded machinery and appliances, instead of allowing them to rust and decay in fence corners. Either house and preserve such machinery, or sell it to some one who can make good use of it. There are many such who can be reached through the "For Sale" columns of THE CLAY-WORKER.

Written for THE CLAY-WORKER.

THE TWIN CITIES AND THE NORTHWEST.



THE YEAR 1909 is drawing to a close, and the brick manufacturer's retrospect of it is that it has turned out considerably better than might have been expected a year ago, when it was dubious whether things were going to improve materially or remain at the same position that they then stood. The change has been noteworthy, and it has been so gradual and so steady that general activity was upon the Northwest before many were fully aware of it. This was especially true of the contracting and building fraternity, who during the opening months of spring were scrambling for work as though there was nothing else in sight, and were making prices which did not leave very much leeway for incidental changes and unconsidered possibilities. Suddenly, when the season was fairly on, it began to be realized that there was work enough for all, and that instead of a scramble it should be a selection of work. When this was realized contractors began taking jobs at prices which brought them in some net revenue instead of their breaking even.

The brick trades have shared in the situation only moderately. They have been up against strenuous competition of various kinds, including the kaleidoscopic concrete proposition—kaleidoscopic because it is inclined to change in some respect or other every little while. So far as the concrete block is concerned, it is nearly down and out in the Twin Cities. There are not 25 per cent. of the shops engaged in making blocks that were in existence two or three years ago. Some have quit business completely, and others have retired from the block business and are doing sidewalk work or monolithic foundation wall work. In the country and through the Northwest there are a few concrete block concerns which have endured the test of time and are still in business. Many of them have gone into cement tile work or made other changes, so that they are not doing as they were a couple of years ago.

But the manufacturer of common brick, during the past season, has not been able to come into the commercial ring very actively. Reinforced concrete continues to get a share of the business, although the frequent collapses of concrete structures do not add materially to their standing. A building in Minneapolis collapsed within a month and killed one man. Common brick has also suffered through the development of hollow tile work, which is used for lining walls, and the demand for common brick is cut into thereby. Sometimes these are made by the same yards which made the common brick as well, so it becomes a change of production, but many common brick yards are unable to enter into the hollow tile business, and are excluded from the business. But, in spite of the drawbacks, there is a better and larger demand for common brick than there has been. The brick manufacturers of the Northwest have been giving the subject of their business considerable attention during the season, and are planning various means of improving the conditions of the business. In various methods, they look forward to benefitting conditions to the general and individual betterment of the business. Some of the factors which have contributed to the backset of the demand for their product have worn themselves out, and are being forgotten. Other things which are likely to help are the more consistent efforts which are being made by the trade as a whole to push the real value and merits of brick as a building material, instead of resting secure on the knowledge that brick has been known for centuries and everyone should know its worth.

The long-delayed solution of the disposal of the brick made by the prisoners of the Minneapolis workhouse has been attained. A portion of them will be used in a new

building to be erected at the grounds, while the contractor for several city schools has agreed to take 1,200,000 run of kiln brick. This disposes of all the brick made at the workhouse during the past season. As there will be some new building work at the workhouse during the coming season, the brick which will be made the coming season will be utilized there. The work will be done by the prisoners, so there will be little question as to the work being done without trouble.

The brick masons' union of Fargo, N. D., recently tendered a complimentary banquet to the employers. There were about a hundred in attendance.

The Black Hills Company of Edgemont, S. D., has recently been incorporated, with a capital stock of \$100,000, to engage in the manufacture of vitrified brick, and to quarry and cut stone. W. M. Rich of the Kettle River Quarries Company of Minneapolis and others are interested in the project.

The Wrenshall Brick Company of Wrenshall, Minn., proposes to establish a brick plant at Feeley, Minn.

Mr. Beumer, of St. Cloud, Minn., has made plans to establish a brick plant at Bowlus, Minn.

The Black Hills Brick Company, Rapid City, S. D., has been incorporated with \$50,000 capital stock, to engage in the manufacture of brick. The plant will probably be located at Canyon Lake.

Jeff Schelde will make exhaustive tests of the value of the clays which are available at Jamestown, N. D., during the winter.

Building permits for Minneapolis will break all records. November had a total of \$1,056,385, making the eleven months amount to \$12,237,240, a gain of \$2,000,000 over all of last year, and the highest yet reached. It is expected that December will run the total over \$13,000,000.

Buecher & Orth, St. Paul architects, recently completed plans for an eight-story hotel building for George Benz & Sons, St. Paul, to be erected with the building for the new Shubert theater at Ninth and Wabasha streets. It will be 50x150 feet, terra cotta front, modern construction throughout. Cost \$75,000.

The contract for the erection of the new church for St. Agnes Catholic congregation, Kent and Lafond streets, St. Paul, will be let shortly. It will cost complete \$175,000. George Ries, of St. Paul, is the architect.

Plans have been prepared for the proposed Garrick theater to be erected in Minneapolis by the Walker-Burton syndicate on Seventh street, near First avenue North. The superstructure will be of white terra cotta front, with a marble lobby. The foundation work is well along.

Dr. Eitel, of Minneapolis, will erect a modern fireproof brick hospital building at Fourteenth street and Spruce place, to cost \$100,000.

The Minnesota Board of Control of State Institutions has rejected all bids for the erection of the women's dormitory at the state university in Minneapolis, and later awarded the contract on revised bids, to the J. & W. A. Elliott Co., of Minneapolis, on a bid of \$86,000.

Bertrand & Chamberlin, architects, Minneapolis, have prepared plans for a handsome building to be erected by the Nicollet Associates at Nicollet avenue and Ninth street. It will be 165x125 feet in size, two and four stories, of gray pressed brick and terra cotta exterior walls. The building is to be completed by May 1, coming. Cost \$100,000.

The Pillsbury Flour Mills Company, of Minneapolis, will erect a new electric power plant adjacent to the mills at Third avenue Southeast and Main street. The buildings will be of brick construction, fireproof throughout, and, with the equipment, will cost \$225,000.

Christopher Ash & Co., St. Paul, were awarded the general contract for the erection of the West End high school in St. Paul, at \$323,746.

The Cameron Transfer and Storage Company, of Minne-

apolis, has plans under consideration for a brick storage warehouse to be erected at 756 North Fourth street. The building will be of brick exterior walls, three stories.

C. F. Haglin, of Minneapolis, has been awarded the general contract for building four additional stories to the annex under construction to the Security Bank building, Minneapolis, which will make the annex the same height as the main building, ten stories. The additional four stories will cost \$15,000. They will have the same white enameled brick front that the main building has.

The Twin City Rapid Transit Company, which operates the street car systems of Minneapolis and St. Paul, proposes the erection of a repair shop and operating station in South Minneapolis, to cost about \$200,000. The work will be done by day labor under the direction of the company's master machanic.

The general contract for the erection of the new Plymouth Clothing House store and office building in Minneapolis, at Sixth street and Hennepin avenue, has been awarded to the John M. Ewen Company, of Chicago. The building will be made twelve stories in place of ten, as originally planned, and will cost between \$1,100,000 and \$1,200,000. The first two stories will have granite or terra cotta exterior, the next nine stories to be of brick, and the top story will be of terra cotta. Long, Lamoreaux & Long, architects, Minneapolis.

The St. Paul Board of Education proposes the erection of additions to different school buildings, to cost about \$125,000.

The Russell-Miller Milling Co., of Minneapolis, has let the contract for a foundation and one-story building of what may ultimately be a duplicate of the present mill. It will be of white brick exterior walls, and, when completed, will be six stories high. Cost, \$125,000. T. WIN.

FORCED FEED OILING SYSTEM FOR CLAYWORKING MACHINERY.

The American Clay Machinery Company, of Bucyrus, Ohio, is manufacturing an improved central oiling device for thrust bearings by means of which the thrusts are oiled from the center instead of trying to get the oil to run from the periphery of the thrust plates to the center. The gravitation on a revolving plate or disc is from the center and not towards it, consequently by the old system there was no assurance that thrust plates received the proper amount of oil. This new method of applying the oil by force feed to the center of the plate insures plenty of oil and freedom from repairs. This oiling system can be applied to any of the American Clay Machinery Company's machines. An illustration of this oiling system as used on their No. 65 auger brick machine is shown in their advertisement on page 676 of this issue. A dustproof cover is used to protect the oiling system and the machine from dust. This housing is arranged with hinged doors, so that the gearing and bearings can be inspected at all times. For more complete information write the American Clay Machinery Company, Bucyrus, Ohio.

SUBSCRIPTION TIME.

Do you know, dear reader, that when you buy magazines from month to month you are paying from one-fourth to one-half more than you need to? See our money-saving club offers on pages 626 and 627.

	Our Price
CLAY-WORKER	\$2.00
Pottery & Glass.....	2.00
Brick Builder	5.00
Value	\$9.00
	\$7.15

IOWA BRICK AND TILE ASSOCIATION CONVENTION TO BE HELD AT DES MOINES.

The Iowa Brick and Tile Association will hold its twenty-ninth annual convention in Des Moines, Iowa, January 11, 12 and 13. The headquarters and convention hall will be at the Savery hotel, which offers reasonable rates and good accommodations. The rates are \$1 per day and up. The hotel possesses one of the finest cafes in the city. The following program has been sent us by the secretary, C. B. Platt, of Van Meter:

Tuesday, January 11, 9 A. M.

Registration and payment of dues.

Tuesday, January 11, 10 A. M.

Address of Welcome, Mayor A. J. Mathias.

Response for Clayworkers, Wm. H. Brecht, Des Moines, Iowa.

President's Annual Address, J. L. Stevens, Boone, Iowa.

Appointment of committees.

Tuesday, January 11, 2 P. M.

"Freight Rates on Iowa Clay Products," E. G. Wylie, Freight Commissioner Greater Des Moines Committee.

"Some Practical Experience in Drying Brick and Tile," H. R. Straight, Adel, Iowa.

"Iowa's Great Drainage Fields," Prof. A. Marston, Ames, Iowa.

Wednesday, January 12, 9:30 A. M.

"Why an Association?" J. A. Wrightman, Secretary Iowa Manufacturers' Association, Des Moines, Iowa.

"Difficulties Encountered in a Medium-Sized Plant and their Practical Solution," J. A. Wilson, Dows, Iowa.

"Promotion of Clay Building Construction," C. W. Lansing, Chicago, Ill.

Wednesday, January 12, 2 P. M.

"Burning of Brick and Tile," S. A. Furnam, Des Moines, Iowa.

"Iowa Clay Fields—their Manufacturing Possibilities and the Demands of the Iowa Clay Market," Prof. S. W. Byer, Ames, Iowa.

"An Organized Sale of an Organized Product," Geo. H. Emery, Des Moines, Iowa.

Entertainment Wednesday evening.

Thursday, January 13, 9:30 A. M.

Question Box.

Discussion of any subject proposed by any member.

Reports of committees.

Reports of secretary and treasurer.

Election of officers.

Adjournment.

PROGRESS OF BATHROOMS AND SANITARY WARE.

It is confidently prophesied by people closely in connection with the handling of supplies and who are in position to know fairly well what is before them, that the business in bathroom and furnace supplies in the next few years will increase ten-fold. This prophecy is based on the fact that today not only does every man building a modern home include bathrooms and furnaces, but he generally includes more than one bathroom if the home is of any size, and in the modest country homes, even, they are beginning to add them quite extensively, and in the cottages of the city suburbs. Indeed, it looks like that while the English have the reputation of being sticklers for the bath that the American people are the great bathroom people. There are already more of these modern accommodations in America than in any other country, but now there seems to be a general awakening that means the including of them in practically every modest cot-

tage, as well as in every pretentious home, and in the country as well as in the city. What this means to clayworkers making a specialty of sanitary ware and of tiling is simply the multiplying of the quantity used by ten, if the prophecy is a safe one, and whether or not it is just ten, there is plenty of evidence that it will be several times the quantity required in the past. The outlook is such that it should stimulate quite a number of new industries in this class of products. Not only in the older and better-known items, but in the development of new and modern ideas in sanitary ware and bathroom equipment.

The furnace business is keeping step with the bathroom business and it calls for an enlarged quantity of fire clay work, but the great thing for the clay industry in this is in the chance for development in tiling and other bathroom supplies. From all appearances the sanitary ware business should double itself every year for several years now.

Written for THE CLAY-WORKER.

A BRICK IS A BRICK.

So Says the Interstate Commerce Commission In a Decision Rendered December 8.

At last a momentous question to the brick manufacturers of the country has been settled.

A brick's a brick.

On December 8 the Interstate Commerce Commission handed down a decision condemning as unreasonable the charges made by the railroads in the Central Traffic Association territory for the transportation of brick. Beginning February 1 next, the commission holds that the railroads must carry brick on a Chicago-New York basis of 21 cents per hundred pounds, instead of 22½ cents as fixed by the railroads recently. The rate of 21 cents is fixed as the maximum to be charged, and the railroads can be trusted not to charge any less than that sum.

This boon for the brickmakers came as the result of an initial appeal by the Stowe-Fuller Co., of Cleveland, a concern which controls a number of plants manufacturing fire brick. The rate on fire brick has been 25 cents a hundred pounds, the rate on facing brick 22½ cents, and the rate on pavers 21 cents. The Stowe-Fuller Co. demanded that the rate on fire brick be at least the same as the rate on face brick and produced much evidence before the commerce commission to indicate that a brick is merely a brick, no matter for what purpose it is to be used.

The commission decided that the rate of 25 cents was unreasonable, and that the railroads should charge no more for fire brick than for face brick. At the same time the railroads took the arbitrary stand that if a brick was a brick that the paving brick makers were having a good thing of it, so they boosted the rate on pavers to the uniform charge of 22½ cents.

When the action was announced there was a wild cry from the paving brick manufacturers, in which the face brick makers joined lustily. The two associations of manufacturers got together and planned a campaign. A number of hearings were held in Cleveland, Pittsburg and other points, in which a special commission took a great volume of evidence. After having it presented to them and having thoroughly digested the facts, the commissioners during the past month handed down their decision.

This restores the original rate paid by the paving brick manufacturers, cut down the rate on face brick 1½ cents per hundred, and clips 4 cents per hundred pounds from the fire brick rate, which is something of a Christmas present the various brick manufacturers should thank the Interstate Commerce Commission for.

If it were only just as easy to make money as it is to make trouble, what a time there would be until we realized that too much money may be worse than not enough.

Written for THE CLAY-WORKER.

A Little Bit of Clay

It lay like a precious jewel, in a casket satin-lined,
And never a sight more beautiful was given to mankind.
An angel had only touched it, when the wee bit of clay
A miracle of white marble became, in a single day.
Yet, she who beheld this vision, so tenderly, sweetly fair
Looked only in tearful sorrow,—in grief, and in pain
and prayer.

*'Twas only a tiny bit of clay
Transformed in such mysterious way,
But it broke a mother's heart, that day.*

It lay in a royal cradle, this precious bit of clay,—
A gift to the throne awaiting its rightful, kingly sway.
While cannons boomed loud their greetings, and nobles
bent the knee,
And thousands in terror trembled, before this king-to-be.
And honored the few permitted,—and happy and proud
were they,
To serve as they might this sovereign-line, conserved in
this bit of clay.

*'Twas only a tiny bit of clay,
That was tended in such regal way,
But it saved a land and throne, that day.*

It lay in an humble manger, this priceless bit of clay,
And angels hovered o'er it, in reverential way,
While they proclaimed, "Glad tidings of joy, Great joy".
The call
Of "Peace and good will" rang sweetly over the earth,
to all;
And those who beheld this vision, divinely sweet and
fair,—
Both wise men and angels gathered, and worshiped the
clay form there.

*'Twas only a tiny bit of clay,
Heaven made in such wondrous way,
But it gave to us our Christmas day.*

—MARGARET ANDREWS OLDHAM

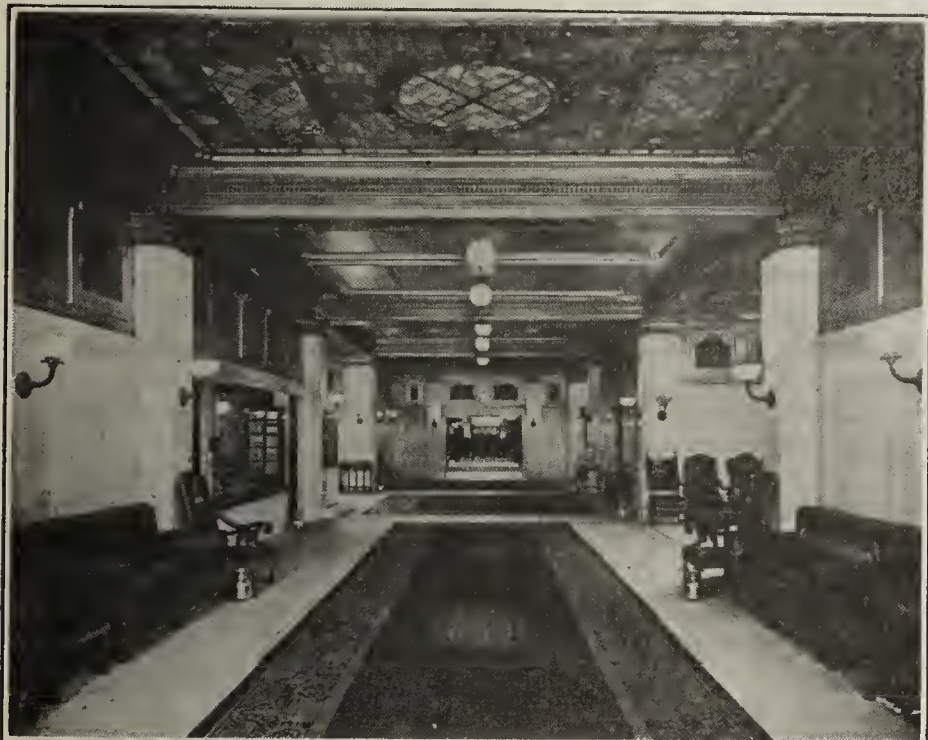


OFFICIAL ANNOUNCEMENT.

TWENTY-FOURTH ANNUAL CONVENTION TO BE HELD
AT PITTSBURG, PA., FEBRUARY 7 TO 12, 1910.

Fort Pitt Hotel, Headquarters.

THE QUESTION of time and place for the 24th Annual Convention of the National Brick Manufacturers Association has, after much careful consideration, been decided in favor of Pittsburg, Pa. The advantages and facilities offered by the various cities extending invitations were considered conscientiously, and, with a view of determining the city that would be most acceptable to a majority of the



Main Lobby, Fort Pitt Hotel.

members, the Secretary asked for a vote. The result was not conclusive, owing to a large number of the members failing to respond, and the ballots of those who did vote were so evenly divided among the cities mentioned that no decided preference was manifest. New York City received the largest number of votes cast for any one city, with New Orleans a close second. Both of these cities are so far from the center of our membership that it seems best at this time to meet on neutral ground, as it were, so Pittsburg has been chosen.

PITTSBURG A GREAT CONVENTION CITY.—The advantages of the Smoky City are many. Geographically, it is neither North nor South, East nor West, but is, so to speak, the hub from which radiate the great trunk lines tapping almost every section of the country. No city can be reached more quickly or conveniently by a large majority of our members. Its attractions are many. In population, it is the fifth city in the nation, now boasting of a citizenship of over half a million. There are over two thousand manufacturing plants within its borders, the annual products of which are valued at more than \$500,000,000. There are many great clayworking plants in and about the city, most all of which are operated the year around, and these will

afford an opportunity for inspection by those fancying that sort of thing.

THE U. S. GEOLOGICAL LABORATORIES.—One of the principal factors leading to the choice of Pittsburg is the fact that it is now the habitat of the Clayworking Department of the Technologic Branch of the United States Geological Survey. This Division is in charge of Professor Albert V. Bleining, an ex-President of the American Ceramic Society, who will welcome most cordially all who may care to visit the Laboratories which have been established on the grounds of the United States Arsenal, which is but a few minutes' trolley ride from the heart of the city. They are equipped with fine up-to-date apparatus for testing clays and other materials, and will afford a fine object-lesson of the modern scientific methods by which the superiority of burned clay as a structural material is fully demonstrated.

THE FORT PITT HOTEL, which will be headquarters during the convention, is a thoroughly modern hostelry. It is a great brick structure, fire-proof, and elegant in all its appointments, and affords every desirable facility in the way of convention and banquet halls, committee rooms, etc.

REDUCED RAILROAD RATES.—The Trunk Line Association has granted reduced railroad rates on the certificate plan, the same as last year. It is anticipated that other traffic associations will concur, and in due time full particulars in



Fort Pitt's Fine Promenade.

regard to same will be announced, together with the program of the sessions, entertainment features, etc., etc.

To those who wish to mix pleasure with their convention trip, Pittsburg will appeal strongly. Its theaters and other amusement places are numerous, and are not surpassed by those in any of our larger cities.

The American Ceramic Society will meet Monday, Tuesday and Wednesday forenoon, the 7th, 8th and 9th, as in former years. The National Paving Brick Manufacturers' Association will meet Monday and Tuesday, as will also the National Clay Machinery Association. The N. B. M. A. sessions will begin Wednesday afternoon at 2 o'clock.

Those desiring to offer any suggestions relative to the make-up of the program, or who may desire further information on any feature of the convention, requisite of membership, etc., are requested to communicate with the Secretary at Indianapolis.

THE EXECUTIVE COMMITTEE.

LEMON PARKER, President.

THEO. A. RANDALL, Secretary.

If it were not for the uncertainties, life would still be worth living, but it would get decidedly monotonous.

Written for THE CLAY-WORKER.

AMONG THE NEW JERSEY POTTERS.



THE POTTERY TRADE at Trenton, N. J., is in a flourishing condition; nearly all lines are very busy, have all they can do, and most of the firms are looking for extra help.

The china dinnerware trade is about the busiest; the output sells readily and some firms have no salesmen out, the product selling without any, and, as a general thing, are behind orders. Some enlargements are being made, extra help put on, and the output is quite heavy this year as a whole. The year will probably be as good a one as Trenton has seen for a long time.

The sanitary pottery trade is pretty well filled up with orders; all the plants are active, many new kilns and enlargements are on the program, and each year sees a larger output than the previous year. Prices are unchanged and no immediate change likely.

In the line of porcelain electrical specialties, this is a big market for them and the output is very large, probably ahead of other years, and still growing.

Fine china and Belleek ware, vases, ornament and novelties is a line which is not strong here, but is growing. There are three firms here making this line and some beautiful work is turned out, but the demand is limited.

The tile trade is way ahead of last year, and probably is one of the busiest years Trenton has ever seen for this line. A new concern is in the field; the others are increasing their output. This will be a banner year for the tile trade. The factories are short of help and are in every way prosperous and enjoying the full fruits of their hard, up-hill work.

The Resolute Pottery Company is under new management and has been reorganized. The new company has a capital of \$100,000. Joseph T. Cotton is president and manager, John M. Burgner treasurer, and John F. Smith secretary. They report trade is brisk in the sanitary line, and are working with a full force. They are making a new line of tanks and are originators of the reverse trap syphon known as the Bradlin.

The Chamber of Commerce declined to entertain the Japs and show them around the plants; the potters were not in favor of it. All the wily Jap has to do is to look at a thing and go home and reproduce it.

The Union Porcelain Company, J. D. Stengel, superintendent, is making electrical specialties, using all American materials. They are shipping goods to Panama.

The Keystone Terra Cotta Company, of Kennett Square, Pa., is a new firm with \$25,000 capital to make flower pots and gas logs. J. B. Swagner is president and W. E. Voorhees secretary and treasurer.

The New Jersey China Pottery Company is a new concern which has taken the Willets plant and has just got to work turning out fine china. They have thirteen kilns and will run full capacity. Leslie C. Pierson is president, Chris Cartlidge vice-president, R. R. Hutchinson secretary, and Fred Lenckel treasurer. They will add the belleek ware to their line. The plant is also equipped for making sanitary ware, which may be taken up.

The Ries Pottery, on William street, is making osier, or basket ware, flower pots also, but the basket ware is a new line. They are doing well.

The Artistic Porcelain Company got out a restraining order from the court against Noah W. Bach, of the American Porcelain Works, to prevent him from supplying the trade with porcelain products while under contract with them.

The Elite Pottery, controlled by the John Douglas Company, of Cincinnati, Ohio, making sanitary ware, has put up a new kiln, increased the capacity about one-fifth, and is putting on the market a new vitreous kitchen sink. Another enlargement will be made which will increase the capacity by one-third.

The Imperial Porcelain Company, owned by Fred Dugan, was burned down again about three months ago and has been rebuilt. They do a big business and make electrical spe-

cialties for the Pennsylvania Railroad and tunnel work around New York.

The Electric Porcelain and Manufacturing Company, H. T. Paiste Company, proprietors, of Philadelphia, Pa., is making electrical goods of low tension.

The Greenwood China Company has three plants, managed by James Sams. They are working full time and have some big orders, also some work for the government. It is said among the trade that they make a china line that others can not duplicate.

Thomas Maddock & Sons are running full time, full force, making sanitary ware. They are very busy, have put in new machinery, erected more buildings and kilns, and increased the capacity 25 per cent.

The Acme Sanitary Pottery has made additions to the plant, built a large kiln, and are making a new line of closet tanks.

James H. Robinson, of the New Jersey Tile Company, died two months ago, and Dorothy Robinson is now president and treasurer. She is one of the few women running any such plant. She mixes the clay, understands firing and all detail work. Her sister is on the road. Her brother also died about a year ago and she is all alone in running the business.

The Sun Porcelain Company is very busy on electrical specialties, have run to full capacity, and output is 500 barrels a month.

The Monument Pottery Company, making sanitary ware, says business is good, have built a new kiln, put in new machinery, and will enlarge by building more kilns.

The Artistic Porcelain Company, making electrical specialties, door knobs, castor wheels, etc., has moved from Chambers street and Cedar lane to the present plant on Prospect street, and has bought out the Standard China Company.

The American Porcelain Company make door knobs only. They turn out 500,000 to 600,000 door knobs a month. They only make the black and brown ones now, but will make white ones after the new year. New mills, dies and machinery were put in to make white ones, but it has been delayed. N. W. Bach is the proprietor.

The United States Potteries Company was incorporated at 83 Montgomery avenue, Jersey City, with a capital of \$100,000 to manufacture pottery and all kinds of clay products. It is promoted by John L. Wills and William M. Parke, of New York, and Charles T. Lark, of Hackensack, N. J.

The Newborn China Company was organized at Newborn, Pa., near here, to make a first-class line of high-class ware, also novelties and ornaments. They have three kilns, all the orders they can fill, and a nice equipment for business. Mr. Locke is the manager.

The Mercer Pottery Company is very busy making the new dinner shape, which is a great success. They sell to the best trade, and business is ahead of last year by 20 per cent.

The Star Porcelain Company is fairly busy on electrical specialties, the outlook is good, and they sell only to manufacturers and do not sell the finished product.

The Crescent Pottery, Fred Walker superintendent, is cutting down the biscuit space and putting in more presses. This is a branch of the Empire Potteries Company, making sanitary ware.

The National Porcelain Company is doing more work than ever, have put on another story to their new burning shop, have increased the power, and are making considerable more of electrical specialties. Business is 50 per cent. better than last year.

The Trenton Porcelain Company is running days full time and part of the night and is very busy, and has plenty of orders for electrical goods. They are shipping to the Pacific Coast and all over the country. Joseph Bath is the superintendent and president. They are also doing some nice color work. About seventy-five hands are at work. An order has come in recently for 100,000 miniature receptacles. It takes a heat of 2,800 degrees to burn out this product.

Charles B. Walton & Co., who have been running a pottery making sanitary ware and a brick plant, are in financial trouble, through their partners, they say. The receiver, E. L. Pierson, is in charge and he will apply to the court to lease

or sell the plant of four kilns, three acres of land, brick machines, big double kiln, etc.

The Economy Pottery, James H. Boswell, president, has been succeeded by W. L. Thompson. They make sanitary ware. The prospects are good for a large trade, prices are improving, and there is a scarcity of help in all lines.

William H. Tatler goes out of the W. H. Tatler Decorating Company, and of which he was president. Edward Tatler and James H. Lawson will run the business. They do an extensive business in china and china novelties and a special point on English dinner ware, which they import and decorate.

The Fidelity Pottery, owned by the Trenton Potteries Company, has been closed two years, but will now be opened by the Trent Tile Company to make saggers.

The Cook Pottery Company, owned by Charles H. Cook, has two plants here and one at Kittanning and Forest City, Pa. Their strongest line now is white and decorated hotel china, which has the hardest glaze of any manufacture. They ship twenty-five to thirty carloads a month. Several government orders have been received, and the plant has been enlarged.

The Diamond Porcelain Company is running full-handed on electrical specialties, all special order work, and is very busy. They will build a new plant and then expect to be in better shape.

The Mueller Mosaic Company has put in tile flooring for the Oskamp Jewelry Company, of Fifth and Vine streets, Cincinnati, Ohio. It is being executed in green Florentine faience and will be a fine flooring. They say that the flooring in a jewelry factory must be selected with great care. Blue is to be avoided, as it interferes with the brilliancy of diamonds and makes silverware positively hideous.

The colors that have been found to be the best are green, dark cream or buff, and a plain color, not interrupted by a too conspicuous ornamentation or pattern is preferable. To get the necessary tessera, tile or interlocking patterns make a very artistic arrangement, and a soft faience glaze forms a very pleasing surface. Such floors are also easy to clean.

The National Art China Company is filled up with orders for finely decorated art goods, jugs, steins, etc., making mostly college goods. George Bell is the proprietor and William F. Tootell, manager.

Harry Darling, of Muirhead avenue, making potter's machinery, makes a specialty of porcelain die work, but the plant is not large enough to make a line of potter's machinery. All kinds of repair work is done. The potters, he says, are all old fogies, and will not try any new machinery, no matter how good it is; they stick to the old method.

The Iona Manufacturing Company is a new firm to start decorating china hotel ware and earthenware. Their work is all done by hand.

The Trenton Stilt, Pin and Spur Company, managed by Mrs. Donaghue, says that business is slow in potters' supplies. She has put in all the latest machinery and is making all sizes and shapes of stilts, pins and spurs.

The Enterprise White Clay Company is a new firm which has beds of superior grade fire clay. The majority of the potters have tested it and say it is a high-class sagger clay and are using it for porcelain body work. They are getting out five to ten cars a week. The vein is from 6 to 20 feet thick. It sells for \$2 per net ton, triple X. Ellis L. Pierson is secretary and treasurer.

The Eureka Flint and Spar Company is busier than ever and is running to full capacity, and could use a much larger plant. They are grinding 600 tons a week of flint and spar.

The Trenton Flint and Spar Company report good sales south, at this place and for export trade. They have forty acres of best-grade of flint and spar, managed by George D. Willis, at Brunswick, Me.

Florida clays are now bringing \$7.50 per ton at Trenton. White fire clay \$2; delivered at Trenton, \$3.

The George C. Crossley Company is a new firm in the Broad Street National Bank building, handling all kinds of clay that are known or used here. They have four mines in the Adirondacks, handle English ball clay, feldspar and flint, and call themselves "Miners of raw materials for all clay products." They claim the only mine in the country pro-

ducing No. 1 spar, of which they take out a car a day and three cars a day of clay.

A. TRAVELER.

Written for THE CLAY-WORKER.

FEDERAL TERRA COTTA COMPANY.

The Federal Terra Cotta Company has begun the construction of a new plant at Maurer, N. J., not far from Perth Amboy and Woodbridge. Two kilns have been started, as well as the foundations for the modeling and plaster departments. Six kilns in all are to be erected; four will be 36 feet in diameter and the other two about 30 feet.

A seventeen-acre site has been purchased, upon which several buildings are to be erected. The work is being rushed as rapidly as possible, so that parts of the works will be ready for operation by spring. The plant, which will be the largest in the country devoted to the production of architectural terra cotta, its projectors say, will be modern in every particular, and will be in operation by April 1.

The Federal Terra Cotta Company is incorporated under the laws of New York, with a capital stock of \$1,500,000. The main offices are in the Trinity building, 111 Broadway, New York.

The directors of the company are DeForest Grant, William Manice, John E. Berwind, Edward J. Stettinus, Frank A. Thayer, Edwin Thorne, Rodney Thayer and William B. Dinsmore. The officers are: President and general manager, DeForest Grant, formerly president of the Atlantic Terra Cotta Company; first vice-president, Edwin Thorne; second vice-president, William Manice; secretary, Dwight W. Taylor, and treasurer, Frank A. Thayer.

Among the prominent men interested financially in the enterprise are Stuyvesant Fish, president of the Seaboard Air Line and Southern Railroad; Goelet Gallatin, of the Gallatin National Bank of New York; B. N. Duke, president of the American Tobacco Company; Norman Grant, formerly general superintendent of the Atlantic Terra Cotta Company; E. H. Wells; Alfred H. Bond, president of the American Paper Company, and W. D. Frerichs, formerly engineer of the consolidated plants.

A WELL-EARNED RECORD.

The Dunlap Manufacturing Company, of Bloomington, Ill., manufacturers of the Perfect clay screen, write that at no time during the history of their business has there been such a demand for correct screening as at the present time. The Perfect clay screen has stood the test for fifteen years, and the manufacturers are reaping the rewards for their untiring efforts in keeping up the standard of their product. They have sold one company alone thirty screens, two others twenty-eight each, and still another nineteen, but this is only the unusually large orders, and does not begin to indicate the sales of the Perfect clay screen. This screen is able to screen all kinds of clay and regulates the fineness to suit the needs. The Dunlap Company has furnished screens for all the various kinds of clayworking plants with equally good results. The screens have come up to the demands in the manufacture of high-grade paving and pressed brick and hollow ware, and are proving most satisfactory in the fire brick manufactories. The latter needs an absolutely correct method of screening for the proper preparation of its milled fire clay. This speaks well for the Dunlap Manufacturing Company and its products.

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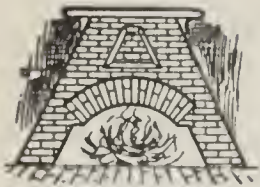
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Written for THE CLAY-WORKER.

PACIFIC COAST NEWS



ALTHOUGH THE BUILDING permits for November stand at a much higher figure than for either October or September, this does not show the real condition of the brick market. The figure for November shows a remarkable increase, standing at \$2,540,897, an increase of \$571,889 over the figure for October, which was \$1,969,008. A part of this work went to the concrete and wooden structure men, but the amount of work that was given to the local brick manufacturers shows that brick construction is gaining in popularity. However, this demand is not great enough for the outputs of the numerous manufacturers around the bay, with the result that the price of bricks is still on the decline. Many of the small manufacturers, whose output is chiefly common brick, have not been able to compete at the present prices, and have shut down temporarily until the market becomes stronger. The price of common brick at present is supposed to be \$7 per thousand, but some of the brick men are selling them at \$6 per thousand and even lower. It is the consensus of opinion among the brick men that next spring will show a decided increase in prices. The plans for a large number of office buildings and apartment houses for San Francisco are now being drawn, and as soon as the rainy season is over these plans will be put into execution. The dearth of orders in San Francisco has caused the brick men to seek a market in the cities around the bay. At present all the brick men are anxiously awaiting the spring of 1910, which is expected to be a banner year in respect to volume of business, with a possible improvement in prices.

The rainy season has started in earnest and it is likely that December will show a falling off in building activity. Some of the large concerns, which have some large contracts yet to fill, are able to sell common brick with profit at the present low figure. Their work will keep right on, they say, throughout the winter.

Very few large contracts for next spring delivery are being accepted, due to the unsettled condition of the market.

The building permits of the smaller cities of California also show a decided increase, but the brick situation in these cities is far different than it is in San Francisco and vicinity. The market in the southern half of the state and in the interior is running strong in both the common and ornamental bricks. The San Francisco brick men are expecting contracts from the City of Oakland, which has decided to use brick in street paving.

The demand for face and glaze brick and architectural terra cotta remains about the same as last month. A few new orders have been let, but the main part of the work has been in the filling of old contracts.

N. Clark & Sons have just closed the contract for supplying standard gray pressed brick to the Capital hotel in Sacramento. This hotel, which is being erected by William Land, will be six stories in height and will cost \$250,000. The company has just started supplying brick to the Hueter-Tillman apartment house on Bush and Jones streets, brick and terra cotta to the Saint Francis hospital at Hyde and Bush streets and enameled glaze brick to the Walters Real Estate building at Market and Ecker streets. Large shipments of terra cotta have also recently been sent to the Phi Delta Trust building at Tacoma, Wash., and to the Felt building at Salt Lake, Utah.

The Carquinez Brick and Tile Company is selling bricks as fast as they can be made, but the profits are limited on account of the low price of bricks. The plant, on San Pablo bay, is to be enlarged so that the output of bricks will be greatly increased.

The Golden Gate Brick Company, C. F. Pratt manager, is

now supplying Golden Gate sandstone brick from the Antioch factory to the Southern Pacific power house in Oakland, and white enameled brick from the Stockton factory to the Alameda Cafe building on Market street near the Ferry building. This company also has the contracts for buff pressed bricks for a large hotel on Ellis street near Jones, and for bricks faced with sandstone for the West, Elliott & Gordon building on Clay street. In addition, the company has many orders scheduled for January delivery.

The McNear Brick Company has enough contracts on hand to keep the factories running at their full capacity for three or four months. The company sent 400,000 bricks to Honolulu during November, which offset the shortage in deliveries in this city due to the rains.

Gray Brothers are also very busy filling orders at the low cost with little profit on the thousand.

The United Materials Company is doing very little in the common brick, the selling price of which is too low to be profitable to them. They are doing a fair amount of business in the new ruffled vitrified brick and in terra cotta.

The Carnegie Brick and Pottery Company, whose brick plant near Telsa, Cal., was damaged recently by the explosion of its four boilers, will install eight new boilers to take the place of the old ones.

The Pureclay Brick and Tile Company, incorporated, will soon hold its regular annual meeting, at which the officers and the board of directors will be elected for the ensuing year.

The Mulford-Burke Brick Company, of Los Angeles, has been incorporated with a capital stock of \$100,000. Those connected with this firm are James K. Burke, E. A. Emmons, David L. Burke, H. H. Grossmayer, S. T. Burke and W. A. Burke.

Joseph Simons, a brick manufacturer of Los Angeles, was married on the evening of November 17 to Miss Irene Coulter, at 2048 Polk street, in this city. He became acquainted with Miss Coulter two years ago in the southern city through her musical talents. This accounts for the fact that Mr. Simons had business every week in San Francisco to attend to and his frequent trips to San Francisco during the past year. Mr. and Mrs. Simons will reside in Los Angeles.

J. A. Bauer, president of the Paducah Pottery Company, of Paducah, Ky., has started a pottery plant at Los Angeles. He has a large force of experts from the Kentucky factory, and will get his material from Elsinor, about fifty miles away.

Brick gutters have been recommended instead of cement for downtown streets by Pasadena, Cal.

The high prices of brick at Imperial, Cal., have caused W. J. Mitchell to open a plant there. The kilns hold 200,000 bricks, and the works will be in charge of Joseph Rathlum.

William D. Page, of Indiana, is preparing to build a tile factory at San Diego, Cal.

A. C. McKnight, a mining engineer and promoter of a pottery manufacturing company of Los Angeles, with a party of three men, recently made a careful examination of Las Paderas mountain, south of Dehesa, in search of feldspar deposits. The results were satisfactory, and, it is said, the entire mountain has been filed on by the company. A factory is to be built in Los Angeles by the company.

The Empire Brick Company has been incorporated at Salt Lake City, Utah, for \$150,000. W. J. Burton is president.

San Francisco, Cal.

SUNSET.

Would it not be a good idea for the brick men to attend some of those winter meetings of the state associations of retail lumber dealers to get acquainted with the members and extend trade relations with them? The lumber yard people in some sections already handle quite a lot of clay products, but nothing like what they may be induced to handle in the future by proper cultivation.

Written for THE CLAY-WORKER.

AMONG PHILADELPHIA BRICKYARDS.



THE BUILDING record for ten months of this year shows an expenditure of \$37,758,250 for construction. With a continuation of the same conditions, the total figures for the year will exceed \$42,000,000, making 1909 the greatest year in the amount of expenditures in the history of the Bureau of Building Inspection. For the same ten months of 1908 the totals were \$24,039,135. The figures recently issued show that during October 741 permits for 1,253 operations, costing \$2,892,490, were issued, being somewhat less than October of the previous year.

The phenomenal activity in the erecting of dwelling houses is an interesting contemplation. In almost every section of the city where land is available rows upon rows of dwelling houses are going up in such great numbers that one wonders where the population is to come from to occupy them. Since the first of the year ground has been broken for 8,634 such structures, of which almost 80 per cent. are of the two-story type. This branch of the construction work for the year represents an outlay of \$19,541,080. One reason for the great activity is the cheapened cost of construction. The average cost of a two-story dwelling is slightly over \$1,900, while last year's reports indicated a cost of \$2,000 per house. During the corresponding ten months of last year work was started on 5,275 houses, costing \$12,407,450. The increase so far is more than 3,000 houses and \$7,000,000 in cost. Notwithstanding this fact, the indications are that the apartment and flat house idea is gaining in popularity, and many such structures are now being erected. There are at present twenty-nine such buildings in the course of erection, which means an outlay of \$1,024,000. Work has also begun this year on twenty-two vaudeville and moving picture houses, to cost \$215,355, and 102 manufacturing plants and workshops, costing \$1,366,560. Prosperity among the various religious denominations is shown by twenty-two churches now being erected at a cost of \$608,630. There are also six clubhouses under way, costing \$285,000.

One can not wonder, then, that the brick manufacturers are elated over the conditions. Cheerfulness is the general password.

McAvoy & Morris have just finished several large contracts, including about eighty-three houses.

T. B. McAvoy & Sons, at Frankford, have one operation of nineteen houses at Jasper and Tioga streets, another of twenty-eight houses at Cedar and Cambria, and a third at Seventh and Lehigh avenue. In fact, this yard has been so busy that they are all sold out; three empty kilns staring them in the face turns their attention to winter work. They are not short of clay, but can forge ahead, with no fear of running short.

F. Leitter's Sons are always busy; their contracts at present call for brick for five different operations. These are all large contracts of two and three-story houses. Besides, they have many small operations in the vicinity.

Siners's two old yards are busy serving brick for sewer work, mill and houses. Their new yard, with a capacity of 35,000, is also kept busy. It started last April; is equipped with Martin machinery, has three kilns and a 20-foot clay bank. The Siners are particularly elated over this yard, which is situated on Jacony street, Frankford. They have already gotten rid of 15,000,000 bricks since April.

T. H. Gesner & Son have just finished serving brick for two contracts, one of them for eight houses, single and double, at Elmwood.

The Carnell Brick Machine Company, at 1819 North Fifth street, is quite busy, having recently shipped machines to Portland, Ore., and to Maryland.

S. B. Dobbs, of Philadelphia, has opened offices in the

Colorado building, Washington, D. C., and has arranged a handsome exhibit of high-grade face brick, tapestry brick, enamel brick and paving block.

And now, with hearty good will, we wish you each and every one a merry Christmas and prosperous New Year.

M. E. LOCKINGTON.

Written for THE CLAY-WORKER.

SEEN IN NEW JERSEY.

THIS has been a good year for the brick business at Trenton. About 55,000,000 common brick were made last year and the yards are practically all sold out. Most of the brick made here this year were used in Trenton, as there has been a great deal of building here. If a firm came here now and tried to buy 500,000 brick, I do not think they could be found, as I know a man who wanted a few hundred thousand and had to go to several yards to get them. The price is lower, though, than in 1907—about \$2 lower. They have sold here as follows:

Salmon	\$6.00
Rough hard	7.00
Straight	8.00
Pressed	18.00
Hard wale stretchers.....	13.00
Fire brick (\$30 at factory).....	26.00
Shapes, up to.....	50.00

All the common brick plants have closed for the year, as a frost is liable to come any time and most all use open drying systems. The output of fire brick is probably less than two years ago, but a fairly good amount has been turned out.

Joseph H. Appelgate has succeeded Applegate Company, common brickmakers. He made 3,000,000 this year, is closed down now, and has on hand 700,000 brick. Brick sold for \$6, \$7 and \$8 for common and \$17 for pressed. He had a good season and turned away orders. Brick are scarce and hard to get. He will open in March, and it takes \$500 for improvements each time before opening.

The Trent Brick Company, making common brick, had a good year, sold 4,000,000 brick, and are still busy, but the weather will soon be against them. They have forty acres of clay beds and will keep making brick all winter and dry inside. They may enlarge the dryer. They think there should be more regulation as to prices, as they are too low.

C. B. Walton & Co. made 1,000,000 common brick this year, but only operated about half the year. The yard has a capacity of 30,000 brick a day. Next year the output will be increased.

Fill & Roberts made 6,000,000 common brick this year; of that 2,000,000 were pressed brick. They say business is fair and expect a big season in 1910.

The Trenton Red Front Brick Works, which has closed up for the season, had an output of 3,000,000 common brick this year. James Tams, the proprietor, has seventy acres of clay beds.

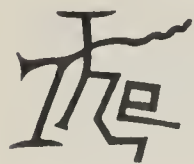
The Sayre-Ford Brick Co., of National Park, at Gloucester, N. J., is a new firm. They have put up new buildings, Dutch kilns, and turn out some of the finest clay bricks made in the eastern states. Homer S. Green, of Trenton, is the manager. About 35,000 brick are made a day. The Independent Brick Selling Company, of Trenton, may take this entire output. The brick made now, common red building brick, is being used to build the plant. They have a side-cut brick machine, hot air dryers, and an automatic brick loading derrick, which is handled by belt boys and carried on tiers to the pier.

Donahue & Nolan, Trenton, made 3,000,000 common and front brick this year and are about done for this year; about half of each kind were made. This was considered a good season and 1,000,000 brick are on hand.

HERMAN.

Written for THE CLAY-WORKER.

BRICK NEWS FROM THE KENTUCKY METROPOLIS.



CLOSE OF THE present year has shown a very much more gratifying increase in the sale of clay products than the same period a year ago, and the future indicates that there will be a much more active demand after the holiday season has passed. The increase has been noted in practically all clay lines, and the manufacturers feel that the prospects for the future are of a flattering nature. The general building outlook is very fine, and the reports that are now in circulation indicate that there will be a big increase in the number and size of the buildings to be erected in this locality in the coming twelve months.

Some of the local brick plants and other clay manufacturing concerns will continue to operate throughout the year, while a few will close down during the most severe weather. The orders in the past few months have given many plants all they can do, and there will be a considerable movement of stock, even after the plants cease to operate, for the winter months. There is little doubt that the next year will mark a decided advance in the business situation in this section, and the late orders that have become so much better give ample evidence of this fact. There will be more street work undertaken in the future, and the proposed amendment to the state constitution relative to good roads, which has been voted upon by the people favorably, is sure to awake in the minds of many the dire need of having the same constructed in a way that will mean durability.

Considerable brick street work is to be undertaken at Lexington, Ky., very soon after the first of the year. There will be some thousands of dollars expended in this way, and there will be a number of streets reconstructed with vitrified brick. The plans are about completed for this work. There is already a large number of brick streets in Lexington, and the increased number will be welcomed by the residents.

In the present year there has been considerable street work done in New Albany, Ind., and the work was done with vitrified brick. The operations in this way have been closed for a time, but there is considerable more work to be done before the close of another year, and there is reason for the belief that this will be started in due time.

Mention was made in the last issue of the organization of the West Virginia Clay Products Company, at Charleston, W. Va. The officers are Louisville men and are as follows: President, W. E. Caldwell; first vice-president, A. H. Robinson; second vice-president, Sam P. Jones; secretary and treasurer, R. H. Yates, and general manager, J. W. Jenkins. The analysis of the clay proves it to be of the finest quality, and as the plant will be located convenient to rail and river, there is a bright prospect in store for the organization. The plant will be completed about March 1 and the operations will begin at once. The plant will be modern, including the latest and most modern machinery. An office will be located in Louisville.

The Hydraulic Brick Company are still operating their plant, as the large orders they have on hand will keep them very active for months.

The Kentucky Vitrified Brick Company is not very active now. They rather count on a dull period for the winter months, and may close down their plant for a short time in the severe weather. They are devoting most of their time now to the manufacture of fire brick.

The Southern Brick and Tile Company do not contemplate closing down their plant during the winter months. They have a large number of orders on hand, and are particularly busy on drain tile. This is their busy season on this line, and they found the demand for this to be very much better than it was last year.

The P. Bannon Sewer Pipe Company has moved its offices

to 538 West Jefferson street, where they have a pleasant location. They say that there is a good demand as yet for sewer pipe, and that the indications are rather favorable to the future conduct of the same. They will probably close down their plant for a short period next month, and then will make such repairs as they deem necessary.

The West Point Brick and Lumber Company, at West Point, Ky., are not operating their plant at this time, though they are still selling as many brick as they can ship out. In fact, they report that they are behind in their orders, and that they will not be able to supply the wants of their customers before they resume operations again. They will install a dryer soon after the first of the year, and will make possible operations at all seasons of the year in the future.

T. J. McCullom & Co., say that they are about as active in the brick line as they can be, and have of late refused orders on this account. They have just received an order for 300,000 brick for a new ice plant here, and have other business that is giving them ample to keep them hard at work.

The Louisville Fire Brick Works, at Highland Park, Ky., have found the situation in fire brick and kindred lines to be much more active in the past month. The increase in the number of orders has been such as to make them operate their large plant on full time now, and they are pleased to feel that the future looks so much more pleasing.

The Louisville Pottery Company's plant is reasonably active on jugs now, and the present season's demand for this line has shown some increase over that of a year ago, with the indications much better for the future.

The Louisville Brick Company say that there is no reason to complain, as they have as much business in building brick lines as they can take care of now.

The Burrell & Walker Clay Manufacturing Co. report that the increase in the general demand for clay products is better, and they are of the opinion that there will be a continued increase soon after the first of the year. COLONEL.

THE AMERICAN EXPOSITION IN GERMANY.

For the first time on record there is to be an all-American exposition in a foreign country—in Berlin, Germany, during the months of June, July and August, 1910. The aim and scope of this exposition is to present in the commercial heart of Europe an epitome of our industrial achievements, our natural resources and our progress along artistic and intellectual lines. It is the intention to have presented on exhibition products of the farm, manufacture and invention. And it is desired to encourage all American manufacturers who are interested in developing foreign trade to take a live interest and make a display of their products at this exposition. It will not be like a fair in that pleasure will be a strong factor, but it is more of a business proposition, with a view to promoting foreign trade and of enlightening Europe as to the kind and extent of America's commercial and mechanical products. We are in receipt of the prospectus of this exposition, gotten out by the American headquarters, at the Hudson Terminal building, 50 Church street, New York City, and we presume that any who have not received this illustrated prospectus can obtain one, together with any other information desired in regard to exhibiting at this exposition, on request. The prospectus gives some idea of the general scope and plan of the exposition, together with names of committees in charge, and illustrations of the exposition palace and quite a lot of other information about it, including that of the fact that exhibits can be entered without having to pay duty, and that beyond packing the exhibits at their factory the manufacturers can be relieved from all other trouble in connection with the exposition, as there have been arrangements made to take care of and display them. It should be an excellent opportunity for all looking for further extension of trade in Europe to extend information of value regarding their offerings by being represented at this exposition.

TRADE CONDITIONS, PRESENT AND PROSPECTIVE.

VERY HEALTHY" aptly describes the prevailing condition of trade throughout the country, according to reports from leading manufacturers to American Industries, the organ of the National Association of Manufacturers. This organization has something like three thousand members, nearly every trade and industry of every importance being represented. Leading firms in each line were asked three questions, which, briefly put, are:

1. Present conditions of your trade.
2. Percentage of increase (if any) in business over latter part of 1908.
3. Trade probabilities in your particular industry.

A table is published summarizing the replies, as follows:

Industry.	(a)	(b)	(c)
Agricultural implements.....	100	100	31
Cement and clay products.....	85	100	30
Crockery and glassware.....	76	100	24
Drugs and chemicals.....	94	97	33
Food products.....	87	78	22
Iron and steel.....	93	97	57
Leather and its manufactures.....	95	100	26
Lumber and its manufactures.....	94	100	34
Machinery	97	100	49
Paper and printing.....	96	97	23
Textiles	94	98	32
Tools and hardware.....	95	97	38
Vehicles	89	92	62

Percentage of replies showing

- (a) Good present business conditions.
- (b) Good future prospects.
- (c) Average increase per industry since December, 1908.

In its symposium the American Industries quotes a number of the leading clay firms, beginning with the Twin City Brick Company, of St. Paul, Minn., which reports that there has been an increase in their business of about 30 per cent. during the latter part of 1909 as compared with the previous year. Other representative firms, such as the Purington Paving Brick Company, Galesburg, Ill., the Denny Renton Coal and Clay Company, Seattle, Wash., Blackmer & Post Pipe Company, St. Louis, Mo., the Barr Clay Company, Streator, Ill., the Nelsonville Brick Company, Nelsonville, Ohio, and the Bessemer Limestone Company, Youngstown, Ohio, all of whom are quite optimistic as to the outlook for the new year. The general manager of the last-named firm, Mr. Charles M. Crook, expresses the sentiment that seems to prevail, as follows: "The present season, 1909, will show the largest production of paving materials we have ever gotten out, due to an increase in our factory capacity, but prices have been lower than for several years past; however, indications are that 1910 will show a heavier demand, and, we hope, better prices." The captains of industry are evidently of one mind, namely, that the new year will bring an increased volume of business in every line.

MATERIAL MAN'S RIGHT TO LIEN UNDER VOID CONTRACT.

Los Angeles Pressed Brick Company vs. Higgins, California, is a most important case to contractors and material men.

The Mechanic's Lien Law of California provides that contracts for \$1,000 or over shall be recorded.

In this case there was a contract for the erection of a six-story brick building, which contract was not recorded, and when liens were filed it was contended on behalf of the owners that the contract was void and the liens could not be enforced. The court decided that those who furnished material in such a case have a lien to the full value of the property, and can recover the contract price of the materials furnished from the owner.

The court also decided that as between the parties to it the contract is not void and the contractor could recover from the owners his contract price as a personal obligation, the owner having the right to offset his claim by the amounts paid material men and other valid lien holders.

THE BRICK PAVED SPEEDWAY A GREAT SUCCESS.

World Records Broken in Spite of Wintry Blasts Which Greatly Retarded and Inconvenienced the Racers.

The predictions that the Indianapolis brick paved Motor Speedway, recently completed, would prove the fastest automobile track in the world have been fully verified by the preliminary races held December 17 and 18, when a number of world records were lowered by the intrepid drivers, who were nearly frozen stiff in the performance. With the thermometer well down toward the zero mark, several hundred enthusiasts gathered at the Speedway to see Indiana's Governor drop the five-hundred-dollar solid silver, gold-plated brick into place in the pavement, which marked the formal completion of this unusual enterprise, and to witness the first attempts at record-breaking made over this two-and-one-half-mile course, which, as has previously been announced in these columns, has been paved with Culver vitrified block at an expense of more than half a million dollars. The extreme cold not only handicapped the drivers, but it seriously affected the mechanism of the cars. Nevertheless, Strang broke the world's record by covering five miles in 3:17.70. The former record was 4:11.3, made by Oldfield. Those who participated declare that during the spring meet, when weather conditions are favorable, all records for speed will be broken, and it will be demonstrated clearly that a brick paved roadway is both the safest and speediest of all roads. There were no accidents whatever worth mentioning, notwithstanding the drivers' hands were so benumbed with the cold that they could do little more than hang on to their steering gear.

SCOTT AND MADDEN COMPANIES CONSOLIDATE.

An interesting trade event is chronicled on page 682 of this issue, namely, the consolidation of the Scott Manufacturing Company, of St. Louis, and Madden & Co., of Rushville, Ind. Both firms are well known, the former as manufacturers of dry press machinery and the latter as manufacturers of Hoosier drain tile and stiff clay brick machinery. The union of two well-equipped concerns like these ought to prove beneficial to each of the firms directly interested and to the trade in general.

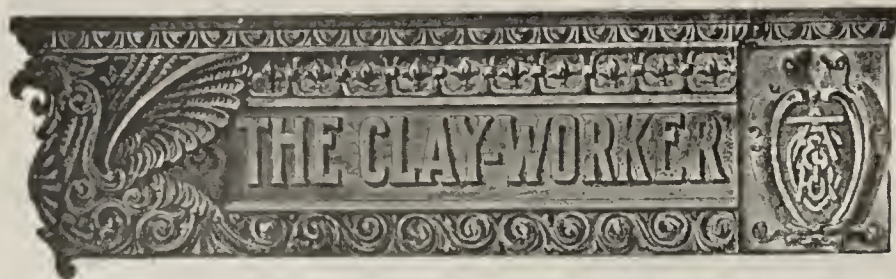
THE EVER-WELCOME BOOK OF SMILES.

The November-December Book of Smiles issued by the Standard Dry Kiln Company, Indianapolis, Ind., contains many pleasing stories and humorous sayings that tickle the risibles and serve well the several purposes of this bi-monthly booklet, which is to be taken for the "sake of the liver." The following clever verse appears on the cover:

"Smile awhile—and as you smile
Another smiles—
And soon there's miles and miles of smiles,
And life's worth while—
If you but smile!"

Scattered through the sixteen pages are many such verses and a combination of jokes, stories and mixed metaphors that make the booklet a most interesting advertisement for the Standard Dry Kiln Company. Pages of information relative to the Standard's dryer are sandwiched in, in such a fashion that the reader peruses the whole of the booklet with much appreciation. Then, too, the Standard Dry Kiln Company has a dryer that is well worth studying, so that, though the book has some dryer advertising, it is far from dry reading. Send for the booklet and enjoy the Smiles.

Export transportation facilities are a necessity, but sometimes plenty of means for domestic traffic are more urgent. Let us keep after that waterways business.



Entered at the Indianapolis postoffice as second class matter.

A Practical Illustrated Monthly Magazine, devoted to Brickmaking and allied Clayworking Arts and Industries.

TWENTY-SIXTH YEAR OF PUBLICATION

OFFICIAL ORGAN OF THE NATIONAL BRICK MANUFACTURERS' ASSOCIATION OF THE UNITED STATES OF AMERICA.

TERMS OF SUBSCRIPTION:

One copy, one year (in advance)	\$ 2.00
One copy, one year (if not paid in advance)	2.50
Six copies, " " " " " "	10.00
Ten copies, " " " " " "	15.00

Foreign subscriptions 65 cents additional.

Subscribers when ordering a change of address should give both the old and new address.

ADVERTISING RATES

Furnished on application. The CLAY-WORKER is unquestionably the most effective medium in its field, and character and circulation considered it is the cheapest. To insure insertion in current issue, advertising matter should be sent to office of publication on, or before the first of the month.

Correspondence on all subjects of interest to Clayworkers solicited. All communications should be addressed to
226 East Ohio St. T. A. RANDALL & CO. [Inc.], Indianapolis.

Vol. LII.

DECEMBER, 1909.

No. 6.

CURRENT COMMENT.

About the best thing for the brick man to head his New Year's resolution list with is, "I'm going to that N. B. M. A. annual meeting or bust."

* * *

The closer the new year approaches the better appearance it presents. It looks like 1910 is to bring us a full tide of prosperity in all business.

* * *

He is well posted who knows the limitations of his neighbor's ability, but the best posted man is the one that knows his own limitations and how to keep extending them.

* * *

The interests of business as well as statesmanship seem to be pretty well looked after in the President's message, and here's hoping that Congress will be just as level-headed and business-like.

* * *

If we could inject more science in and withdraw some of the "politics" from municipal government it would be a good thing, both for the paving brick industry and for our city streets, for the more real science, the more brick paving.

* * *

The American sweet tooth has been displaying a few ailments lately. Possibly the outcome of this sugar scandal business will be a little advance in the price of sugar, but even at that it will be worth the cost if it is effective in putting an end to crooked dealing.

* * *

When you start in to clear your conscience for the new year by forgiving all your enemies, both real and imaginary, remember that there are two kinds of people we hate—those who have wronged us and those whom we have wronged,

and that toward those we have wronged it is more enduring. So make a special effort to reform your feeling toward any and all of whom you have done wrong the past year.

* * *

The building constructed of brick is like the one founded upon a rock. Storms may beat upon it and it will fall not. As an addenda to that, it may be said that fires may scorch it and it will remain unscathed.

* * *

Some of our neighbor countries in the south that have chronic revolutionary ailments may deserve spanking, but it looks like a species of "hookworm" case, where there is need for scientists to discover the germ responsible for the turbulent spirit, and then set about devising ways to eliminate it.

* * *

We all know that coal is an important item in the industrial world, and costs more almost every year, but it takes a disaster like that which happened recently at Cherry, Ill., to bring home to most of us a full realization of the exact conditions involved in winning this useful element from Mother Earth.

* * *

Even though the cost of good things to eat and make-up of the Christmas dinner may seem high as compared to by-gone years, we may find some consolation in the fact that they are no higher here than anywhere else in the world. Statistics recently gathered by the consular service go to show that really good living is cheaper here than in any other country, and to this we might add that it is better, too—so there!

* * *

The Pittsburg convention will be the twenty-fourth annual meeting of the N. B. M. A., and our second convention held in the Smoky City. The twelfth annual convention was held there in 1898. During these twelve years Pittsburg has nearly doubled in population, and is to-day one of the most attractive of American cities. It may be reached so quickly and comfortably by a great majority of the clayworkers of the country that a record-breaking attendance is anticipated. "Come early and avoid the rush."

BUSINESS.

The wind-up of the past building season came with what might well be termed a grand flourish. During November in some sections of the country where building operations had gone along fairly well during the year, but were not exciting, the work took a kind of boom and it looked like everybody was trying to build something before cold weather stopped outside work. Every brick mason that could be found was given employment, and the only complaint of contractors was that they could not get enough help to complete their work. There were all kinds of jobs being rushed from small cottages to big buildings calling for six or seven million brick, and if the trade had gone at the same gait all through the summer that it attained in November, it would have been a record-breaking year. As it was, the rush during November and the first few days in December was such as to add materially to the volume of the business, and also to help paint more rosy the outlook for next spring. Moreover, it was not only building contractors that were at work, but architects have been at work, too, and have more projects in hand now than they have had for some time. In short, the country has shaken off its old lethargy, and, being unusually prosperous in the agricultural sections, is not only fitted for, but seemingly is in the notion to build very extensively next year. That they will build better goes without saying; will be more inclined to build permanent structures and use more brick than ever before, even in modest dwellings. There is every reason to believe, therefore, that the demand for building

brick and other clay products involved in building operations next year will be larger than it has been for several years, and manufacturers may well put their plants in order and get in shape to do a big business.

REDUCED RAILROAD RATES TO PITTSBURG.

As was expected, reduced railroad rates have been granted for the N. B. M. A. convention at Pittsburg. The Trunk Line Association, which has jurisdiction over the lines east of Pittsburg, has authorized a special rate of a fare and three-fifths on the certificate plan to delegates and those accompanying them to the convention. This is the same rate that was made for the Rochester convention a year ago. Tickets may be purchased from February 3 to February 9, inclusive, and will be good returning up to and including midnight of Wednesday, February 16. As most of our readers know, to secure this rate full fare must be paid going and a certificate taken. This, when vised by the Trunk Line representative, entitles the holder to a return ticket at three-fifths the fare paid going. Ask for a certificate, not a receipt.

AN INDEX OF CHARACTER.

Our Annual Index, which will be found between pages 682 and 683 of this issue, tells graphically the thorough manner in which the entire clay field has been covered in our columns during the year now ending. Every event of any interest to the trade here at home or abroad has been intelligently chronicled, and every phase of the clay business has been carefully considered. More so, perhaps, than even our regular readers realize. A look at the yearly index may surprise some of the faithful, even, and give a better understanding of how effectively The Clay-Worker covers every feature of the clay business. Verily, The Clay-Worker is a compendium of trade knowledge. We are going to try to make the 1910 volume still better. Dear reader, have you renewed your subscription? If not, DO IT NOW.

TRIMMING THE PINIONS OF AMBITION.

There are some interesting expressions of opinion on the conditions and future possibilities of business given in the advance proofs of the "American Industries" for December, as well as some valuable data. The general summing up shows that trade is now in excellent condition and the future prospects are also bright. One of the expressions as to the needs of furthering our prosperous conditions, given by a Pittsburg manufacturer of steel cables, is: "We believe that one of the most important things at this time (and, indeed, generally) is that manufacturers shall be content with a very modest profit, and that both manufacturers and raw material producers should make every possible effort to prevent a runaway market in the direction of extreme high prices, whether for raw materials or manufactured products."

A manufacturing firm at Dayton, O., touches the same point and says: "The natural impulse to increase prices of all raw material and the scarcity of good help are obstacles which tend to check to some extent present indications of the continuance of prosperity. With these obstacles overcome we may not only look for our business to return to its normal state, but also an increase over any previous year."

This all sounds like trimming the pinions of ambition to prevent soaring too high, and, in a way it is, but we should consider it in the light of being for the sake of safety and the ultimate welfare of everybody. Indeed, we may well regard it as a checkrein to avarice instead of a halter on ambition, because we are prone to let ambition run into greed sometimes anxiously, and the more we get in the way of profits the more we want. So, even though it is not only

a check to avarice, but is really trimming ambition's wings in some instances, there is no question but what it is good logic and that these people have hit the keynote of the situation. Every man wants to make a profit and also a profit is essential to the perpetuation of business, but abnormal profits do not contribute to stability any more than uncomfortably close ones. So, this advice seems well worth digesting and incorporating into the business policies of the new year.

CHRISTMAS AND NEW YEAR.

Peace is rightfully the keynote to Christmas. And about peace there has been many beautiful things written and said. But, not too many, for, after all, peace is the one thing that prevails. It is what we fight for and strive for. Therefore, the theme of peace should not only receive its full share of attention at Christmas, but we may well take it with us all through the year. Along with peace in the Christmas spirit we have generosity and more of the air of plenty than at any other season, because in some measure we have retained in a modified form the old traditions of the past mid-winters' festivities with which the primitive people manifested their faith in that the sun would again conquer the earth and bring forth an abundance by those who are more favored, dividing that which they had with those who were less favored. It might not be a bad idea if we would strive to get in closer touch with the original sentiment which led to this division of our harvests of the year with those less favored, instead of the polite and politic manner of dispensing what is known as Christmas gifts. There is something beautiful about that old primitive sentiment that somehow has not been improved on materially by modifying. Yet, we are not likely to go backward to it. Forward is the word, and in going forward from year to year if we meet up with something like the old traditional spirit again in the completing of cycles, well and good; if not, we have faith in that we will meet up with other good things, and believe that, notwithstanding some of the things that appealed strongly in the past have disappeared, the world is getting better all the time.

Coming right on the heels of the Christmas festivities is a country-wide practice of reviewing the work for the year, posting up the accounts and turning over a new leaf for the next year. When it comes to that work, let us do all the looking back we intend doing in the one brief period of winding up the accounts of the old year, then leave it behind us. When one is going forward and upward it is neither good nor helpful to look back. We may need the lessons learned in the past year, but they will stay with us anyway, and looking back at errors and mistakes may handicap progress in the coming year. There is a favorite story of the ministry illustrating this point which teaches us that the only safety is in looking upward and ahead. The story has to do with a man ascending a succession of cliffs by ladders, in the process of which if he looks downward he becomes dizzy, afraid and discouraged, whereas if he keeps his eyes on the next step ahead, on the next landing, he keeps forging forward, and if he accidentally misses a step and nearly falls in the climbing, he will remember it and be more careful afterwards without any looking back to view the past happening. There is pretty good logic in this to apply in business life. The important thing is to look forward at what you intend to do the coming year, and not waste time bemoaning any slips or stumbles during the past year. Things of this kind impress their lesson and will be remembered in the future without looking back at them and brooding over what is past, and thinking what you would do if it were to do over again. Put the old year behind you and forge ahead. Have nothing more to do with what is past, but keep busy with what is before you.

CONVENTION DATES.

The Iowa Brick and Tile Association will hold its Twenty-ninth Annual Convention at Des Moines, January 11, 12 and 13. Members are requested to send the secretary, Mr. C. B. Platt, Van Meter, Iowa, any questions they desire to have discussed.

The Canadian Clay Products Manufacturers' Association will meet at Chatham, Ontario, date not yet announced. For information in regard to date, program, etc., address the secretary, D. O. McKinnon, Toronto, Ont.

The Thirty-second Annual Convention of the Illinois Clay Manufacturers' Association will be held at Champaign, Ill., January 18, 19 and 20, 1910. Hotel Beardsley will be headquarters, as usual. George H. Hartwell, Chicago, Ill., secretary.

The Wisconsin Clayworkers' Association will meet at Milwaukee, Wis. The date has not been announced, but it is probable the convention will be held about the middle of February. Prof. Samuel Weidman, Madison, Wis., is secretary, having succeeded Oscar Wilson, who has removed from the State.

TRADE LITERATURE.

THE REPORT OF the twenty-third annual convention of the National Brick Manufacturers' Association has just been published in book form. In addition to the report, which was published in full in the February CLAY-WORKER, the book, which numbers 250 pages, includes a complete list of members, the announcements for the coming conventions, and other data of interest to N. B. M. A. members. A copy has been mailed to each member; others desiring them can have copies at 50 cents each. Address T. A. Randall, secretary, Indianapolis, Ind.

ELECTRIC LOCOMOTIVES, TRUCKS AND CARS is the title of Bulletin No. 1090 recently mailed to the trade by the Atlas Car and Manufacturing Company, of Cleveland, Ohio. The fifty-two pages of finely-printed matter describes in detail the various parts of the Atlas electric locomotives for freight and industrial use, storage battery trucks, cable, bottom, side-dump and transfer electric cars. The Atlas Car Manufacturing Company has supplied many clayworking plants in the past, and has a high reputation for substantial, well-built products. If you are interested in the transportation problem, write them for their latest bulletin.

"A HOUSE OF BRICKS" is the title of a most interesting communication being sent out by J. Parker B. Fiske, secretary of the Clay Products Association of America, Flatiron Building, New York City. It is a prospectus of the first important publication of the association, which will contain views, plans and specifications for brick houses obtained recently through the Brickbuilder competition. The book is intended for distribution among prospective builders, and brick manufacturers will find it an invaluable aid in the promotion of their business. It will be sold at 50 cents per copy to those who are not members of the C. P. A. It will be furnished to members at 25 cents a copy. For further particulars address Mr. Fiske as above.

UNCLE THOMAS ROTT'S ADVICE.

Have you got a friend to do?
Do him now.
Should you wait a week or two,
Some low brow
Of a "con" man may draw near,
Skin your friend and disappear.
So I'm giving you this steer—
Do him now. —[Ex.

KEEPING EVERLASTINGLY AT IT COUNTS.

Oh, they are wise who advertise
In winter, spring or fall;
But wiser yet are they, you bet,
Who don't let up at all. —Exchange.

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"GETTING THE MOST FOR A DOLLAR"
has been given as a definition of good engineering such as is done by
The Richardson-Lovejoy Engineering Company.
[See page 699.]

WANTED, FOR SALE, ETC.

FOR SALE.
New sand-lime brick hardening cylinder, 6 feet diameter by 68 feet long. One removable head. Immediate shipment.
FRANKLIN BOILER WORKS CO.,
Troy, N. Y.

FOR SALE.
A complete soft-mud brick outfit; one Potts machine, capacity 50,000 per day; one Potts mold sander; one Potts disintegrator.
One complete Martin pipe rack dryer, capacity 40,000 per day, with cable carriers, loading cars, tracks, steel pallets, etc., all complete. Will sell this outfit as a whole or in quarters or halves, as it can be arranged.
This outfit has been used but a short time. Reason for selling, have changed to the stiff-mud process.
All of the above must be sold and will go at one-fourth the original cost.
BROOKLYN BRICK CO.,
Builders' Exchange,
Indianapolis, Ind.

EVEN IN DARKEST AFRICA

To the farthest corners of the earth the name and fame of the "Built Right, Run Right" line of Clayworking Machinery have spread—"And There's a Reason." So carefully is it designed and built that no matter how far it may be from our factory there is still no trouble in keeping it working to its full efficiency. Asia, Africa, Australia, South America, Egypt and other countries have our machinery in successful plants. We are doing our part toward building the world. Here at home the American Line of Clayworking Machinery is found in the most successful plants. The American line is synonymous with progress. "It's a Sign of Big Things." But we are not devoted to the large interests alone. The smallest plant in South Africa has back of it the same machinery excellence as have the largest plants of the east and west. We build machinery of quality for making Clay Products of all kinds by all processes. We save you on first cost and upkeep.

Those who are users of the "Built Right, Run Right" Line are "De-Lighted" with it. Read the foot prints of those who have traveled the road to success via our Machinery quality route.

Our catalogue for the asking.

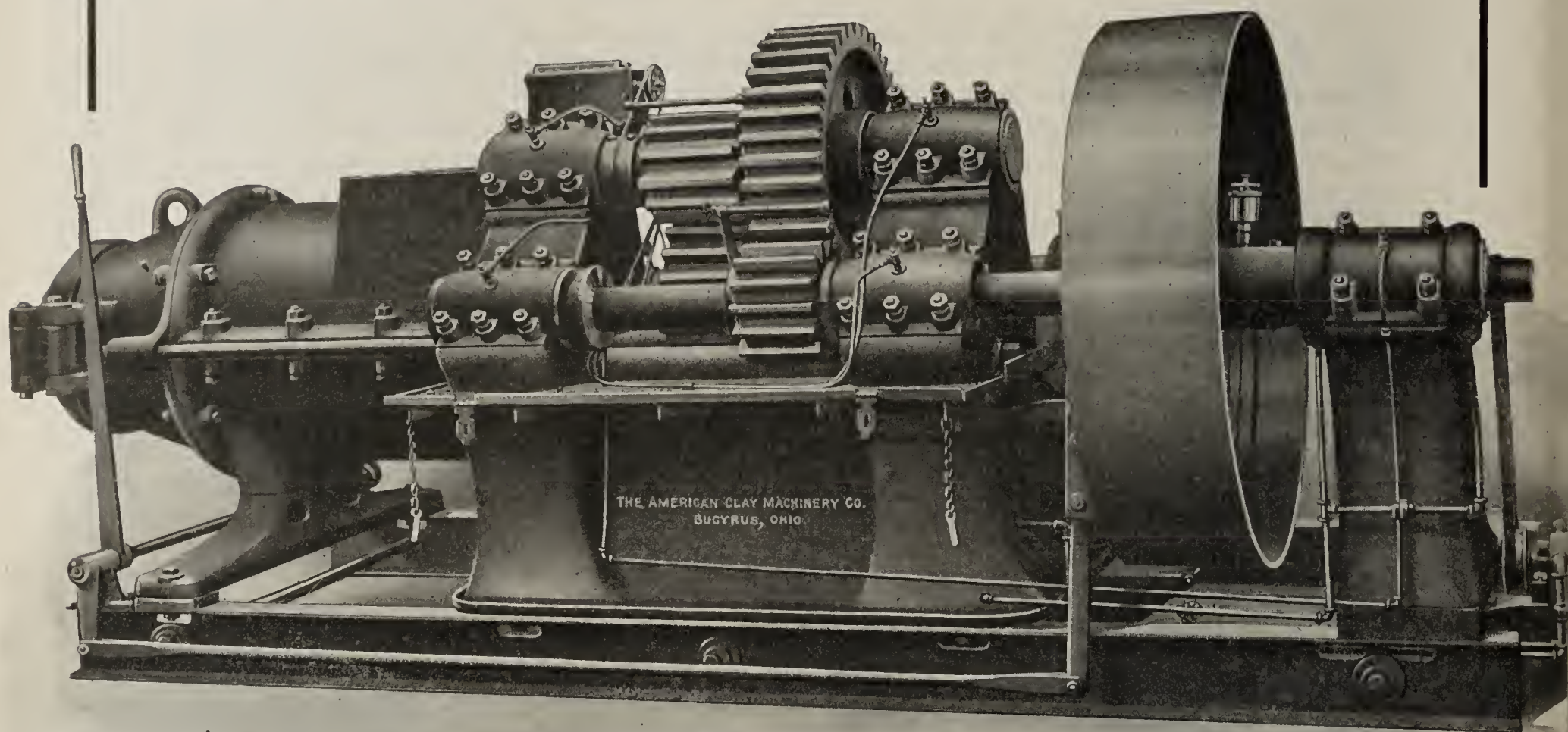
DELIGHTED!
THIS HAS AN
"AMERICAN" LOOK
IT'S A SIGN OF
BIG THINGS



The American Clay
Machinery Co.
BUCYRUS, OHIO.

Everything for Every
Clayworker.

FORCE FEED OILING SYSTEM FOR CLAYWORKING MACHINERY.



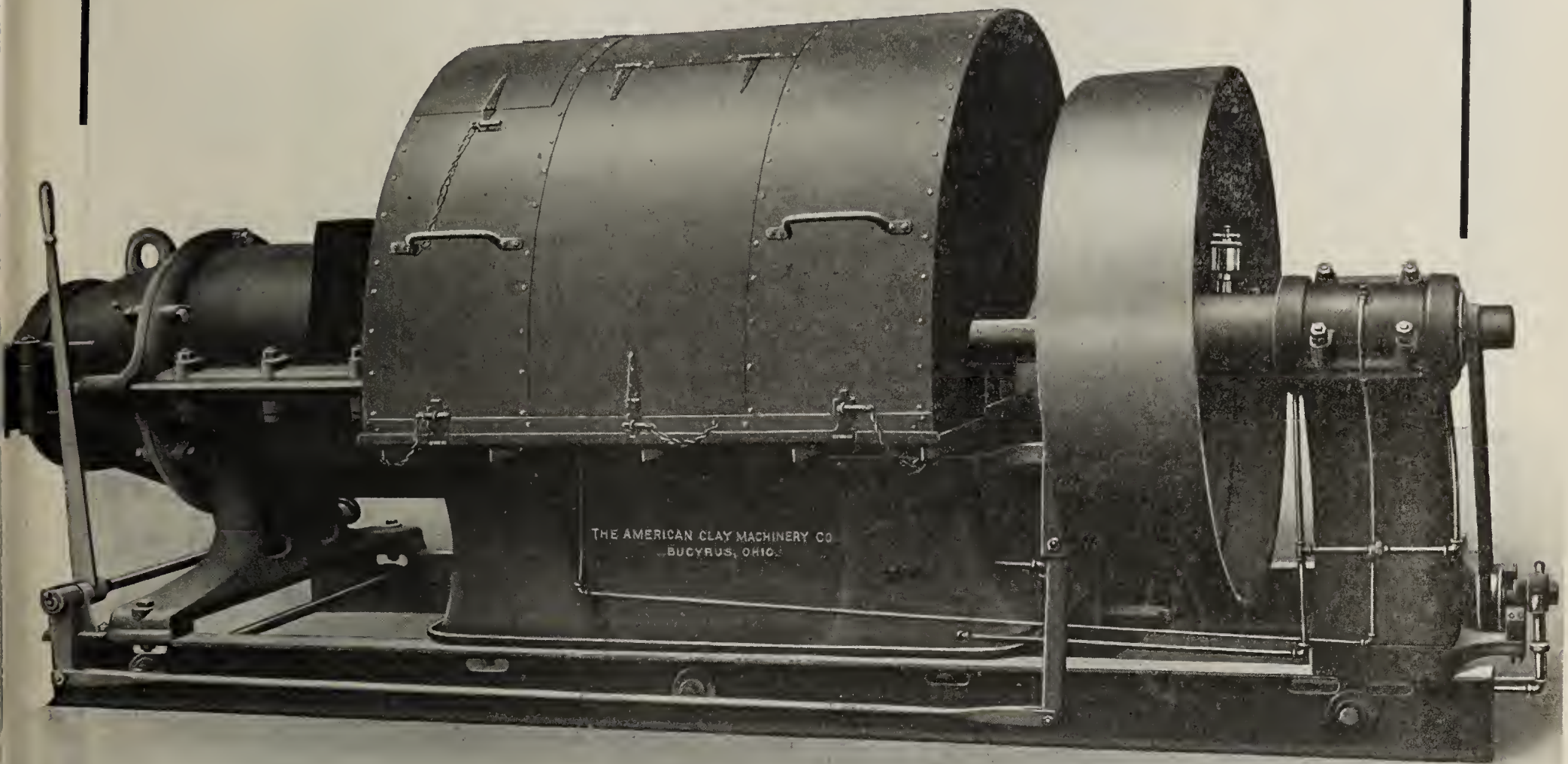
No. 65 Auger Brick Machine Showing Force Feed Oiling System. Housing Removed.

If your engineer persisted in forgetting to oil his engine you would get a new engineer. Our clay-working machinery is built as carefully as your engine and is entitled to as careful attention. We have been frequently blamed for inferior machinery when the trouble was entirely due to the failure to oil the machine. Our machinery is "Built Right" and will "Run Right," but it will not continue to run right without oil. In order to insure an adequate supply of oil and at the same time prevent a waste of lubricant, we have brought out a force feed oiling system which is here shown attached to our massive No. 65 Auger Brick Machine. The oiling system consists of a force sight feed pump device driven by either belt or ratchet. Each bearing is connected by a pipe leading from the force pump and each bearing has its individual sight feed so that any one can see that each bearing is receiving the proper amount of oil. A catch pan which is made a part of the base of the auger machine receives all drip and the oil thus collected is saved. While this is a source of oil economy it is far more economical in saving bearings and gearings.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

FORCE FEED OILING SYSTEM FOR CLAYWORKING MACHINERY.



No. 65 Auger Brick Machine Showing Force Feed Oiling System and Housing.

The illustration shows our improved central oiling device for thrust bearings. By this improvement thrusts are oiled from the center instead of trying to get the oil to run from the periphery of the thrust plates to the center. The gravitation on a revolving plate or disc is from the center and not toward it, consequently by the old system there was no assurance that thrust plates received the proper amount of oil. Our new method of applying the oil by force feed to the center of the plates insures plenty of oil and freedom from repairs.

The second illustration shows the No. 65 Auger Brick Machine and Force Feed Oiler housed with a dust-proof cover to protect the oiling system and the machine from dust and to protect the workmen. The housing is arranged with hinged doors so that the gearing and bearings can be inspected at all times. The illustration also shows the No. 65 machine equipped with cut steel gearing. While this is an ideal equipment the oiling system can be applied to standard iron gearing.

This Force Feed Sight Oiling System can be applied to any of our clayworking machinery. Correspondence solicited.

We build every machine and appliance needed for making clay products by all processes.

The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.

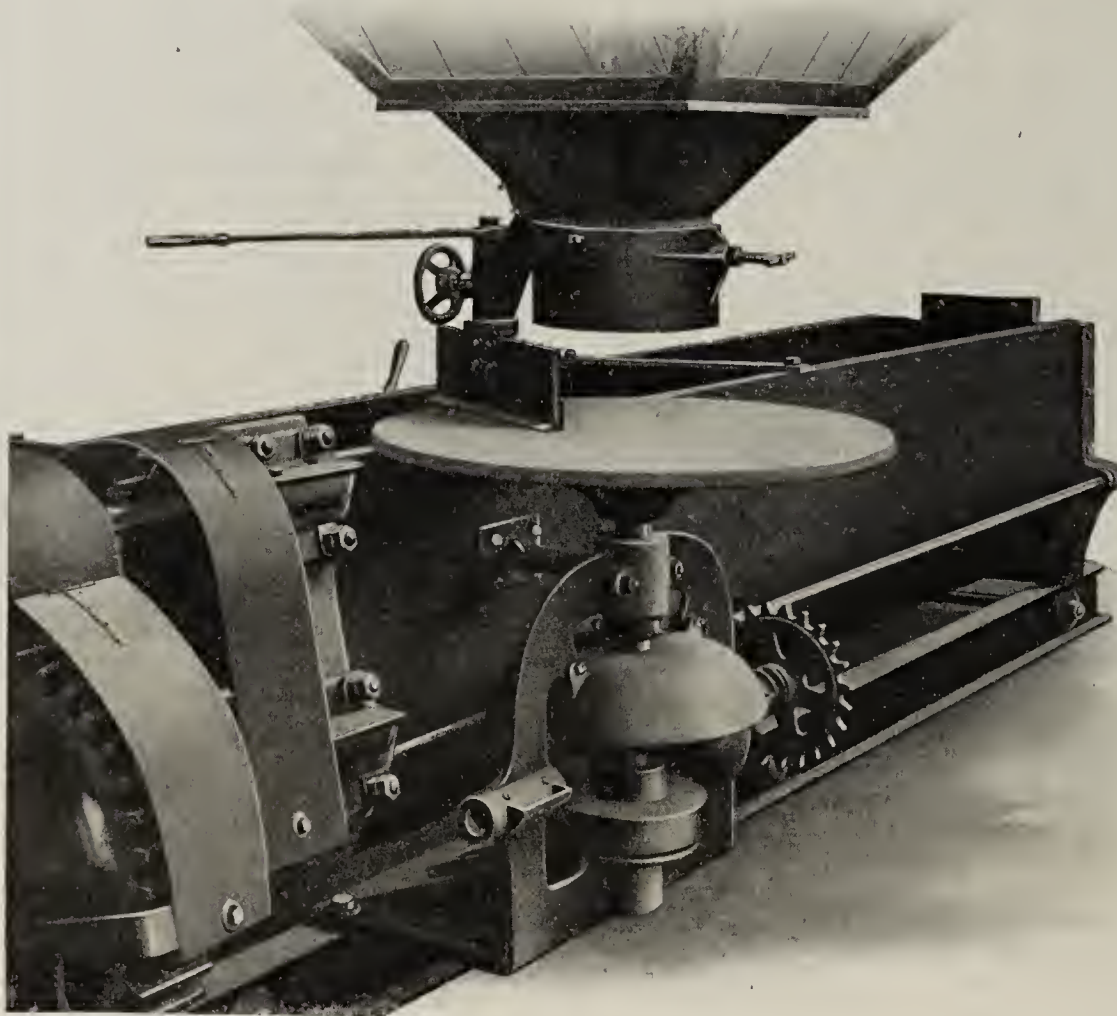


No. 162 Pug Mill Disc Feeder.

One of the greatest difficulties in making good brick, of uniform color and hardness, has been in the tempering of the clay. One of the principal appliances necessary is a perfect clay feed to the Pug Mill. This we have in our No. 162 Disc Feeder.

It is designed with a self-contained gearing frame, the face of which is so arranged that it can be bolted to any one of our extensive line of Pug Mills and

it can be driven from either side. The lower end of the disc shaft is provided with a large collar which rests on a bronze disc encased in a dust proof casing. It will be noticed that the bevel gearing is also encased in a neat gear casing. Attached to the upper end of disc shaft is a circular plate or disc 36 inches in diameter. The upper surface of this disc is faced off perfectly true. We make this disc larger when conditions require it.

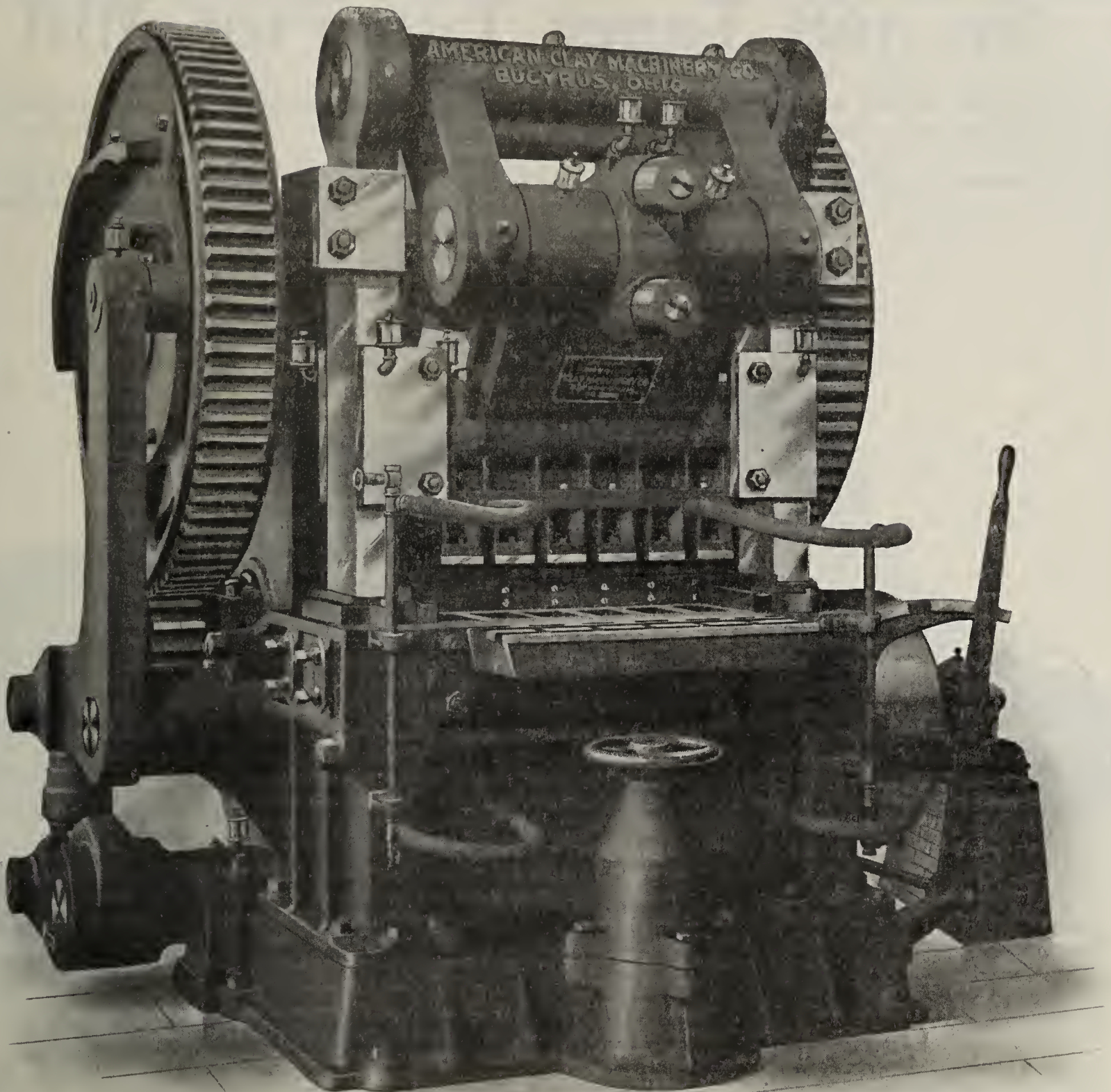


Above the feeder is a hopper so arranged that the supply of clay can be regulated, insuring an even flow to the pug mill. To the hopper is attached a hanger and scraper. The scraper is provided with a wear resisting shoe which deposits the clay in the pug mill in an even flow. The feeder is best driven with pulley and when possible should be driven from the pug mill.

We will be pleased to send you particulars on this or any other clayworking machinery. There is nothing in clay machinery and appliances that we do not make.



The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



No. 599—Six-Mold Press.

This press is built in a most substantial way, and is made to stand many years of hard service, is constructed on the simplest possible lines, all its parts being accessible and easily kept in repair. The mechanical movement of the press is such that the full pressure is held long upon the brick and without loss of time or diminishing the capacity. The result is a brick that is perfect and uniform throughout and without a flaw, seam or granulation. The machine is supplied with a friction clutch pulley, enabling the operator to have complete control over the machine at all times. The stresses incident to the pressing of the bricks are taken up by two immense steel side bars. These bars serve a double purpose; they also serve as guides for both top and bottom crossheads. The machine is on the toggle principle, very heavy, with all wearing parts adjustable. The lower crosshead moves upward in ejecting the brick, this arrangement relieving the press of excessive stresses or using unnecessary power. The charger is arranged with separate guides. The mold box liners can be quickly changed and the liner adjustment changed. The thickness of the brick can be regulated. The bearings are long and gearing ample, while the crank shaft is of steel. A full description of this and other clayworking machinery for the asking.

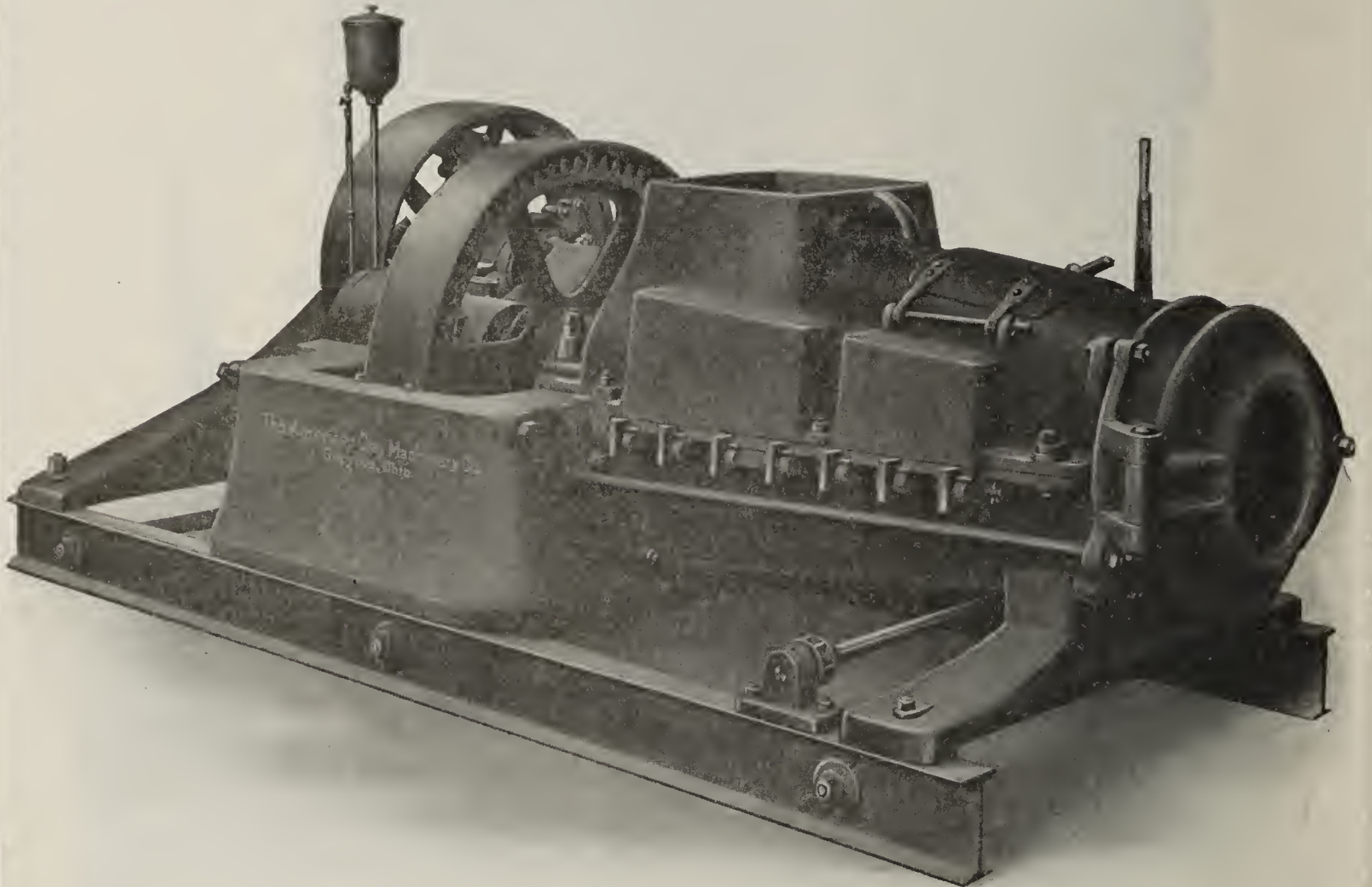
The American Clay Machinery Co.,
Bucyrus, Ohio, U. S. A.



No. 168 Taper Tub Pug Mill

This mill was designed for use where very thorough tempering of clay is required. It is made short, the discharge end being only a short distance from the hopper, so that the clay can be shoveled from the discharge back into the mill to be repugged as often as desired.

The tempering cylinder is made in two halves. The lower half is provided with rectangular, steel cleaner-teeth. These cleaner-teeth extend towards the hub of the tempering knives and between them, the knives working between the cleaner-teeth, promoting thorough mixing of the material.



The tub is tapering from the receiving to the discharge end. To the discharge end is bolted an extension, and to this is hinged a front having a 12-inch round opening. This front is provided with a safety attachment which shears a pin, allowing the front to open when the clay in the mill becomes too stiff.

The mill is provided with a self-contained gearing frame mounted on steel I-beam skids, which extend back far enough to receive a pedestal which supports the front end of the pugging cylinder, making the mill self-contained. The driving shaft is supported in three journal bearings. The pug shaft is forged from the solid billet. In the gearfit and in the bearings it is 5 inches diameter, and the end which carries the knives is 3½ inches square. The bearings which form a part of the gear frame are made of sufficient length to carry the tempering shaft without the necessity of a bearing on the discharge end of the shaft. The back end of the shaft is provided with our regular style thrust-bearing, consisting of two chill discs, between which is a bronze disc, revolving in oil. We also provide an oil reservoir elevated above this thrust-bearing and connected by a pipe leading from the tank to the center of the thrust block and into the center of the back chill, oiling the thrust from the center instead of depending on the oil working in from the outer edges of the revolving disc to the center.

The mill is made of cast iron, but the end-thrust is received on steel rods extending from back to front of the mill. The cleaner-teeth are provided with safety break pin attachment.

A full description of this or any other clayworking machinery sent upon request.

The American Clay Machinery Co.,

Bucyrus, Ohio, U. S. A.



Written for THE CLAY-WORKER.

BRICK NEWS OF NORTHWESTERN OHIO.



UNLESS ALL signs fail, the price of building brick will advance very materially by the time the spring building season opens. Local stocks are very light at present and there is still a heavy demand from rural points, with a nice sprinkling of trade in the city. An advance of about 50 cents has been made recently and it is not at all probable that there will be any cheaper brick in the near future, judging from the present indications. Three of the local yards are still running and it is probable that, barring a short suspension for repairs, lasting perhaps a month or so at the most, they will continue to operate all winter. Good building brick are now selling here at from \$6.75 to \$7.25, and, while the market is inclined to vacillate somewhat, with a few sales perhaps below these figures, it is rapidly assuming a more healthful attitude, with every indication that in a short time it will have settled down to a regular basis. Some of the yards are sold out now, and others say they have but a few brick on hand. On the other hand, signs point to a general rush in the building business here early in the spring. Many important contracts are already being figured, even at this early date, and it seems certain that the demand for brick next spring will be greater than it has been for a long time, if indeed records are not broken. With this condition at present, and these prospects as to the future, brick men are freely predicting a substantial advance of prices in the spring, and some say that advances will be forthcoming long before that time. The past season has not been a bad one in point of volume of business transacted, although prices have at times been somewhat erratic, and trade carried on under unsatisfactory conditions. On the whole, few complaints are heard and all agree that there has been an improvement over the depressed atmosphere of last year.

Paving brick prospects are also highly satisfactory, and it is sure that there will be an enormous amount of municipal work laid out for the coming season. One advantage in this class of trade is the fact that there will no longer be the difficulty in placing municipal bonds, which has so greatly impeded public work for the past year or two. Manufacturing plants are counting on a good market for their output and are planning to meet the demand promptly. Paving brick prices have been a trifle uncertain, but are beginning to assume a more normal condition. All of these conditions are also applicable to sewer pipe industries. The past year has been above the average, and there are many plans for work which will enliven the sewer pipe market when it fully develops.

Plans have been completed for, and contractors are now figuring on, a new six-story business block to be erected soon for Tietke Bros., on Summit and Water streets, Toledo. It will furnish a market for a large number of building brick and local brick men are turning their attention in that direction. The same firm will also erect a \$15,000 brick barn, the plans for which have been prepared.

The little village of Shawnee, O., is coming rapidly to the front. On December 17 bids will be opened for paving with vitrified brick the main street of the municipality.

The new factory of the Buckeye Clay Pot Company, of Toledo, is progressing rapidly. The plant is located at the intersection of the Wheeling Belt and the Grand Trunk in North Toledo. When completed it will give employment to several hundred men.

The Andrews Asphalt Paving Company, of Hamilton, O., recently landed a paving contract in that city amounting to \$16,000. Vitrified brick will be used in the work.

Patrick Carew, formerly one of the leading paving con-

tractors and a resident of Toledo for fifty-five years, died recently at his home on Colburn street. Some years ago he retired from active work, but while in the business he executed some of the largest contracts for street improvements in the history of the city. A wife and one son survive.

Joseph Axe, proprietor of the St. Mary's tile yards at St. Mary's, O., recently met with an accident which cost him his left hand. While reaching into a clay crusher to remove a small pebble the hand was caught and so badly injured that it was necessary to amputate the mangled stub at the wrist.

A contract of more than usual importance will be that of the store and office building soon to be erected at Toledo by C. M. Spitzer. The structure will be of brick and especially designed for the use of physicians. It will be five stories high. Plans have been completed and contracts will soon be let.

By an opinion rendered for the Service Board by the City Solicitor of Toledo, O., it is probable that a change will result in the method of bidding for street and sewer work by public contractors. It has been the custom among contractors to submit bids on the most important items of a certain piece of work, making no bids at all on the less remunerative details or filling them in at a nominal figure. The Solicitor holds that, as the whole or any part of a contract may be enforced against the bidder, it is necessary that all details be specified. To illustrate, when recent bids were received for improving Broadway one contractor was low for the work between the rails and another was low for the space outside the rails chargeable to the property owners. The Solicitor holds that the contract may be legally divided between the bidders and is enforceable under the bond. It has not been the custom to split up contracts, but to award the entire improvement to one bidder. In a recent contract twenty-nine different items were bid upon, and under the ruling of the Solicitor it would be possible for the board to let the contracts to twenty-nine different bidders. While this is not at all probable, it is believed that a revision of bidding methods will be the result of the City Solicitor's opinion. T. O. D.

SURVEY STUDIES SMOKE PREVENTION.

The United States Geological Survey has made a study of the problem of burning coal without smoke in thirteen of the larger cities of the country, more than 400 plants having been examined. The result is a report by D. T. Randall and H. W. Weeks, issued as Bulletin No. 373 on the subject, which gives in detail the results of the observations made, together with the results of smoke tests and observations made the survey fuel-testing plants at Norfolk and St. Louis. The conclusion reached is that in properly constructed plants smoke prevention is not only possible, but it is economically desirable, but in ordinary boiler furnaces only coals containing large percentages of fixed carbon can be burned without smoke except by expert firemen. Of the average plants, he says, some can be remodeled to advantage, but others must continue to burn coals that are high in fixed carbon or to replace their inefficient plants with new ones properly designed for smoke prevention to remedy the smoke nuisance. Bulletin 373 contains a number of diagrams and tables and a pretty complete presentation of the subject, and can be obtained free from the director of the survey at Washington.

If those rival railway magnates will just get ambitious enough to build a lot of new roads and equip them with rolling stock, it will probably do lots more toward solving the transportation problem in the next few years than has been accomplished in the past few by oral wrangling and legal see-sawing.



ANNOUNCEMENT!!!

We have consolidated the business of the Scott Manufacturing Co. of St. Louis, and Keokuk, Iowa, and Madden & Co. of Rushville, Ind., and are now in position to furnish everything the manufacturer of Pressed Brick, Stiff Mud Brick, Drain Tile or Soft Mud Brick desires.

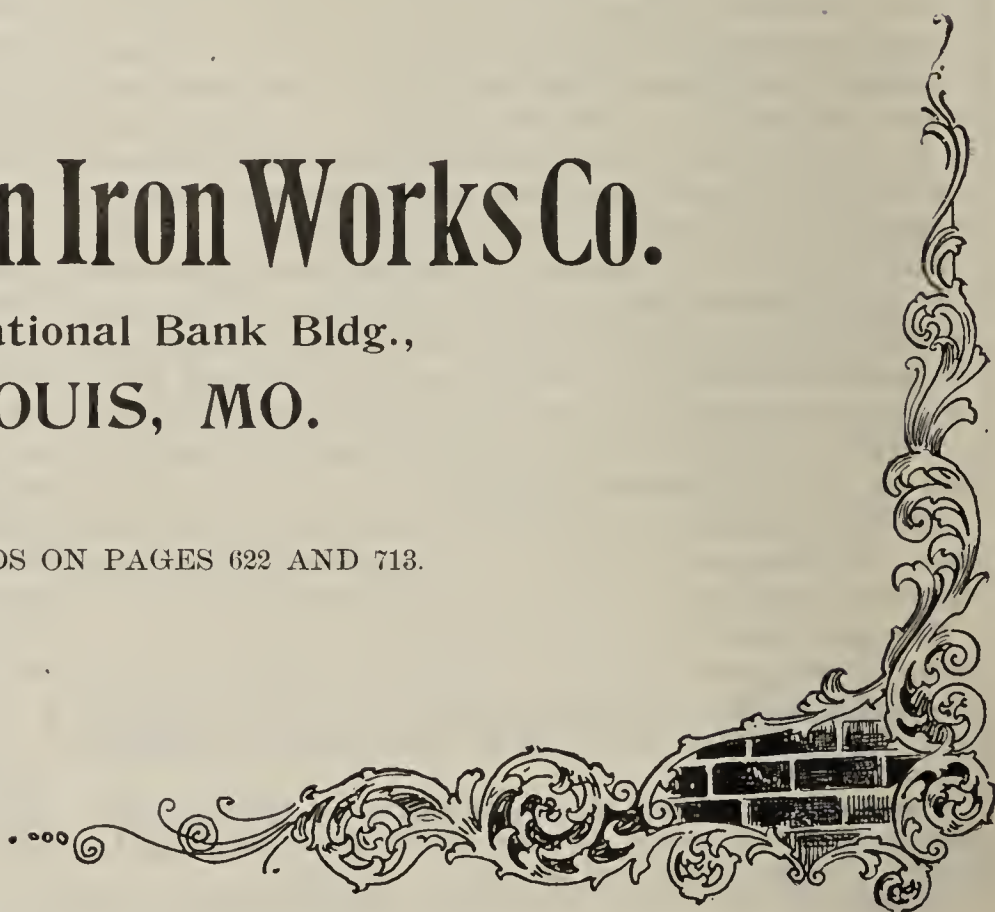
We wish to thank the old customers of both companies for their cordial support in the past, and feel that we are now better prepared than ever to serve them.

We will continue both our Keokuk and Rushville plants, and our general sales office will be in St. Louis.

Scott-Madden Iron Works Co.

1812 Third National Bank Bldg.,
ST. LOUIS, MO.

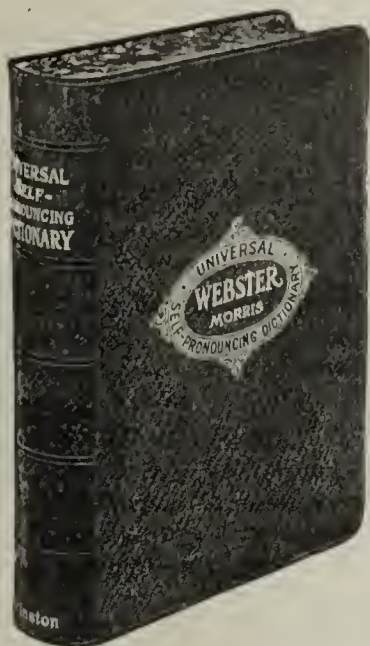
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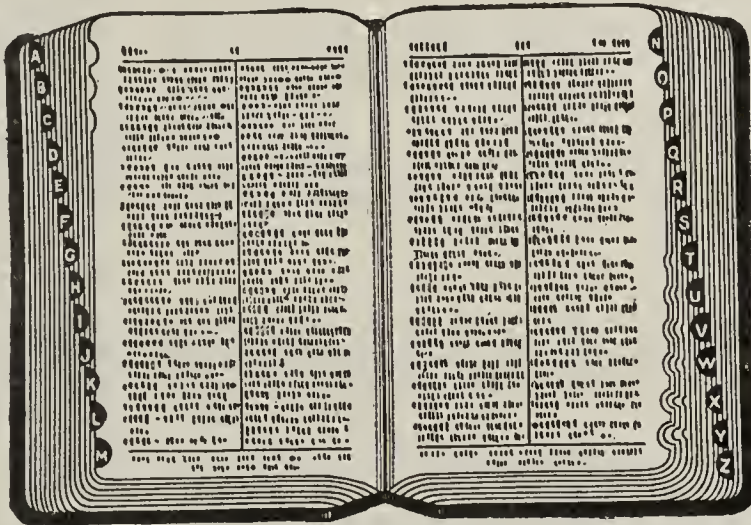
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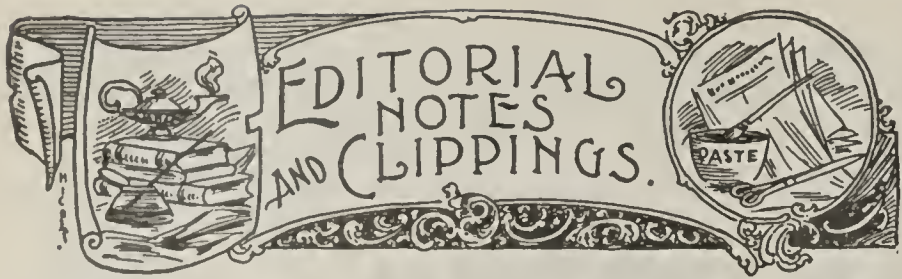


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The Drake Clay Company, of Drake, Ill., has been incorporated with a capital stock of \$100,000.

The Mangum Press Brick Company has been incorporated at Mangum, Texas, with a capital of \$20,000.

James Thomas and S. W. Wolfe will start a brick plant at Lewistown, Ill., where they have a fine deposit of shale.

The kiln sheds at the Cary Brick Company's plant at Troy, N. Y., were destroyed by fire recently, entailing a loss of \$500.

G. G. Guthrie has purchased the Paul Broquet brick plant at Norton, Kansas. The plant turns out a superior quality of building brick.

Chris Holder has sued the Louisville Fire Brick Works, Louisville, Ky., for \$20,000 for damages for injuries received when in the employ of the brick company.

The Bagley-McDonnell Brick Company has been incorporated to manufacture brick by E. S. Bagley, J. J. McDonnell and A. McDonnell, all of Meriden, Conn. The company has \$10,000 capital stock.

The plant of the Hammond Fire Brick Company, Fairmont, W. Va., was burned to the ground November 20. The loss is estimated at \$50,000, partly covered by insurance. The plant will be rebuilt at once.

The Stipes Brick Company's plant at Urbana, Ill., has closed for the winter months after a most successful season. A number of improvements will be made in the plant, including the installation of some new machinery.

Henry H. Remmey, of the firm of R. C. Remmey & Co., fire brick manufacturers, died at his home in Philadelphia, Pa., December 2. Mr. Remmey was sixty-eight years old and had been identified with the brick business for many years.

The United States supervising architect has accepted the sample of bricks manufactured by the Fredericksburg Brick Company to be used in the construction of the new postoffice building now in course of construction at Fredericksburg, Va. More than 300,000 bricks will be used.

The Hancock Brick and Tile Company, Findlay, Ohio, has been handicapped on account of having to haul the raw clay a distance of two miles by wagon. To obviate this difficulty they have built two miles of railway and have purchased an eight-ton locomotive, with which they will transport the clay to the plant.

R. Valentine, secretary of the North Iowa Brick and Tile Co., Mason City, Iowa, writes that there seems to be an erroneous impression in regard to the fire at their plant, which it had been reported destroyed the plant entirely. As a matter of fact, the damage was very light, entirely covered by insurance, and the plant has never ceased running.

A number of Troy, N. Y., capitalists have purchased the plant of the Gleasonton Fire Brick Company, Gleasonton, Pa., and, while the company has been reorganized, the business will be carried on under the same firm name. The new officers are William Geer, president; William Schleicher, vice-president, and Harry S. Sleicher, secretary and treasurer.

The Falls Brick and Tile Company, Sheboygan Falls, Wis., is making a number of improvements at their plant, the chief of which is the erection of an immense down-draft kiln with a capacity of 80,000 brick. However, they will use the kiln for the present for the burning of drain tile. Later on they expect to install a dryer and equipment to enable them to operate the year through.

A \$175,000 brick and tile plant will be erected at Austin, Minn., by the Southern Minnesota Clay, Brick and Tile Company. Ground has been broken for the plant and same will be pushed to completion as rapidly as possible. The buildings will be fireproof and the factory will be equipped throughout with modern machinery and appliances. The work of construction will be under the supervision of E. H.

Smith and W. H. Gleason, Jr., of Mason City, Iowa, members of the firm.

Contractor Shelde is interested in a movement to erect a burned clay hollow block plant at Jamestown, N. Y.

Selmer, Tenn., is soon to have a new brick manufacturing plant. It will be operated by S. W. Gooch and M. A. Harris.

The Hammond Brick Company, Hammond, La., will make a number of improvements at its plant, including the erection of new dryer sheds and kilns.

The plant of the West Concord (Minn.) Brick and Tile Company is to be enlarged in the near future. A number of improvements will be made in the works.

The Leon Keeble Brick Company will build a new plant at Lindale, Texas. The company has been incorporated with \$20,000 capital by Leon Keebles and others of Elgin, Texas.

The Standard Brick Company, of Macon, Ga., is preparing to equip its plant with electric power. The company has had a very busy season, supplying not only the local trade, but shipping to many outside points.

Clifford Long, who bought the G. W. Oakes Brick and Tile factory at Columbus Junction, Iowa, will greatly increase the capacity of the plant the coming year. New kilns are to be built and many improvements will be made.

The Susquehanna Fire Clay Company, of Edgewater, Va., has been incorporated with \$30,000 capital stock. The incorporators are E. J. Forhan, J. J. Harper and G. F. Martin. The company is to mine, mill, produce and prepare for market fire clay, etc.

Edward Rowley was killed and two employes of Armstrong's Brick Yard, at Roseton, N. J., were hurt by an electric shock. The three men were boring for clay, using a long iron pipe. When they drew the pipe from the ground, and while they still grasped it, it dropped over and hit an electric wire, sending a heavy current through the men.

The Cheyenne Brick Company, capital stock \$50,000, has been organized by T. A. Cosgriff and other local capitalists and will erect a plant for the manufacture of shale brick in West Cheyenne, Wyo. Shale will be taken from extensive deposits near Iron Mountain station, forty-five miles north of Cheyenne, and the plant will have an initial capacity of 20,000 brick daily.

Alexander Ferguson, one of the pioneer brick manufacturers of Troy, N. Y., died at his home in that city November 27. He started the Ferguson brick plant more than forty years ago and continued actively in the business until about eight years ago, since when he sold out to the Carey Brick Company. Mr. Ferguson was seventy-seven years old and had amassed a small fortune. Two sons and one daughter survive.

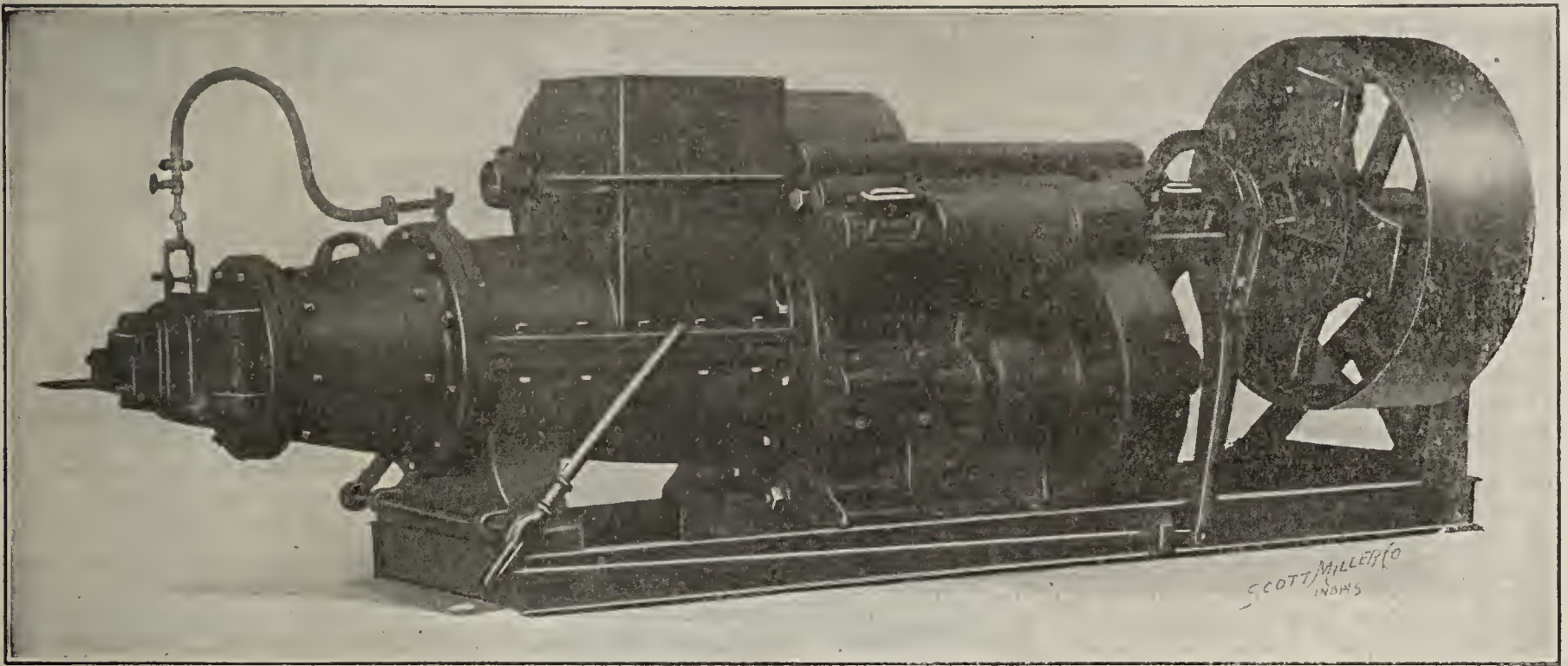
Articles of incorporation of the Empire Brick Company, of Salt Lake City, Utah, have been filed. The capitalization is \$150,000, divided into shares of the par value of \$1 each. W. J. Burton is president; P. E. Hatch, vice-president; M. Thomas, secretary; R. P. Morris, treasurer. In addition to these, H. S. Margetts, C. S. Burton and P. Z. Hatch are directors. The company takes over the plant and property of the Hatch Brick Company, of Bountiful.

The Illinois Brick Company, Chicago, Ill., has just purchased the plant of one of its most influential competitors, the Labahn Brick Company, at Lansing, Ill., on the Panhandle railroad, about thirty miles from Chicago. The price paid was \$185,000. The purchase includes sixty acres of land, brick kilns, sheds, equipment, with a capacity of 60,000,000 brick a year, and good will, it being the intention of the purchasing corporation to continue the operations of the plant upon the same basis as heretofore.

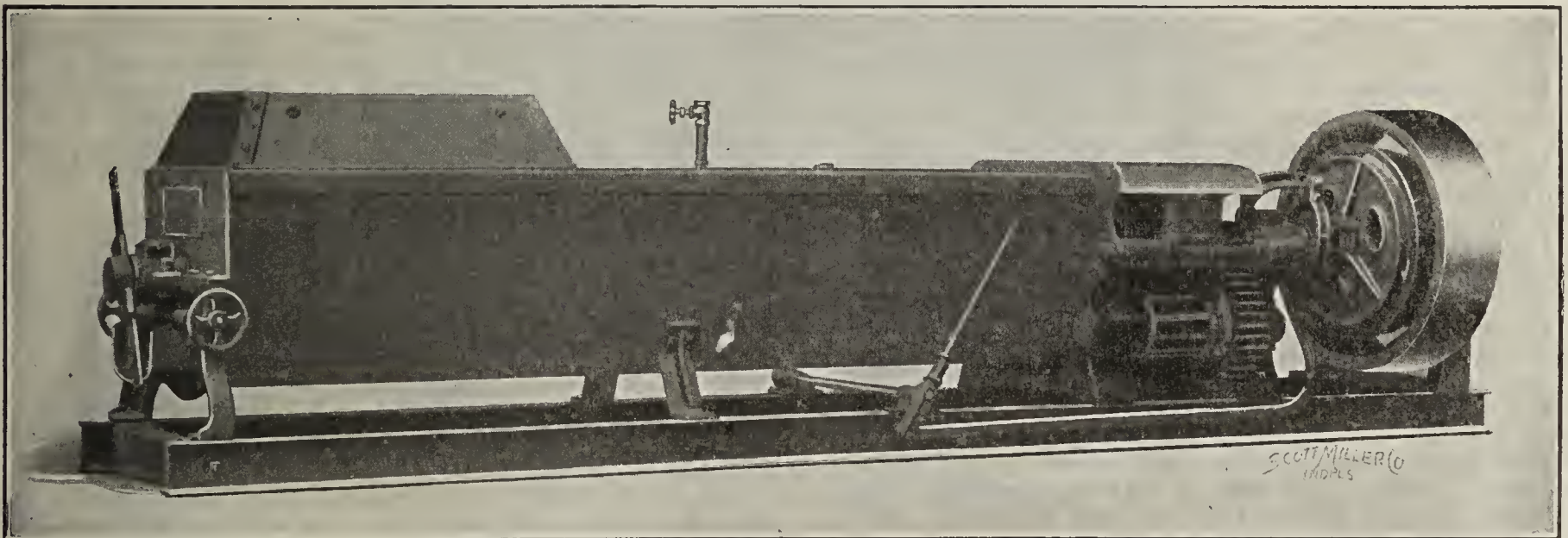
Although the daily capacity of their present plant is 80,000 brick, Johnston Brothers will erect a twin plant at Clayworks, Iowa, this winter at a cost of approximately \$50,000, thereby doubling the capacity and at that only meeting the present demands of the market for the hollow block brick and fireproofing, which is manufactured exclusively at their plant. The past year has been, without doubt, the best for business since the organization of the company ten years ago. The output since January 1, 1909, could have been sold twice and then leave the hook filled with orders. It is upon the strength of this condition, the prospect for increased activities in the building world next year, and the market de-

(Continued on page 686.)

Good Stiff Mud Brick Machinery.



Symmetrical in design, of robust proportions, well suited to withstand the hardships to be expected in the average brick plant. Will successfully handle shales and other clays.



We build Pug Mills in various sizes. These have many features of excellence which we have not room to mention here. Write us.

E. M. Freese & Co.,

Galion, Ohio.

(Mention The Clay-Worker.)

See ads on pages 726 and 727.

EDITORIAL NOTES AND CLIPPINGS—Continued.

mand for the type of brick manufactured at Clayworks, that Johnston Brothers have decided to built the new plant.

The Builders' Brick Company, of Hertford, N. C., has been chartered for the purpose of manufacturing brick, constructing buildings, etc.

Charles W. Long has purchased the interest of his brother, C. C. Long, in the brick and tile plant at Washington, Iowa, and will now have sole charge of the factory.

The New Albany Brick Company, successors to the Butler Brick Company, at New Albany, Miss., have under consideration the erection of a number of new kilns and the installation of a dryer.

The Maritime Brick Company, with its headquarters at Pugwash, Nova Scotia, has had a steady summer's work. This company has had an output of about 5,000,000 bricks, of which they will only carry over about 1,000 until next spring.

The Parkwood Brick and Foundry Company is the name of a new concern recently incorporated at Birmingham, Ala. The company is capitalized at \$50,000. The officers are Baxter Rittenberry, president; Dr. Frank S. Pugh, vice-president; Mrs. Kate Rittenberry, treasurer; J. S. Kennedy, secretary.

The plant of the Malakoff (Texas) Press Brick Company has just been completed and is one of the finest and most thoroughly equipped stiff mud repress face brick plants in the state. Their present daily output is 25,000 finished brick. However, the plant is capable of turning out 50,000 face brick per day.

The manufacturers of fire bricks in the section of Pittsburgh, Pa., are working overtime, forcing their furnaces to the limit to keep even with the many orders coming in for bricks for work about the furnaces. Many thousands of fire bricks are used yearly for furnace linings, and with the great volume of business going to the iron and steel manufacturers the brickmakers are kept busy.

The Trumbull Brick Company, of Youngstown, Ohio, has been incorporated with a capital stock of \$50,000. Charles Crook, J. G. Butler, Jr., E. E. Klooz, J. B. Chambers and H. H. Hoffmaster are named as the incorporators. This is simply a reorganization of the company which has been controlled by the Portage Silica Company and has its plant at the same place. The offices of the company have been located at Warren, but will be moved to Youngstown.

The Fort Smith Vitrified Brick Company, Fort Smith, Ark., has received a contract from the Prairie Oil and Gas Company to supply 1,000,000 brick for use in building pipe line pumping stations at Kinta, Okla., and DeQueen, Ark. The line is now being built from the famous Glenn pool field in Oklahoma to the big refinery at Baton Rouge, La. It will require about the same amount of brick for two more stations which will be built on the line south of Fort Smith.

Street Commissioner Rutherford, who is operating the municipal tile factory at Natchez, Miss., reports that during the past month he has turned out from the plant 255 feet of 24-inch pipe and 210 feet of 12-inch pipe. In addition to seeing that this tile has been made, he has also superintended the laying and placing of it at points about the city where it was most needed. The cost of making the tiling is 37½ cents per foot, as against \$1.10 per foot previously paid by the city before going in for the tile factory.

Willis N. Graves, formerly superintendent of the Hydraulic Press Brick Company, died at his home in St. Louis, November 25, following a stroke of apoplexy. Mr. Graves had been connected with the Hydraulic Press Brick Company since its beginning in Memphis, Tenn., early in the sixties. At the organization of the firm in 1868 he was elevated from his position as press engineer to that of superintendent. He retired about six years ago, when he was general superintendent of all the works of the company. The officers of the Hydraulic Company acted as pall-bearers. Mr. Graves is survived by his widow and three children—Willis V. Graves, Albert M. Graves and Mrs. James S. Kuhn.

Edwin A. King, the kiln and dryer man, of Richmond, Va., is rebuilding the dryer of the Cliffwood Brick Company, of Cliffwood, N. J. The company is manufacturing soft mud brick and were not getting desired results with the dryer they had, so they sent their superintendent on a tour of inspection. After visiting the Davis yard at Richmond, where a King dryer is in operation, and the yards at Washington, D. C., where King dryers are being operated, he returned to Cliffwood with the recommendation that Mr. King

be employed to rebuild their dryer and bring it up to the standard of the dryer in the Davis yard.

The Hobart Pressed Brick Company, of Hobart, Okla., has been incorporated with \$10,000 capital stock by W. W. Howland, E. C. Murphy and E. S. Jones.

The North Collins (N. Y.) Brick Company has filed articles of incorporation. The capital stock is placed at \$25,000 and the principal office of the company will be in Buffalo.

Mayor Hess, of Arkansas City, Kansas, is very anxious to have a brick plant located there. There is a good demand in that vicinity for building brick, and good shale abounds.

The Claud Brown Company, of Hendersonville, N. C., has certified to a change of name and will hereafter be known by and conduct business under the name of the Hendersonville Brick Company.

The New Superior Brick Company, of Rockford, Ill., has been granted a charter to manufacture brick and other clay articles and products. Its capital is \$25,000 and the incorporators are John E. Myers, W. W. Sawyer and E. W. Baker.

Two damage suits were lost by the Sheffield Brick and Tile Company, of Sheffield, Iowa, recently, when juries awarded Mrs. Henry Neal \$5,500 damages and Mrs. M. H. Gillett \$4,000. The husbands of both women were killed within a few days of each other while in the employ of the company. Mrs. Neal asked for \$25,000 damages and Mrs. Gillett for \$15,000.

The Superior Fire Lining Co., Trenton, N. J., has made some improvements to their plant; one is a conveyer which carries the clay to the crusher and saves a great deal of time and labor. Before it was wheeled around. The sheds are closed now, but will work all winter making fire brick and lining. They supply most all the potteries here, and have increased their capacity 25 per cent.

The Morrison-Trammell Brick Company's plant at Rome, Ga., has been sold to D. B. Hamilton, Jr., and C. C. Harper, who have organized the Standard Sewer Pipe Company and will manufacture sewer pipe. They will instal new machinery and increase the capacity of the plant, employing seventy-five men. Messrs. Morrison, Trammell and their associates will open a new brickyard on the West Side.

The Plymouth Clay Products Company, Fort Dodge, Iowa, has let the contract for the building of an aerial tramway from their plant to their clay deposit. The tramway will be one and one-half miles long and will extend across the Des Moines river. The contract calls for a tramway with a carrying capacity of 800 tons. This is probably the longest tramway used by a brick-making concern and will be built by the Consolidated Tramway Company, of Roanoke, Va.

The Preston Brick Company's plant at Hornell, N. Y., was almost wholly destroyed by fire December 8. The wind was blowing a terrific gale when the fire started so that by the time the firemen got to the place the factory was a roaring furnace, and it was only by hard work that the fire was confined to the factory buildings. As the plant had shut down for the winter season, and there was no fire in the kilns, the fire is supposed to be of incendiary origin. The loss is estimated at \$40,000, on which there is about \$20,000 worth of insurance. The plant will probably be rebuilt.

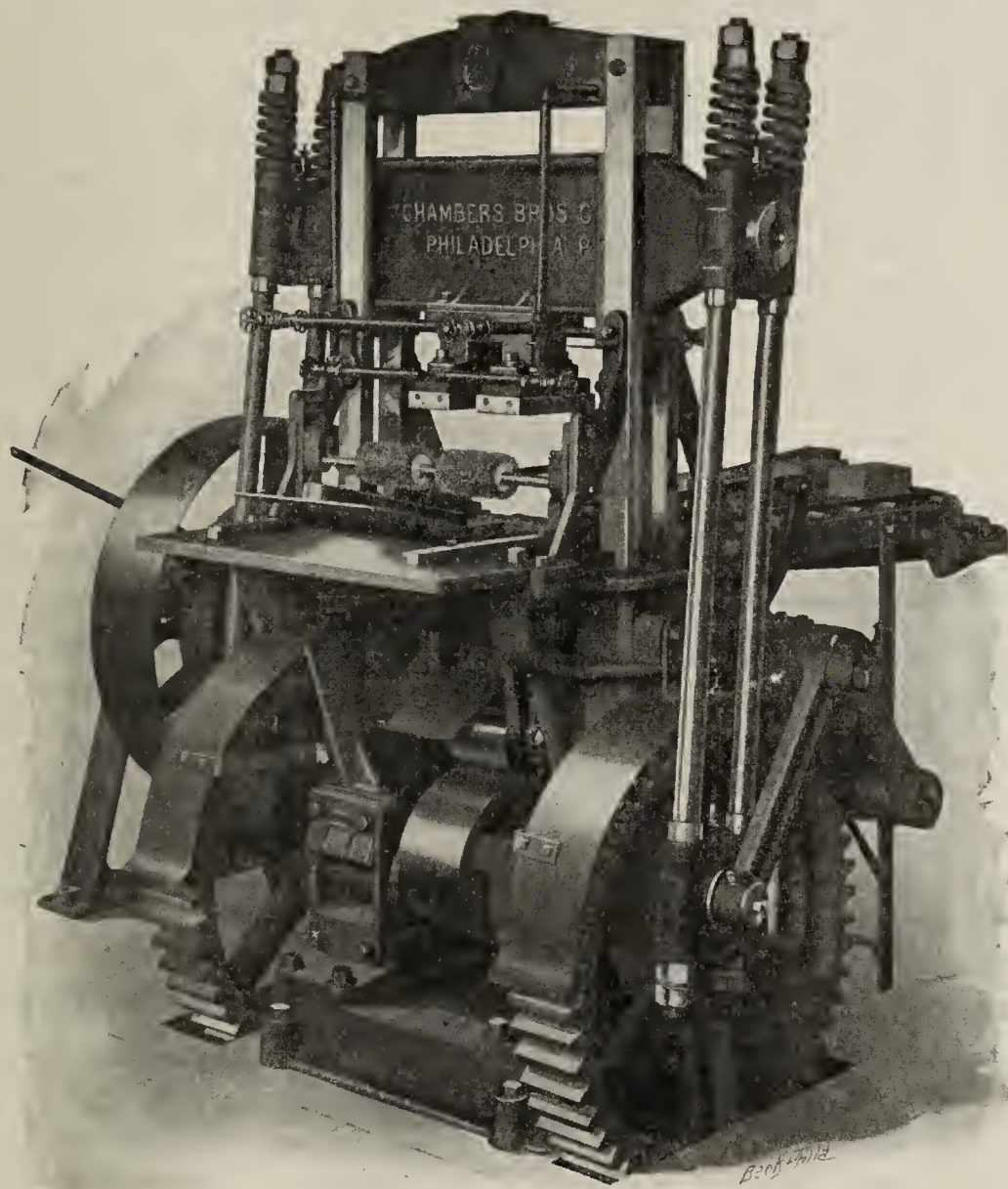
The J. Walter Miller Co., Trenton, N. J., who make 100,000 brick a day, are not piling any, but ship as fast as made. There are 2,000,000 brick on hand and last month they shipped 2,500,000 brick. They have orders on hand to keep the men going all winter. Ten additional chambers have been added to the kiln, each chamber holding 25,000 brick. All the kilns are continuous and down-draft. The brick is handled in New Jersey and Pennsylvania by J. F. Brady, of Trenton, and in Philadelphia by A. S. Baird, 1002 Crozier building. They have 650 acres of the finest clay beds.

The Crossley Manufacturing Co., Trenton, N. J., is pushed to the limit with work, and has fitted up a majority of the largest potteries in the country. A lot of machinery is ready now to ship. A complete plant was set up for the Architectural Tile and Faience Company, of Perth Amboy, N. J., which is a new concern, also for the Artistic Porcelain Company here, also changes in John Maddock & Son's plant. The Crossley Company was reorganized a year ago. David Crossley is president, D. M. Miller secretary, and Senator H. D. Levett treasurer. Machinery is shipped all over the country, to Canada, and many foreign countries. They are the sole manufacturers for the United States and Canada for the new hygienic scouring machine, patented, by Mr. Wainford, of England.

End-Cut or Side-Cut Street Pavers

CHAMBERS THE LINE MACHINES

For Both Methods of Manufacture.



KEYSTONE REPRESS.

A direct acting Crank Press, with a very smooth and easy feed and delivery mechanism in exact time with the pressing machinery.

A strong and powerful press with shaft diameters and all wearing surfaces of liberal dimensions. Cam roller $5\frac{1}{2}$ inches diameter on pin of large diameter and of easy access. Hardened steel faced cam.

CHAMBERS BROTHERS COMPANY,

PHILADELPHIA, PA. CHICAGO, ILL.

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NEW POSTAL REGULATIONS.

Subscription to Magazines, Etc., Must be Paid in Advance or They Cannot be Mailed for Less than Four Cents Per Pound.

UNCLE SAM has declared through the Postmaster General that hereafter magazines, etc., can only be mailed at the one cent per pound rate to bona fide subscribers who have paid for same in advance. To all others, including subscribers to The Clay-Worker who are delinquent more than four months, the postage rate after April 1st, will be increased to four cents per pound. With The Clay-Worker, this means four to five cents extra per copy, or an additional cost of fifty cents per year.

In consequence of this ruling by the postmaster general, we are obliged to ask our subscribers who have not already done so to at once remit the amount due us on subscription account. Naturally we regret this virtual prohibition by the government of the extension of credit to subscribers. We ourselves would gladly continue the same method of carrying our subscribers and awaiting their convenience as in years gone by, but this new postal regulation forbids that, without an extra charge of 50 cents per annum to cover the extra postage required.

The demands of the Postal Department are inexorable, and must be observed.

HERE IS THE RULING:

Postal Laws and Regulations—Second Class Matter, Sec. 436.

"Expired Subscriptions: ¶ 3. A reasonable time will be allowed publishers to secure renewals of subscriptions, but unless subscriptions are expressly renewed after the term for which they are paid, within the following periods: * * * * Monthlies, within four months; they shall not be counted in the legitimate list of subscribers, and copies mailed on account thereof shall not be accepted for mailing at the second class postage rate of one cent a pound, but may be mailed at the transient second-class postage rate of one cent for each four ounces or fraction thereof, prepaid by stamps affixed."

Our readers will observe that we have no choice but must comply with the above ruling; consequently we earnestly request subscribers to The Clay-Worker to aid us in the matter by remitting promptly in advance, as the Government requires.

FOR SALE, WANTED, ETC.

Advertising rates in this Column 25 cents a line, or 4 cents a word each insertion; about seven words make a line. Cash should accompany the advertisement to insure insertion. No ad inserted for less than \$1.00.

WANTED—Competent, experienced and successful man for superintendent of established dry pressed brick plant. Address
BOX 12—M. S.,
Care Clay-Worker.
12 2 d

FOR SALE—One heavy iron Quaker brick machine, 6,500 pallets, dump table, trucks and barrows. The above is almost new.
F. H. SCHULTZ,
Treyner, Ia.
12 1 cm

FOR SALE.
Machinery of wire-cut brick plant or entire plant containing seven acres. Address
JAMES HUGHES,
227 Harrison Ave.,
Liberty, Mo.
12 1 cm

FOR SALE—One four-mold Simpson dry press. One Fernholtz pulverizer. One 40 h. p. engine and boiler; also shafting and pulleys, etc. Have extra mold box for dry press. Will sell all or any part.
ED SHANNON,
Shellsburg, Ia.
12 1 cm

WANTED.
First-class foreman for soft-mud brick plant using surface clays and up-draft kilns. Must be a man familiar with all details, who can handle men and get results. Send references, state experience fully and salary obtained. Address
BOX 12—J. W. S.,
Care Clay-Worker.
12 1 d

FOR SALE.
One 125 h. p. slide-valve engine, \$450.
One 35 h. p. Chandler & Taylor slide-valve engine, used three months, \$300.
One No. 2 Dean pump, \$35.
One No. 1 Bau Vard duplex pump, \$35.
One No. 1 Giant American Clay Machinery Company brick machine, \$300.
EAST PEORIA BRICK CO.,
Peoria, Ill.
12 1 d

WANTED—A superintendent desires to make a change in the spring. Twenty years' experience in the manufacture of face, fire, hollow brick and electric conduits. Thoroughly understands the erection, equipment and operation of such plants. Good manager of labor; excellent references from present company. Would invest some money. Address
BOX 12—J. H. S.,
Care Clay-Worker.
12 2 c

FOR SALE—Complete modern brickmaking plant in good, live city. Excellent opportunity for right parties. Can be sold on reasonable terms. Address Box 11-S, 11 3 cm.
Care Clay-Worker.

WANTED—A good second-hand sewer pipe press with about 44-inch diameter steam cylinder and 20-inch clay cylinder. Quote prices, stating make and condition. Address
BOX 12—O. B.,
Care Clay-Worker.
12 1 c

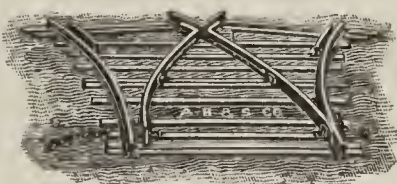
FOR SALE—Modern soft-mud brick plant, 30,000 capacity. New Potts outfit. Abundance of clay for red or cream brick. Rack and pallet system, Martin dryer, up-draft kilns, private switch, etc.
ZERRENNER BROS.,
New London, Wis.
12 3 c

FOR SALE.
Dry press, stiff-mud brick and tile plant. Nineteen acres of splendid shale; white, cream, pink and red brick can be made. Near main street.
BUCKLEY BRICK AND TILE CO.,
Montrose, Col.
12 1 dm

WANTED.
To buy one second-hand two or four-mold dry press brick machine; must be in first-class shape. Address
STANDARD BRICK CO.,
909 Broadway,
Mayfield, Ky.
12 1 d

WANTED—Position by a man skilled in every detail of the manufacture of dry-pressed or stiff-mud face or paving brick. Can give for reference some of the best brick firms in the United States. Am open for a position as superintendent with some good firm. Address
BOX 12—REX,
Care Clay-Worker.
12 1 cm

FOR SALE AT A BARGAIN—Controlling interest or complete ownership of face brick factory forty miles from Pittsburg. In full operation and making money. Established trade. Capacity, 35,000 daily.
G. H. WALKER,
929 Schofield bldg.,
Cleveland, O.
12 3 cm



SWITCHES FOR SALE.
Right and left-hand one, two and three-way switches of various gauges, radius and weight rails at special prices.
THE ATLAS CAR AND MFG. CO.,
Cleveland, Ohio.

SPLENDID OPPORTUNITY.

To buy an interest in or entire pottery plant manufacturing utility and art ware; superior clay; unlimited quantities free for three years.

HOT SPRINGS POTTERY CO.,
Hot Springs, Ark.
12 2 dm

FOR SALE, CHEAP—Revolving cylinder clay or sand dryer, Cummer & Son, manufacturers; capacity, 80 to 100 tons dry material in ten hours. Only used short time; good as new. Changed to shale, don't need it.

MACKLIN & STEVENSON,
McVeytown, Pa.
12 2 cm

FOR SALE.
Brick plant in central Wisconsin with 116 acres of good clay land. This plant has a capacity of 25,000 to 30,000 brick a day, and has excellent shipping facilities, together with an excellent local demand, which it practically controls, in a town of 8,000 people. This is a fine proposition for the right party, and is offered at a bargain. Address
BOX 11—J. G.,
Care Clay-Worker.
11 tf d

FOR SALE.
Stock in a good, up-to-date brick plant in western Kentucky, equipped with first-class dry press machinery and down-draft kilns. Good locality, and is a paying proposition to the man who understands the business. Address
LOCK BOX 271,
Keyser, W. Va.
10 3 cm

WANTED—To sell all or a two-thirds interest in an up-to-date brick plant and coal mines; excellent shale for street block; 12 feet of fire clay; two coal mines, both operated with compressed air machines, with more orders than can be taken care of. An excellent proposition and a good money-maker. Good reasons for selling; manager wants to go south. If interested, write to
BOX 11—A.,
Care Clay-Worker.
11 3 cm

FOR SALE.
The entire plant of the Powhatan Clay Manufacturing Company. Operating continuously since 1893 at Clayville, Va., manufacturing the universally known Powhatan front bricks. The entire plant, embracing 800 acres of land, employes' buildings, store, good will, etc., is offered on advantageous terms. Address
14 N. SEVENTH ST.,
Richmond, Va.
11 3 cm

(Continued on next page.)

Books for Brickmakers

"CLAY GLAZES AND ENAMELS" H. R. Griffen.....	\$5.00
"BRICKMAKERS' MANUAL," Morrison and Reep.....	3.00
"CLAYWORKERS' HANDBOOK," by Author of Chemistry of Clayworking.....	2.00
"CLAYS," Heinrich Ries.....	5.00
"VITRIFIED PAVING BRICK," H. A. Wheeler, E. M.....	1.00
"BRICKLAYING," Owen B. Maginnis.....	2.00
"BURNING BRICK IN DOWN-DRAFT KILNS," W. D. Richardson.....	1.00
"KILN RECORDS," W. D. Richardson.....	1.00
"PRACTICAL FARM DRAINAGE," C. G. Elliott.....	1.50
"ENGINEERING FOR LAND DRAINAGE," C. G. Elliott.....	1.50

Mailed, postage free, on receipt of price.

T. A. RANDALL & CO., Publishers, Indianapolis, Ind.

FOR SALE, WANTED, ETC.

FOR SALE.

A full equipment of extra heavy pipe and fittings for a six-track steam brick dryer. All in good order and at a bargain.
GRAVES SHALE PAVING BRICK CO.,
11 2 d Birmingham, Ala.

WANTED—Experienced man with capital to take share in pressed brick concern and assume management at good salary. Good clay, large market, bright prospects. Location, western Canada. Address

9 tf d CELTIC,
Care Clay-Worker.

FOR SALE.

Two second-hand American Clay Machinery Co. No. 2 automatic cutters.

One Western Wheel Scraper Co. No. 2 jaw crusher.

HYDRAULIC PRESS BRICK CO.,
Brazil Branch,
9 tf d Brazil, Ind.

FOR SALE—Brickyard within easy hauling distance of Chicago. Thirteen acres; well-equipped plant. Would lease or make good proposition to man to make investment and run the plant.

FRANCIS LASLOW,
79 Walnut st.,
Oshkosh, Wis.

WANTED—Manager for a brickyard in Florida who understands red clays, burning of refractory clays in continuous kilns, and has had experience in manufacturing facing brick and terra cotta. Write, giving full particulars and stating salary.

JACKSONVILLE BRICK CO.,
11 2 d Jacksonville, Fla.

FOR SALE.

Brick and Tile Cutting Wires made with automatic machine loops double-twisted, any gauge. Any length of wire made to order. The cheapest wire now made. Sample sent on request.

12 1 dm P. MITTLER,
Robbins, Tenn.

FOR SALE AT HALF PRICE.

One 125 h. p. Erie City engine.
One 100 h. p. Watertown engine.
One 80 h. p. Farquahar engine.
One 100 h. p. Watertown boiler.
One dummy locomotive.
One Chambers No. 7 brick machine, end-cut.
One Chambers pug mill.
Two Chambers disintegrators.
One Chambers clay conveyer, about 40 feet.
One Raymond hand repress brick machine.
Two hundred single deck, all-iron, metal-deck, brick dry house cars.
One 60-inch fan.
One 100-inch fan.
Four thousand feet 8-pound steel rail.
Fourteen thousand feet 12-pound steel rail.
Seven thousand feet 32-pound steel rail.

All of the above in good condition.

12 3 cm FLINT RIVER BRICK CO.,
Albany, Ga.

WANTED—Position as head man of a reliable brick firm. Understand the business of all grades of brick. Best of references. Address BOX 12—J. A. F.,
12 1 c Care Clay-Worker.

BIG BARGAIN.

FOR SALE—Dry press; standard make. Guaranteed good as new. Immediate delivery. Price, \$550. Address

12 3 cm W. KUTSCHE,
Denver, Col.

FOR SALE CHEAP.

One hot blast.
One 125 h. p. slide valve engine.
One Smith vaile duplex pump.
All in good running order.

9 tf cm BLACK RIVER STARCH CO.,
Black River Falls, Wis.

FOR SALE—A large tract of valuable land near Perth Amboy containing heavy deposits of fire clays and sand. Unsurpassed facilities for manufacturing and shipping by rail and water from premises. Address

11 3 cm WM. TUNISON,
23 Smith st.,
Perth Amboy, N. J.

FOR SALE.

One 35 h. p. engine and boiler; one steam pump; one hoisting drum, disintegrator, pug mill and soft-mud brick machine; 24,000 leg pallets; iron rails, cable, pulleys, shafting, molds, etc.; Two Raymond tempering wheels. HOUCK BRICK CO.,

12 3 cm R. F. D. No. 8,
Springfield, O.

THE UNITED STATES PENITENTIARY,
LEAVENWORTH, KANS.,

has installed a new stiff mud brickmaking plant, therefore offers for sale, at very low figures:

One Ross-Keller six-mold dry press brick machine, with all belts, shafting, pulleys, screens, etc., as now attached.

One 65 h. p. slide valve steam engine.
The above property is in good condition for brickmaking. Inspection and correspondence invited.

9 tf d R. W. McCLAUGHRY, Warden,
Leavenworth, Kans.

WANTED

One clay crusher with elevating belt and two side-dump cars. Must be in good condition. Address

12 1 c DELTA BRICK AND TILE CO.,
Delta, Ia.

CASH FOR YOUR PLANT OR BUSINESS.

No matter where located. If you want to buy, sell or exchange any kind of real estate or business anywhere, at any price, address FRANK P. CLEVELAND,
965 Adams Express Building.

12 tf d Chicago, Ill.

WANTED—Position as manager or superintendent by a man of fourteen years' experience. Familiar with the details of making brick, pavers, tiles and hollow ware. Best of references. Address

12 1 d BOX 12—R. W.,
Care Clay-Worker.

DRYER CARS.

We have on hand a lot of second-hand single and double-deck dryer cars. These cars are almost new, having been used but a short time, and are in A1 condition. We offer them at a very low price for quick sale. THE ATLAS CAR MFG. CO.,
2 tf L Cleveland, Ohio.

FOR SALE—Two No. 43 Auger brick machines; two No. 20 automatic side-cut cutters; 35-foot offbearing belt with each; two No. 51 pug mills; 342 double-deck cars. Cause of selling, changing from stiff mud brick to soft mud. All the above made by the American Clay Machinery Co. Also one side-cut Bensing cutter.

THE KING ENGINEERING CO.,
Richmond, Va.

POSITION WANTED—Correspondence solicited from parties desiring superintendent or manager of a clayworking plant. I am experienced in the manufacture of face and paving brick, stiff mud process, sewer pipe, drain tile and electrical conduits. A technical training in addition to many years of practical experience in the clay industry. First-class references. Address

11 6 c BOX 11, L. S.,
Care Clay-Worker.

NOTICE and WARNING.

We have entered suit in the Circuit Court of the United States, Western District of Pennsylvania, against R. H. Lynn, J. L. Hammond, J. B. Hammond and F. R. Hammond, trading as the Bolivar Terra Cotta Company, at Bolivar, Pa., on an infringement of our patent No. 685,410, for veneering bricks, and will prosecute all and every infringement of this patent.

ANDREW RAMSAY,

Mount Savage, Md.

BRICKS WITHOUT STRAW.

This is the time of the year for making the improvements necessary to prepare you to fill the orders for brick that you will get next year.

We can help you improve your product, your process, or your plant. Write us.

CHEMICAL ANALYSES. PHYSICAL TESTS.

Charleston Testing Laboratory

Charleston-Kanawha, W. Va.

Consulting Ceramic Engineers and Chemists.

BRICK BUSINESS GETTING BETTER.

Big Doings Next Spring.

Don't let good times catch you unprepared in the way of kilns. Examine your kilns to see if they are up to the service of a busy season. If not, or if you contemplate increased capacity, ask us about

THE IMPROVED FLUE SYSTEM KILN.

Absolute Draft Control. Fuel and Time Economy.

We will contract the construction of your kilns or, if you prefer local builders, we will sell the license, working plans, specifications, etc., at a very reasonable rate.

This kiln is making money for every owner.

The selection of a kiln is vital to success.

Don't make a mistake—WRITE US NOW—particulars cheerfully furnished. Address

GEO. E. SNOWDEN & CO., New Cumberland, W. Va.

A LITTLE BOOK ABOUT FT. SMITH.

Send to-day for it and find out about the opportunities offered in the most rapidly growing city between St. Louis and Dallas.

Did you see our advertisement

"We Want Factories?"

We want more now.

Ft. Smith. Arkansas, offers to capital seeking investment in factories and to individuals or corporations having manufacturing plants and looking for new locations, the best proposition possible to-day in the United States.

Ft. Smith is situated in the center of almost fabulously undeveloped wealth of semi-anthracite coal; the largest gas field in the United States; vast deposits of building stone; and in the close neighborhood of approximately twenty billion feet of commercial hard and soft wood timber.

Ft. Smith has forty thousand population—nine railways—and is the natural and logical center for the manufacturing and wholesale market for the Southwest.

Ft. Smith has splendid homes, fine schools and churches, beautiful parks and public buildings, and every street in the city is being paved. It presents magnificent opportunities for both labor and capital. Jobbing trade now \$40,000,000 annually.

We want factories of every kind and character, and will make every reasonable concession to parties desiring to locate here.

For further information address the

COMMERCIAL LEAGUE, Ft. Smith, Arkansas.

WHEN WRITING TO ADVERTISERS

Mention the CLAY-WORKER.

FOR SALE CHEAP.

Four-Mold Ross-Keller Brick Press; good working condition.

CHISHOLM, BOYD & WHITE CO.,
57th and Wallace Streets,
Chicago.

FOR SALE.

One 9-foot dry pan, iron frame.
One revolving screen.

T. B. TOWNSEND BRICK AND CON-
TRACTING CO.,
10 tf d Zanesville, Ohio.

FOR SALE AT A BARGAIN.

An up-to-date drain tile and brick plant in a live town. Demand for entire output at good prices. Owner is old and wants to retire, and will sell it very low. Address

S. H. RECORD,
9 4 c Charleston, Ill.

KAOLIN.

Guaranteed largest and best deposit in America. Location near Salt Lake City, Utah. Material equal to imported article. Liberal arrangements will be made with capable party for its exploitation and development. Address

AMERICAN CHINA CLAY CO.,
P. O. Box 122,
10 3 d Salt Lake City, Utah.

REBUILT ENGINES AND BOILERS.

The cleanest and most thoroughly rebuilt. All our own and in stock. Not scattered everywhere and merely listed.

ENGINES—

Corliss: 20x48 Wheelock, 20x42 Allis, 18x42 Hamilton, 16x42 Lane & Bodley, 14x36 Lane & Bodley, 14x24 Wright, 12x30 Allis, etc.

Automatic: 16x32 Buckeye, 15x14 Erie, 14½x16 Buckeye, 14½x14 Ball & Wood, 13½x15 Taylor, 13x16 Erie, 12x14 Green, 12x12 N. Y. Safety, 10x10 Fisher, 9½x12 Leffel, 8x10 Allfree, etc.

Throttling: 18x24 Erie, 16x20 Chandler & Taylor, 16x18 Erie, 14x24 Atlas, 13x16 Chandler & Taylor, 14x14 Lewis Vertical, 10x16 Owens, Lane & Dyer, 10x12 Industrial, 9x12 Ajax, 8x12 Climax, 7x12 H. S. & G., 6x8 Clark, etc.

BOILERS—

Stationary: 72x19 High Pressure, 72x18 Standard, 72x16, 66x16, 60x20, 60x16, 54x16, 54x14, 54x12, 48x16, 48x14, 44x14, 40x12, 40x9, 36x16, 36x10, etc.

Fire Box: 80, 60, 50, 40, 35, 30, 25, 20, 16, 12, 10 and 8 h. p., etc.

Vertical: 50, 40, 35, 30, 25, 20, 16, 12, 10, 8, 5, and 3 h. p. etc.

HEATERS—

All sizes, Open and Closed.

PUMPS—

All sizes, Single and Duplex.

SAW MILLS, LATH MILLS, EDGERS, CUT-OFF SAWS, TANKS, ETC. Write for list.

Also full assortment of new machinery.

Sole manufacturers of the celebrated "LEADER" INJECTORS and JET PUMPS. Send for circular.

THE RANDLE MACHINERY CO.,
1735 Powers st., Cincinnati, Ohio.

WANTED—Position by a thoroughly practical and competent brickyard superintendent. At present running a yard of 100,000 capacity per day. Address
BOX 12—FLASH,
12 1 d Care Clay-Worker.

WANTED—Eighty to 100 dryer cars, single-deck, size 24-inch gauge and slat top. Also 1,000 feet of track complete. Anyone having this in good second-hand stuff, quote prices to
THE HUMBOLDT BRICK CO.,
12 1 d Humboldt, Neb.

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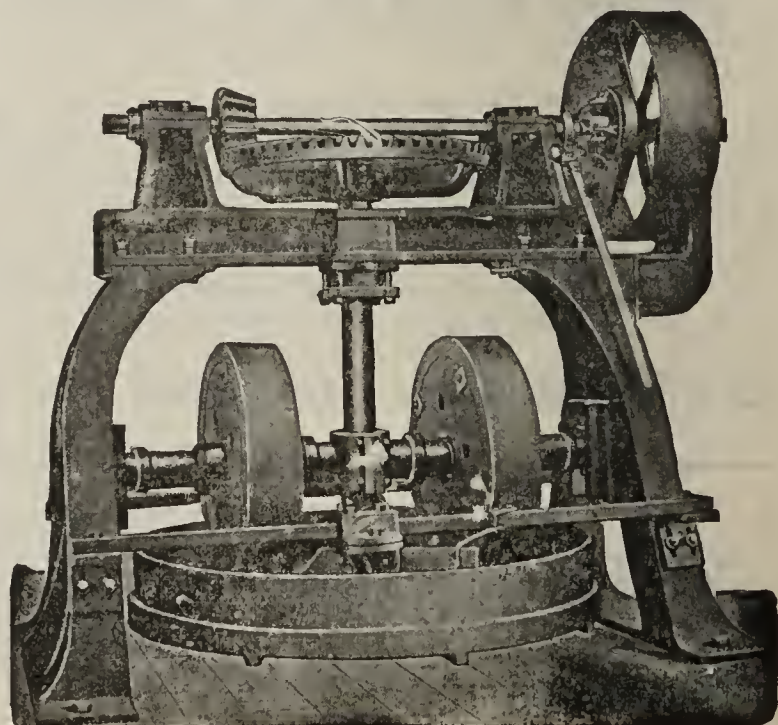
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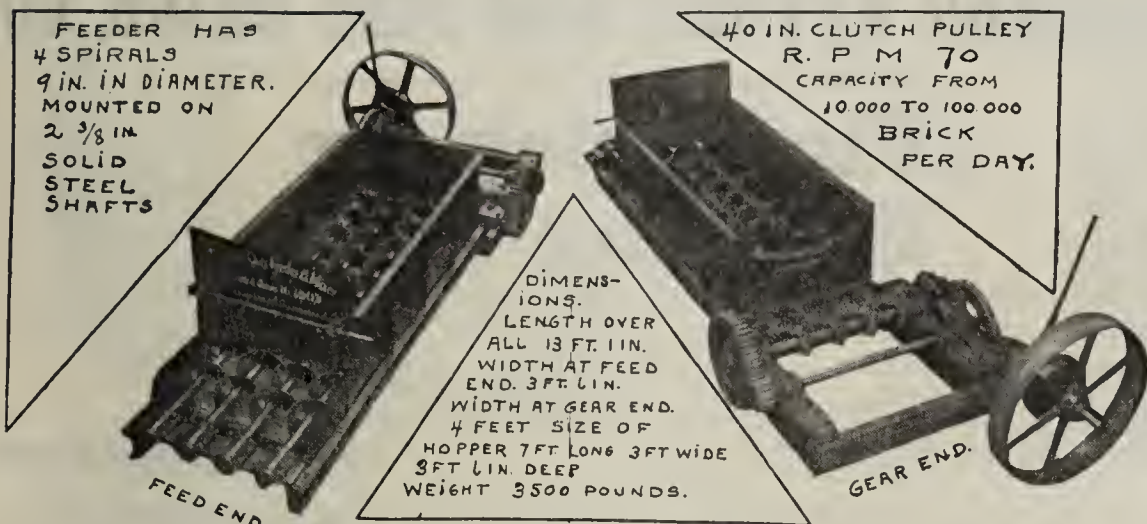
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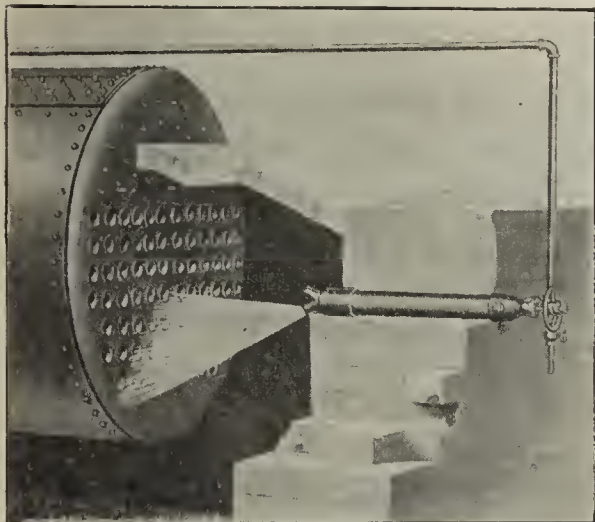


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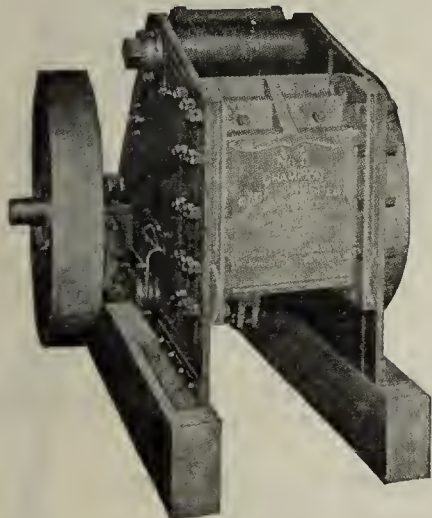
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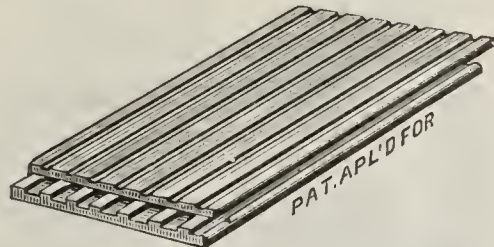
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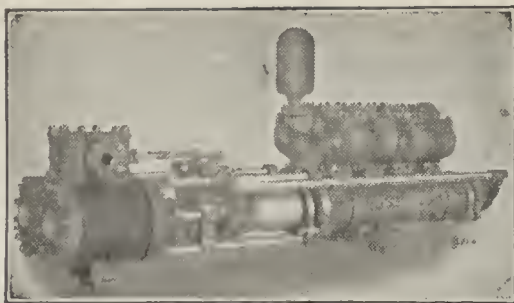


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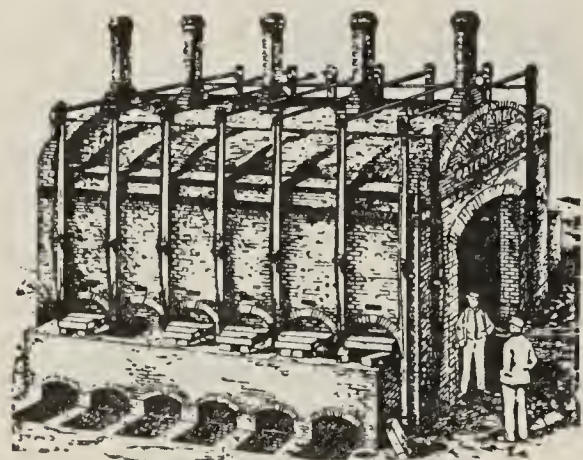
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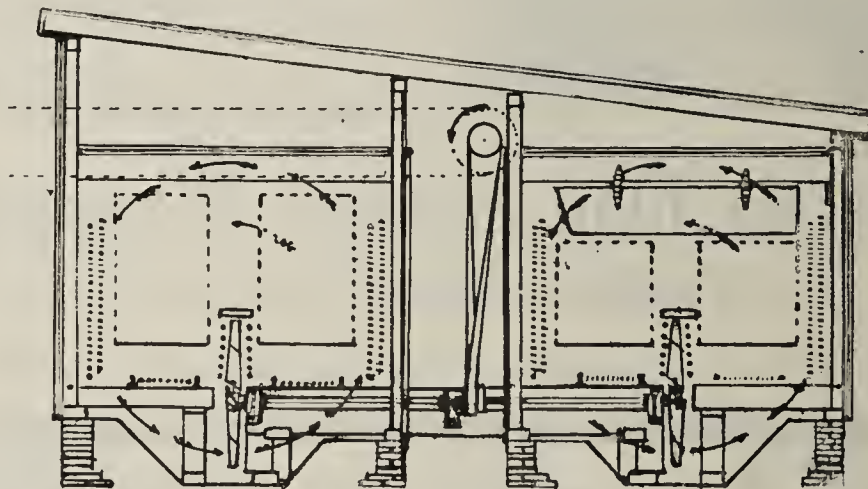
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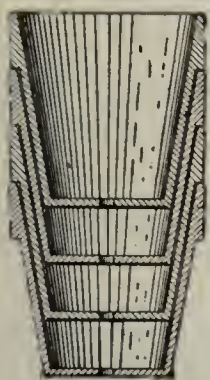
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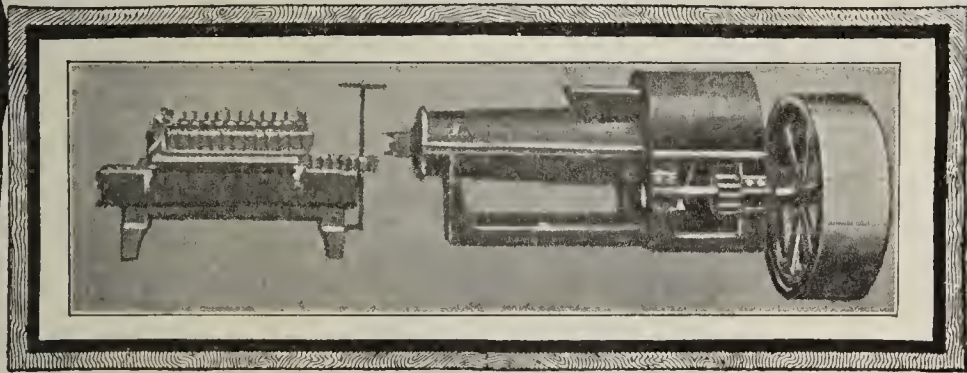
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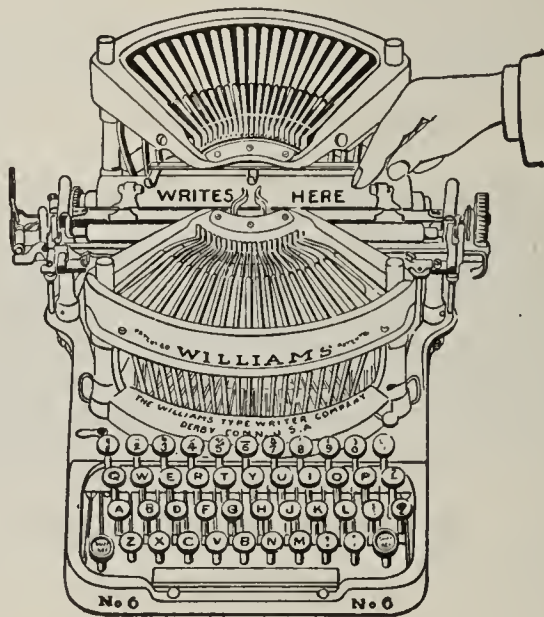
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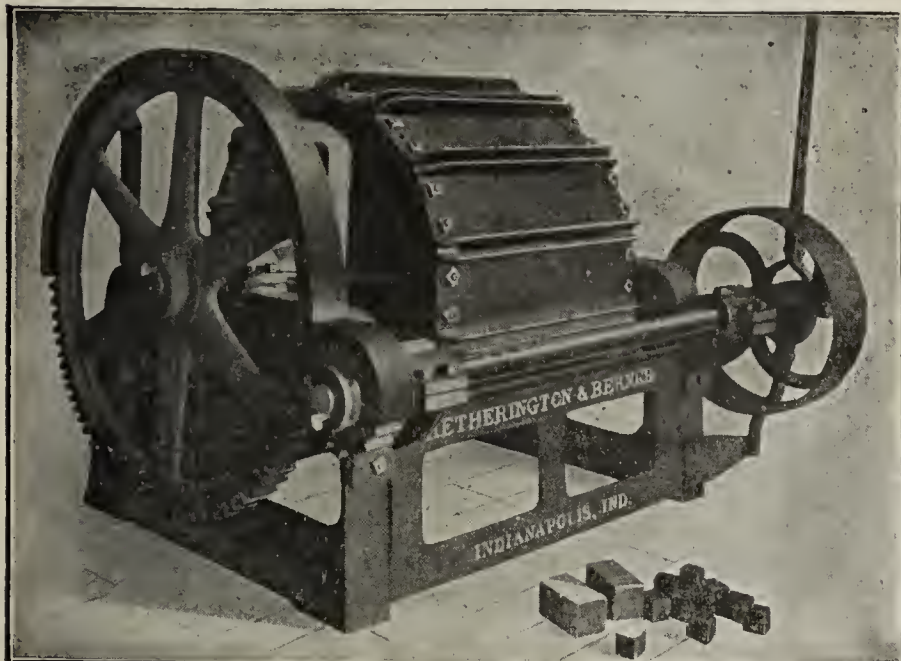
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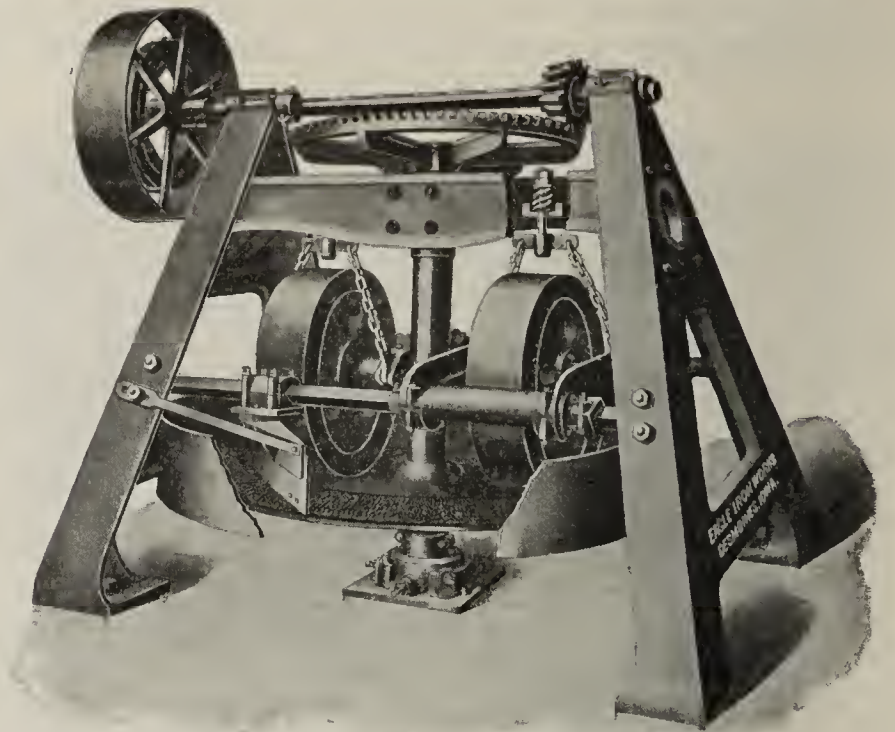
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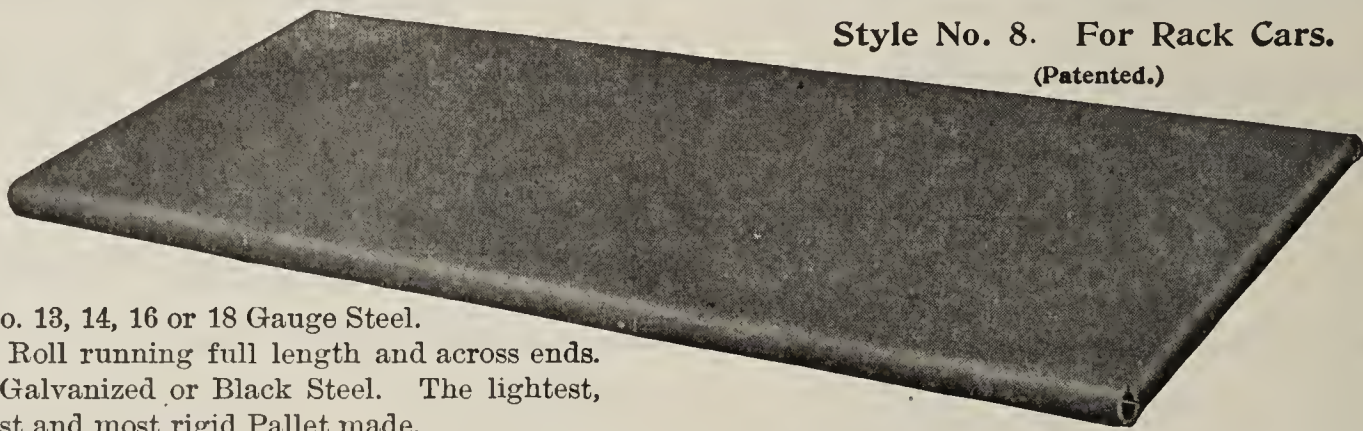


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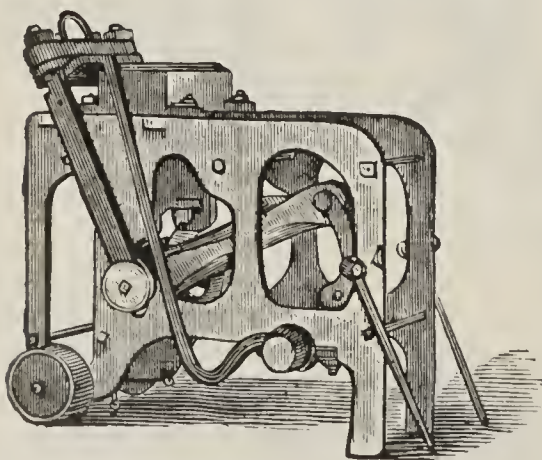
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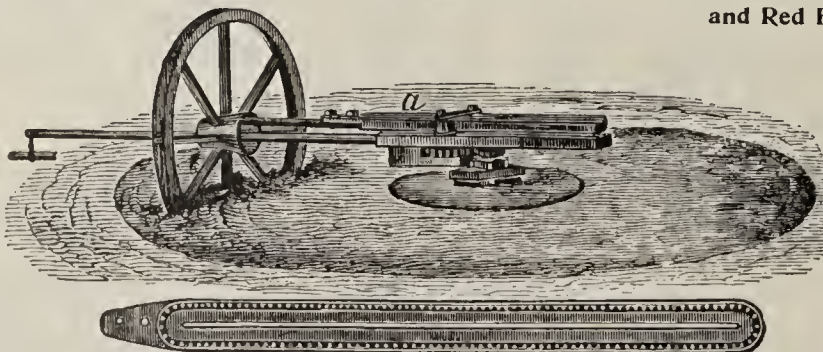
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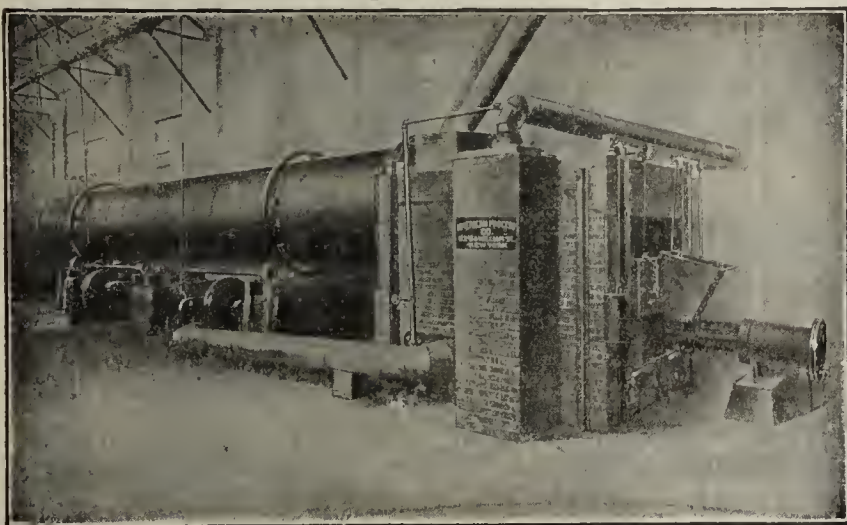
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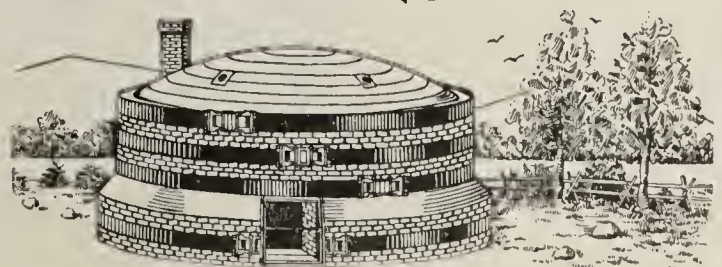
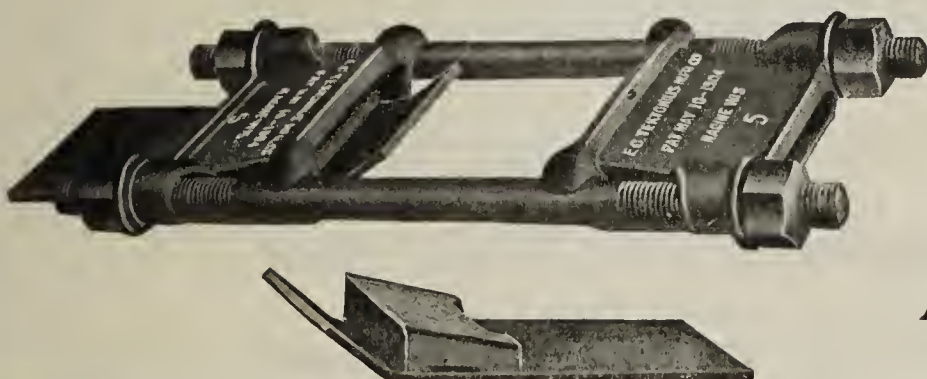
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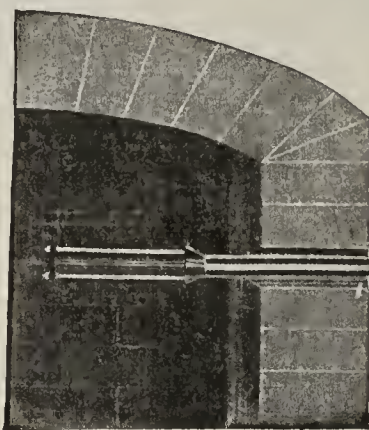
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AND FIRE CLAY PRODUCTS

Manufactured out of highest grade Missouri semi-flint fire clay.

A large stock of Number One brick and shapes always on hand.

Let us quote you prices and we will save you money.

Samples sent upon request. Address

Mexico Brick & Fire Clay Co.

MEXICO, MISSOURI.

NOTICE

The trade mark

TAPESTRY

is registered in the United States Patent Office and is our exclusive property. It brands our best burned clay products. All manufacturers and dealers, except those selling our goods, are warned against infringement.

Boston **FISKE & CO., Inc.** New York

Pulsometer Steam Pump



THE IDEAL

means of removing water from **Clay Pits**, Excavations, Foundations, etc., and any other place where the liquid to be handled contains much

Grit, Mud or Sediment.

No engine, belt, oil, packing or special foundation required; just a steam pipe from boiler—that's all. Operates as well suspended as stationary.

Simple. Handy. Durable. Effective.

Illustrated, descriptive catalogue gratis.

PULSOMETER STEAM PUMP CO.,

14 Battery Place, New York.

Chicago Office, 223-231 No. Jefferson St.

YOU CAN'T BEAT IT



RED GEM INK WRITING PENCIL.

The only satisfactory fountain pencil that writes like a lead pencil and may be carried in the vest pocket, being leak proof.

A perfect writing, ever ready Ink Pencil, dwarf size, beautiful terra cotta finish, that always writes at first touch at any angle, and retails at	\$2.50
The best of all trade papers, The Clay-Worker, for the following twelve months	\$2.00
This total value of	\$4.50

WE NOW OFFER FOR THIRTY DAYS BOTH
THIS RED, DWARF SIZE, INK WRITING
PENCIL AND THE CLAY-WORKER FOR

\$3.00

DON'T DELAY BUT SEND CHECK TODAY and get the handiest and most perfect ink writing pencil and a whole year's good reading. Address

T. A. RANDALL & CO.,

211 North Hudson Street, Indianapolis, Ind.

Wilful Waste Makes Woeful Want

If you should like to know how we can save you money by re-vitalizing your set plaster-of-paris, drop us a line, or, if you should like to know how to make money by operating a territory on a royalty basis we will be glad to furnish full particulars upon request.

We operate under U. S. patents and have patents in all of the principal foreign countries.

All of the by-products of gypsum familiar to the trades are manufactured by us, and we are supplying a large demand for special materials.

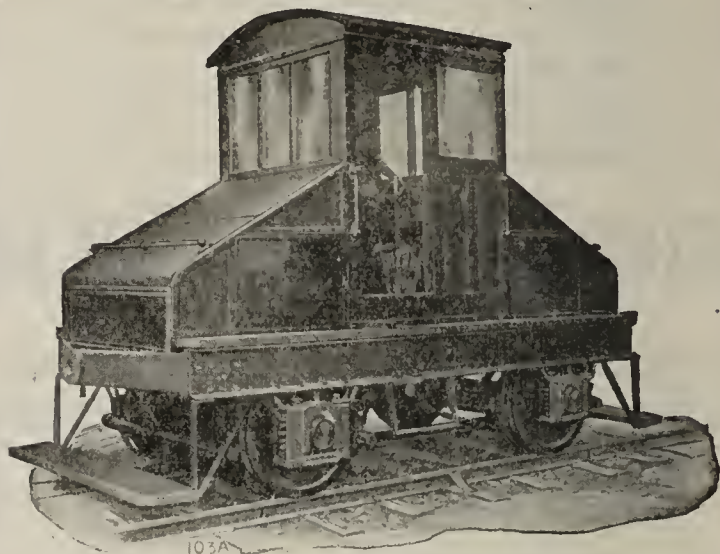
Eastwick Plaster Co.,

Works:
East Falls,
Philadelphia, Pa.

New York City.

City Office:
Builders' Exchange,
Philadelphia, Pa.
Washington, D. C.
Trenton, N. J.

Milwaukee Locomotives (Gasoline Driven) for CLAY HAULAGE.



Type "C" Milwaukee Locomotive.

Milwaukee Locomotives are built for all gauges of track and in sizes from 2½ to 30 tons. They are always ready for instant use, are very efficient and economical to operate. Reduce haulage costs to the minimum, as their operation is much cheaper than animal haulage.

Write for Publication No. 1003.

Milwaukee Locomotive Mfg. Co.

New York. Milwaukee, U. S. A. Chicago.

ECONOMY

True economy is the sure road to wealth today, just as it has ever been. This is generally conceded, but it is not always certain what constitutes true economy. In the clay line it is oftentimes real economy to replace small capacity machinery with larger in order to meet the demands of a rapidly growing trade. Really it is false economy not to do so, for one must spend money to make money. He is wise who recognizes this truth and promptly replaces outgrown machinery with that equal to his needs. Then, after you have done the wise thing in enlarging and refitting your plant, don't let the outgrown machinery go to the scrap pile. It may prove a boon to some manufacturer starting a small capacity plant for which it will be ample. There are many such and they may be reached through an ad in the For Sale columns of The Clay-Worker. Be wise, not wasteful, and instead of letting your outgrown machinery rust out, advertise it in The Clay-Worker (see forms of ads under heading "For Sale, Wanted, Etc.," in this issue) and convert it into

CASH

To insure insertion in current issue, copy
should be furnished early in the month.

Address

THE CLAY-WORKER,
Indianapolis.

THE STANDARD BRICK MACHINES

—MANUFACTURED BY—

A. M. & W. H. WILES CO.,
GRASSY POINT, ROCKLAND CO., N. Y.

These Molding Machines have been in constant use for over fifty years, and are the original of all machines now made that use a Pug Mill and Square Press, and are the best and most economical machines now in use.

Being established here in 1845, and having made a specialty of the manufacture of all articles used in Brickmaking since that year, and constantly making improvements, we are now enabled to offer parties the best and cheapest now in use.

We have fitted up many of the largest Brick Yards in the United States, and are prepared to furnish everything used in the manufacture of Brick in any part of the country. Correspondence solicited.

THE BOSS SYSTEM

of
BURNING BRICK

Involves the Original Principle

Of Applying
Air Under Pressure.

Burns all first-class
hard brick
at
40% reduction in
fuel cost.

Write for
catalog.

JOHN C. BOSS,
Office:

Elkhart, Ind.
Monger Bldg.

We Manufacture a Complete Line of BRICK MACHINERY

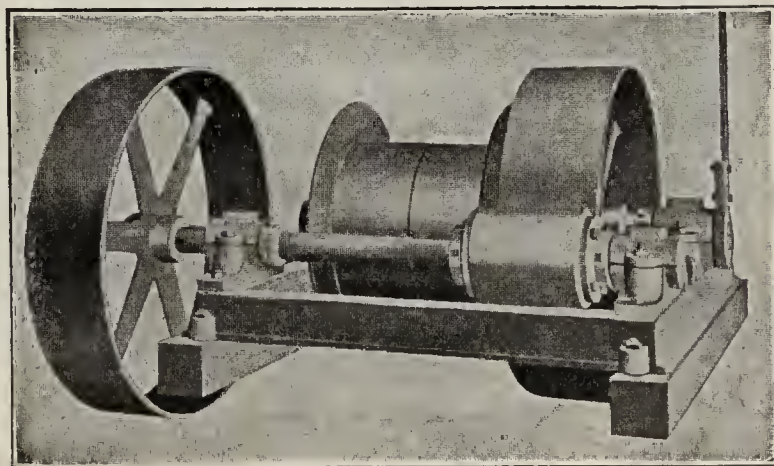
And Make a Specialty of Equipping Yards.

Roller Bearing Brick Barrows.

Everybody duplicates orders; they must be used to be appreciated.

Price \$7.50 each.

Stock size wheel, 20 inches diameter.
(If wanted, 18 inches.)



Our Direct Driven Self-Contained Winding Drum is a Labor-Saver.

For catalogue and any further information address

JAMES W. HENSLEY,

Successor to S. K. Fletcher.

Indianapolis, Ind.



Steam Shovels,

Railroad and Traction Trucks,

all sizes and suitable for all
classes of work.

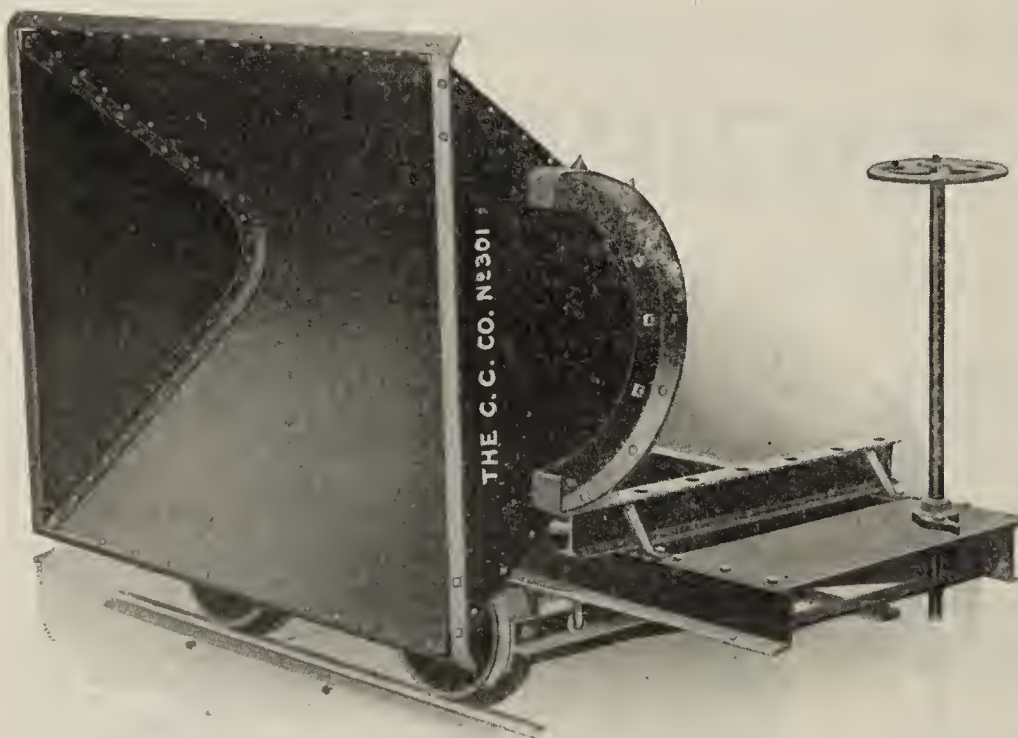
Placer Mining Dredges, River, Harbor and Ditching Dredges.

For information write

The Marion Steam Shovel Co.,

671 West Center St., MARION, OHIO.

GEORGE W. BARNHART, Western Mgr.
718 Monadnock Bldg., San Francisco, Cal.
F. H. HOPKINS & CO., Agents,
Montreal, P. Q.



NO. 301 ROCKER DUMP CAR.

CLEVELAND DUMP CARS ARE RIGHT.

We can convince you of that
fact without difficulty through
a trial order.

Many satisfied users will also
corroborate this statement.

These cars are properly bal-
anced, strongly constructed,
run easily and clear the load
thoroughly.

Note these features carefully
in purchasing your equipment.

The Cleveland Car Co.

WEST PARK, OHIO.

Manufacturers of Industrial Railway Equipment for all Classes of Service.

**Handle Your Clay
With One Man and**

The Thew Steam Shovel.



Type No. 2—For Shales and Fire Clays.

Especially adapted for brickyard requirements. The shovel operates in a complete circle, enabling material to be delivered at side or in rear at will. The Dipper is hung from a horizontally moving carriage and can be adjusted to cut to any desired level.

Only One Operator Required.
Wire Cables used instead of Chains.
Strictly First-Class in every Detail.

Made in four sizes.
Mounted on Car Wheels
or Traction Wheels.

Economical for brickyards 30,000 to 40,000 daily capacity. Operated by one man for outputs up to 125,000 brick per day.

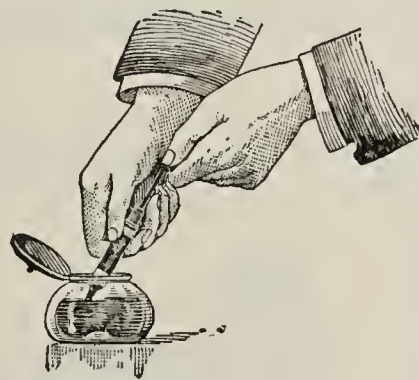
WRITE US FOR CATALOGUES OR INFORMATION.

THE THEW AUTOMATIC SHOVEL CO., LORAIN, OHIO.

**REMARKABLE
OFFER**

We will send this famous Gold Pointed pen, post paid, and THE CLAY-WORKER for one year, to any address in the United States and Canada for

\$3.00



The New Way.

“POST” SELF FILLING CLEANING FOUNTAIN PEN.



The Latest Fountain Pen.

Guaranteed by Makers.

NO FILLER. NO LOST TIME. NO SOILED FINGERS. PERFECT. SIMPLE.

GEN. LEW. WALLACE: The author of “Ben Hur” wrote, “I have tried every kind in the market and unhesitatingly give the preference to the “Post.”

JUDGE LUTHER L. MILLS, CHICAGO: The “Post” Fountain Pen is the Best I have ever used; simple, reliable, durable.

DR. JOSIAH STRONG: The great author of “Our Country” says: “I have been hunting for twenty years a perfect fountain pen; have tried many, and they have tried me; but the “Post” leaves nothing to be desired.



The Old Way.

THE CLAY-WORKER, INDIANAPOLIS, INDIANA.

The "EXCELSIOR" CONTINUOUS KILN

IS WITHOUT DOUBT THE MOST UP-TO-DATE CONTINUOUS KILN YET DESIGNED IN EITHER THE NEW OR THE OLD WORLD.

IT IS THE OUTCOME OF YEARS OF PRACTICAL TECHNICAL EXPERIENCE AS KILN BUILDERS AND CERAMISTS.

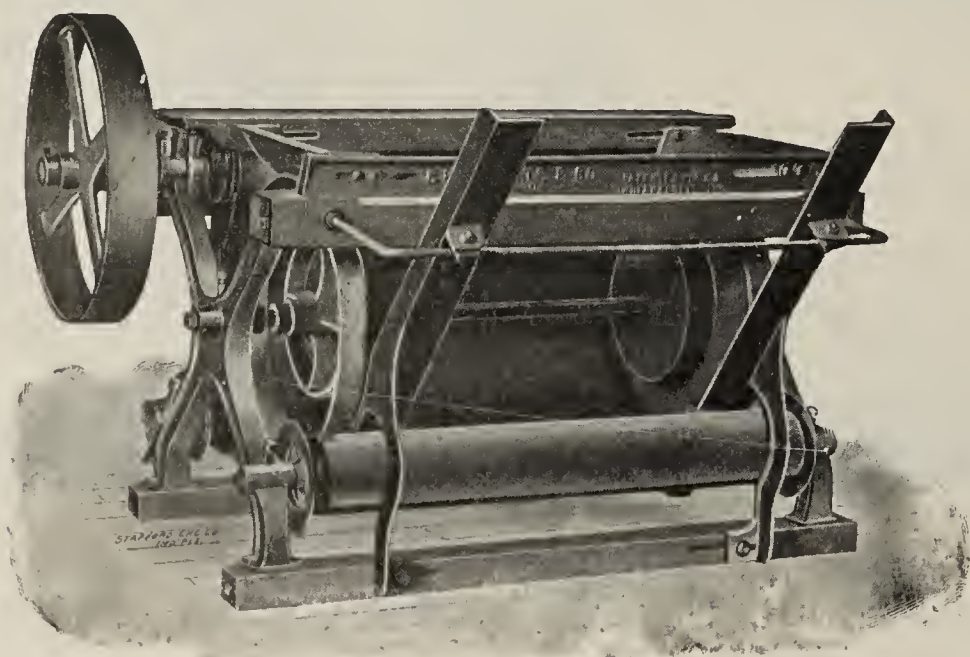
IT IS ECONOMICAL IN FIRST COST [THE CHEAPEST CONTINUOUS KILN IN THE WORLD.]
IT IS ECONOMICAL IN ACTUAL AREA TAKEN UP.
IT IS ECONOMICAL IN FUEL AND LABOR.

IT IS A DRYER AS WELL AS A KILN
AND IT WILL GIVE **ANY** OUTPUT REQUIRED.

If you want kilns of any description built in any part of the world consult

J. OSMAN & CO., Arundel Street, **London, England.**

Potts Mould Sanders



No manufacturer of sand mould brick can afford to be without this machine.

A boy can do the work. He can be taught in a few minutes to do the work.

Never strikes or demands shorter hours. Sands the moulds better than can be done by hand.

Simple in construction. Has no light, complicated parts to wear or break.

No unnecessary wear on moulds. One set of moulds used in a Potts Machine will outwear three sets used on any other machine on the market.

Fully guaranteed. Shipped subject to trial.

C. & A. POTTS & CO., Indianapolis, Ind.

HAIGH'S

IMPROVED NEW SYSTEM OF CONTINUOUS KILN.

Arranged to Suit All Locations. These Kilns Can be Seen Burning
**Roofing Tile, Drain Tile, Dry Pressed, Facing, Fire,
 Paving and Common Building Brick,**
 AND BURNING FROM 5,000 TO 200,000 BRICK PER DAY.

POINTS OF SUPERIORITY—Cheapness in Construction. Easy to Understand and Operate. Perfectly Free From Any Nuisance. Will save more than one-half the fuel and half the labor used on other kilns. Specially adapted for Utilizing Waste Heat for Drying Purposes, and which is being done most successfully.

This Kiln Can be Fired With Coal, Wood, Oil, Natural or Producer Gas.

For economical working, and quality of product, it has no equal.

HAIGH'S KILN ARCH RAISER.

Every Brickmaker Who Has Kilns With an Arch on Should Have One.

For further
 particulars
 address

H. HAIGH, Brick Works Engineer, Catskill, N. Y.



ESTABLISHED IN 1860.

JACOB BUHRER'S TECHNICAL BUREAU

CONSTANCE, GERMANY.

Constructor of Brick, Tile and Lime Works for Coal or Gas Firing, and Kilns with or without Dryer.

Buhrer's Shortened Kilns are the most suitable for burning ordinary and enameled goods, lime and cement.

In the **Buhrer Chamber Dryer** bricks and tiles made by the plastic process from clays of normal character may be dried, the former in one to one day and a half, and the latter in 4 to 5 days. In the **Buhrer Tunnel Dryer** green bricks may be very well dried in 24 hours with the waste heat of the kiln only.

The **Buhrer Fan** increases the output of existing kilns from 50 to 100 per cent of first-class goods, with great economy of fuel.

Buhrer changes existing kilns in accordance with his system for quick burning.

Clay Testing is done in a thorough way. Write for illustrated pamphlet.

ABOUT 1,000 KILNS HAVE BEEN CONSTRUCTED ALREADY.

"ENLARGED KILN."

Dear Sir:—

Lenzen, near Elbing, Prussia, July 4, 1908.

My Oblong Kiln has a fire gallery of 62 yards and is 4 yards wide and 2½ yards high. I got you to add to this kiln 4 chambers of your system of Shortened Kilns, thus increasing the total length of the fire canal to 109 yards. Previous to the change I could produce only grey-looking bricks; now I can turn them out red.

Under the superintendence of your Instructor-burner the enlarged kiln is giving excellent results. My burners used to do the burning in the old style, whereby the advance of the fire was very slow. The enlarged kiln, worked now by your fan instead of the old chimney, shows marked improvement on the draught-gauge, say ½ inch before the paper. Also the burning in the old kiln has improved a great deal. Formerly I always had two rows of badly-burnt bricks on the bottom of the kiln. Now all the bricks are well burnt and have a good ring. I am burning in 12 hours 8 rows on an average with fan-draught of ½ inch gauge depression, as the fan is kept working only 10 to 12 hours a day.

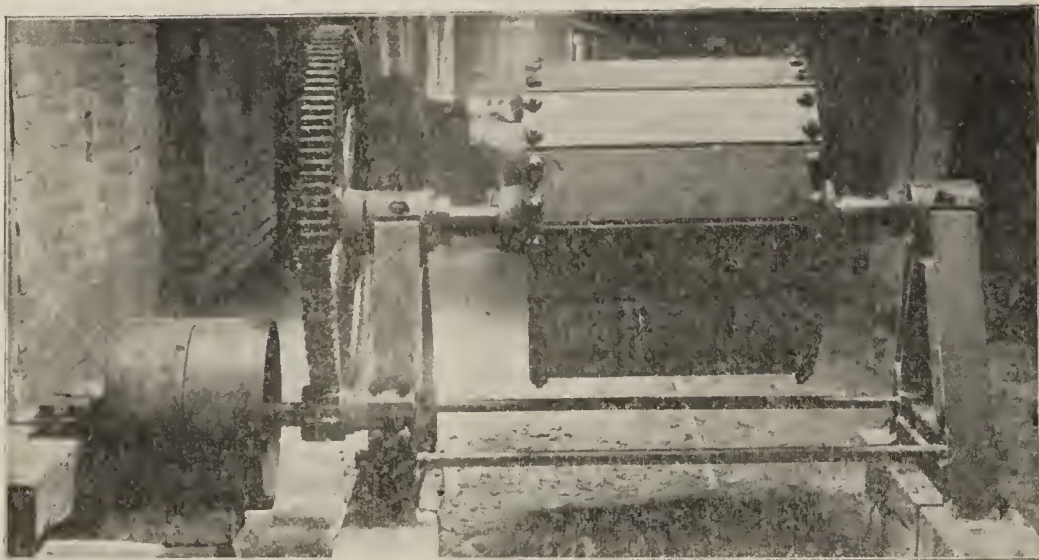
Last week I drew 110,000 bricks and I hope later on to turn out weekly 130,000 to 140,000. In the way I worked previously I could only burn 90,000.

I was very much pleased with your Instructor-burner.
 Mr. Jacob Buhrer, Constance.

Yours truly,
 (Signed) WILHELM STEFFEN.

All Paving Brick Manufacturers

should test their brick at their factory, not only to control rejections on the street, but as a guide in experiments to improve quality.



For making the
Standard Rattler Test use

The Ohio Standard Rattler.

PRICE

including charge of
shot

Without Pulley, \$115.00.

With Friction Clutch
Pulley, \$135.00.

— Or —

The Richardson Standard Rattler,

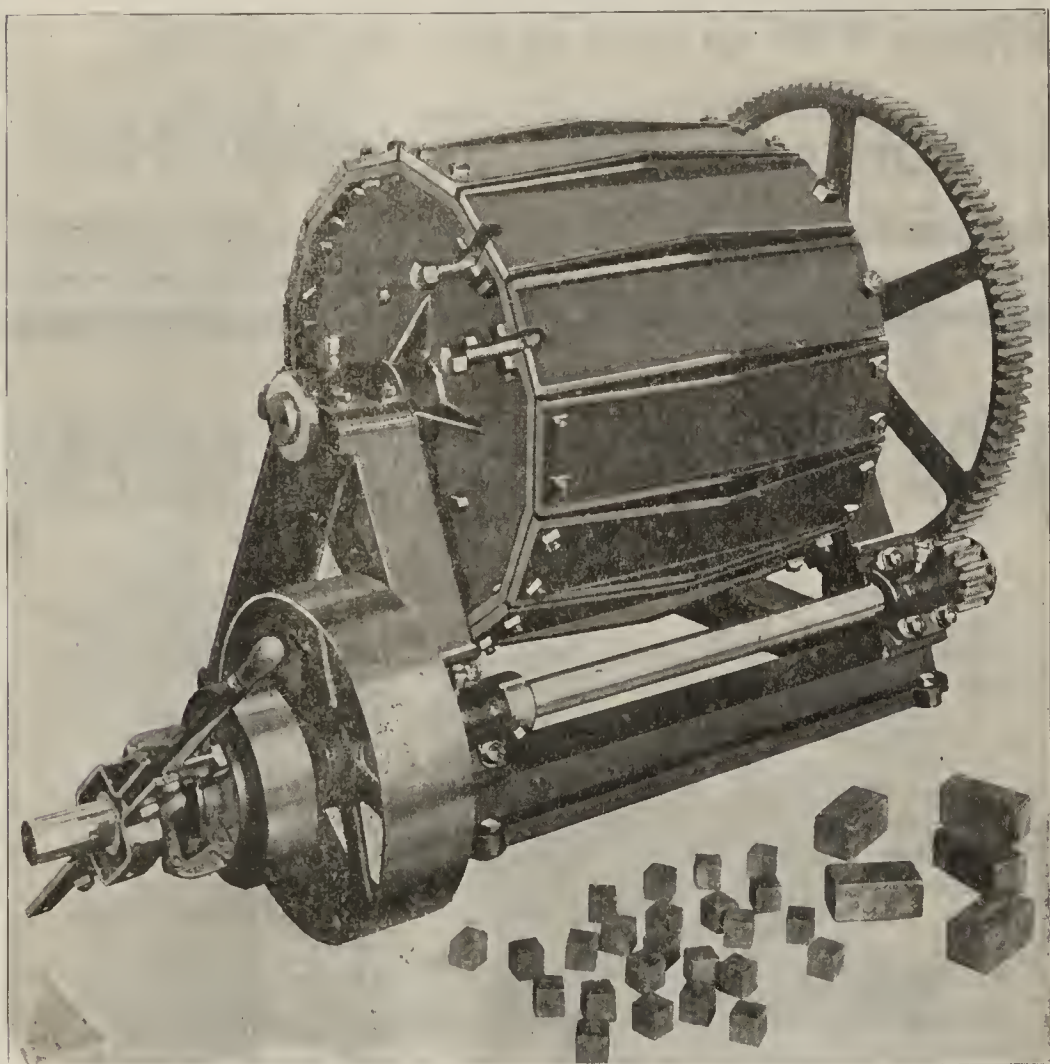
The Best Made.

PRICE

including charge of
shot

Without Pulley, \$140.00.

With Friction Clutch
Pulley, \$160.00.

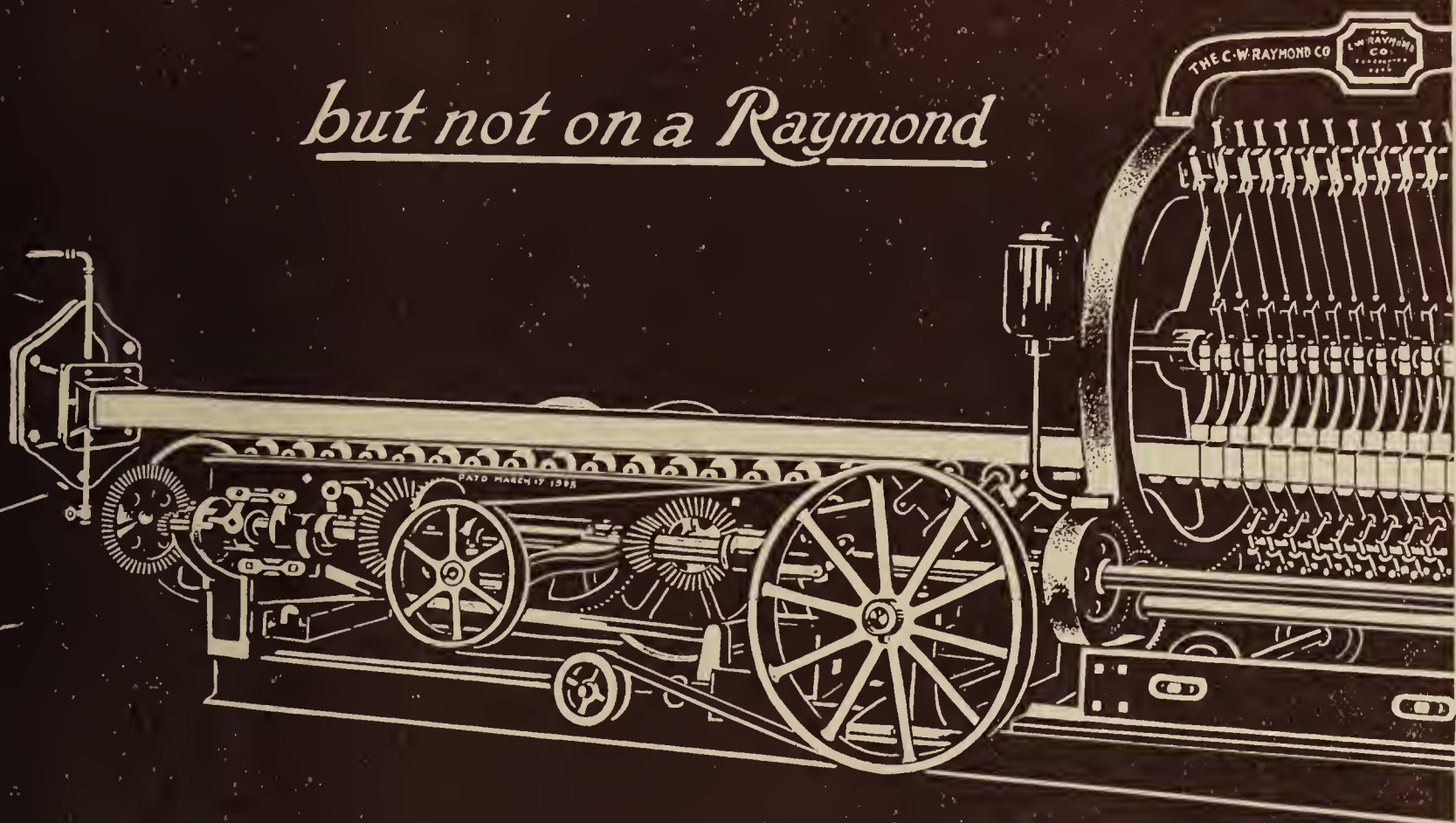


For complete specifications of these machines, a description of their superior features and full information on the subject of testing paving brick send for our pamphlet "Standard Tests for Paving Brick." DO IT NOW. This advertisement will not appear again.

The Ceramic Supply and Construction Co., Columbus, Ohio.

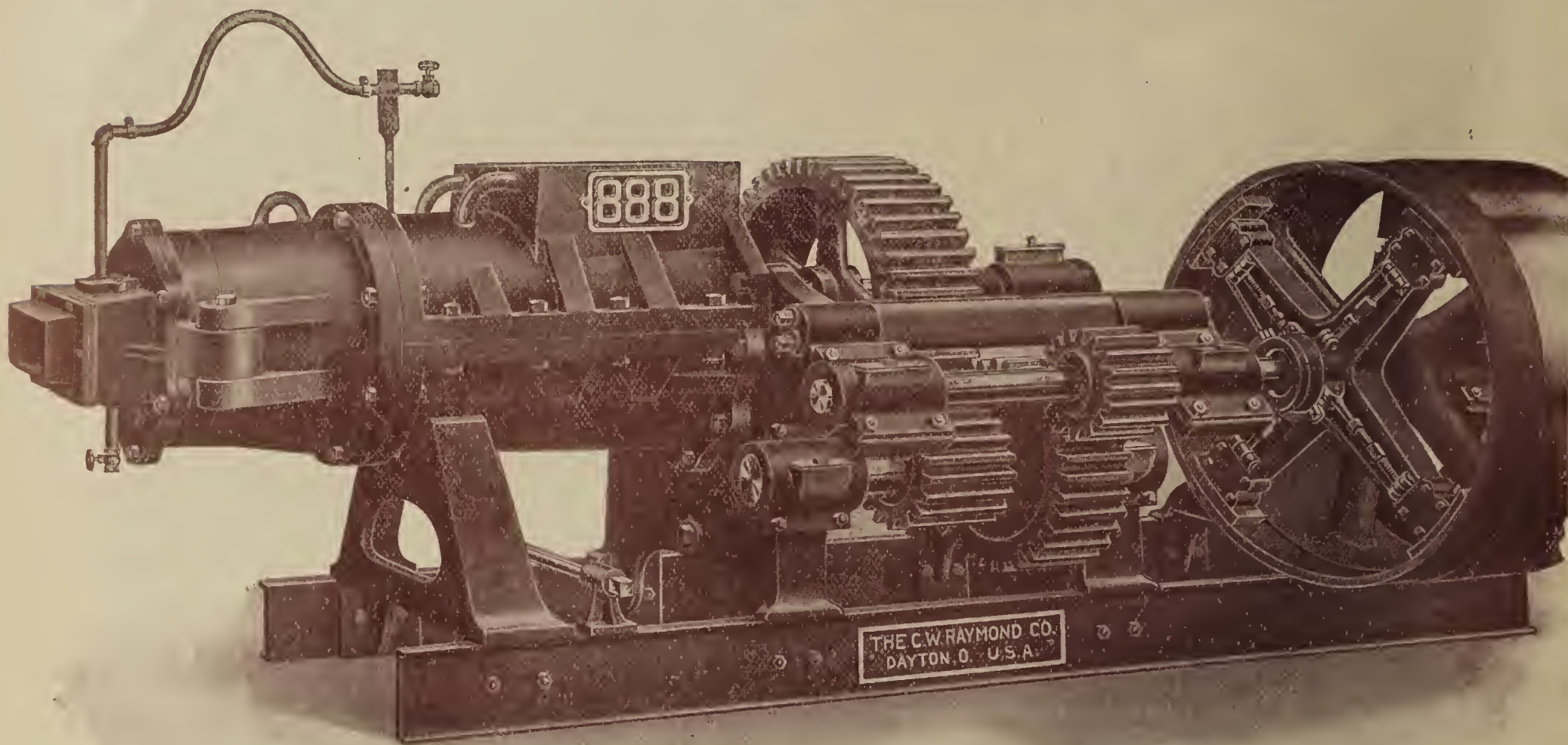
*"Lost —
between Dawn
and Twilight
one Golden Hour"*

but not on a Raymond



The C.W. RAYMOND CO.
Clay Working Machinery
DAYTON OHIO U.S.A.

DEMONSTRATED FIRST



The numerous novel features expressed in the construction of the "888" Brick Machine make it an ideal one. Not only the latest, but nearer perfection than has ever yet been attained in auger machine construction. Special features, such as the reduction of lamination, ease of operation, everlasting strength, minimum of horse power, and many other conveniences appear in it.

Claims made in its design have been thoroughly tried out under actual working conditions, in five widely divergent plants, manufacturing various products and operating entirely different materials.

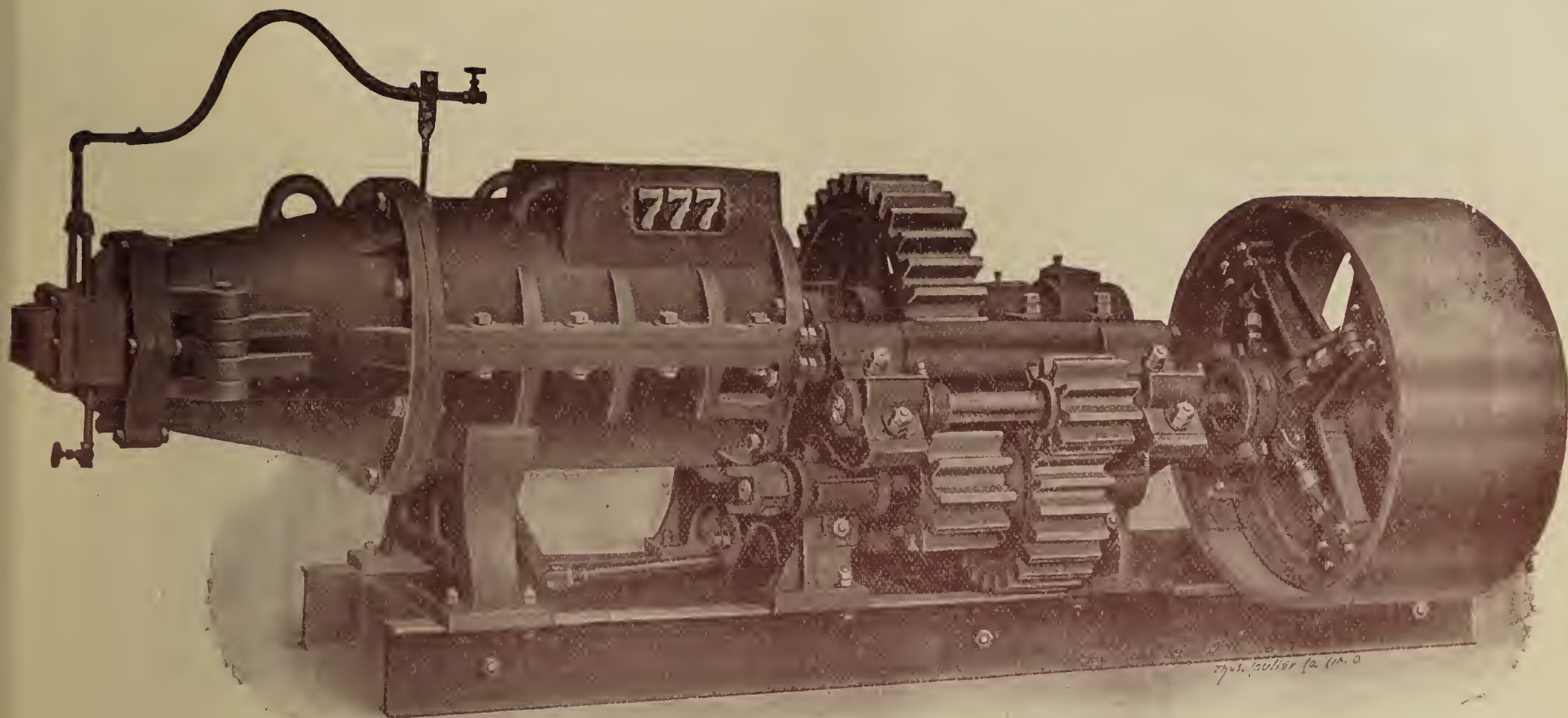
Merely the request will bring you a copy of our Exhibit No. 2101, which will explain these thoroughly demonstrated claims.

THE C. W. RAYMOND COMPANY

The Strongest Single Power in the World of Clay Working Machinery

DAYTON, OHIO, U. S. A.

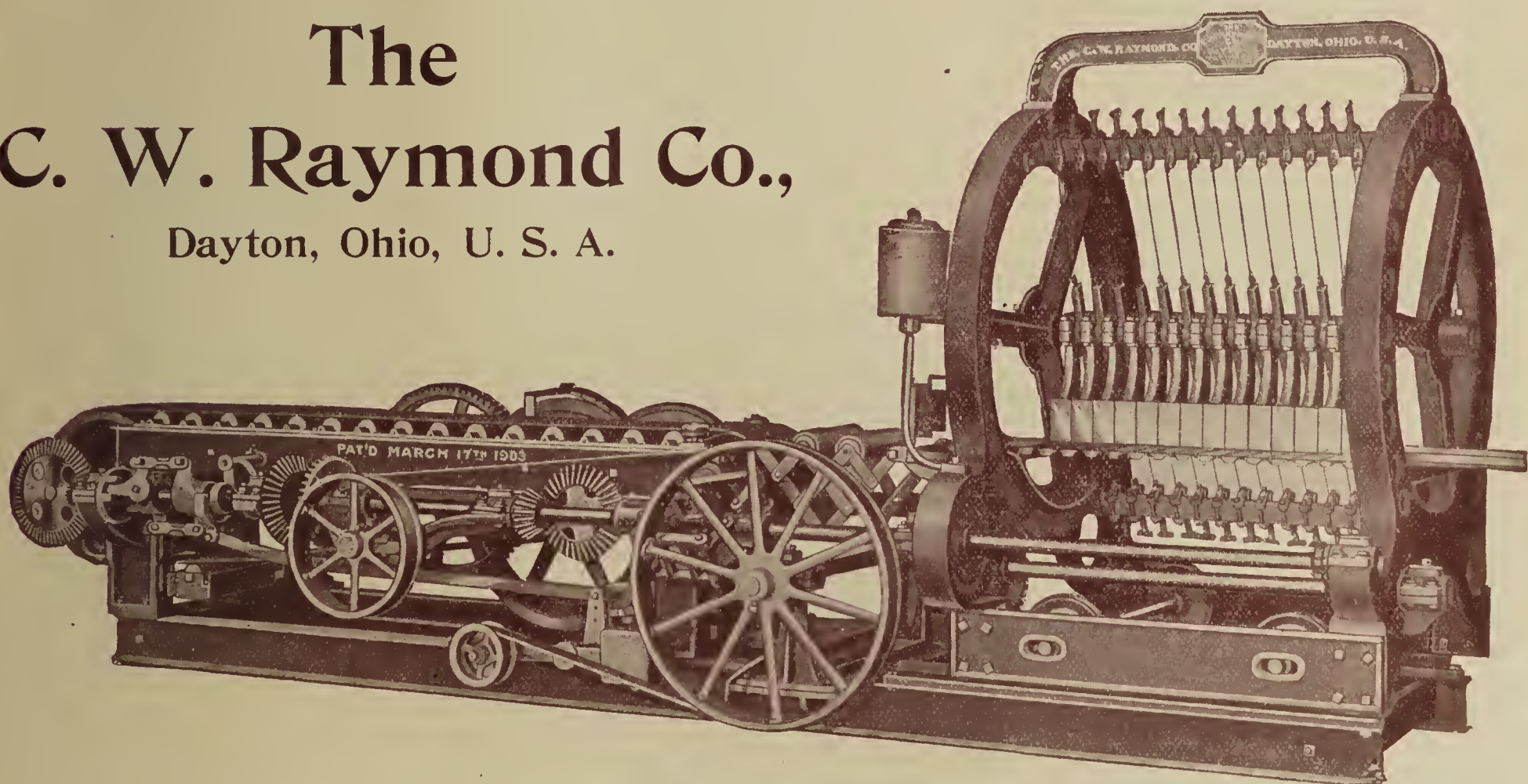
Mention The Clay-Worker.



The Raymond "777" Brick Machine, in connection with the Raymond No. 2 Rotary Automatic Cutting Table with its continuous motion, is gaining in popularity daily because of their unapproachable record for constant and perfect work. In short, they are "Always on the Job."

The C. W. Raymond Co.,

Dayton, Ohio, U. S. A.



Mention The Clay-Worker.



Saves
60%
of your
Fuel

There's a
reason
why—ask
for catalog.

A Youngren Continuous Kiln Installation—Producer Gas Fired.

The C. W. RAYMOND CO., Dayton, Ohio, U. S. A.

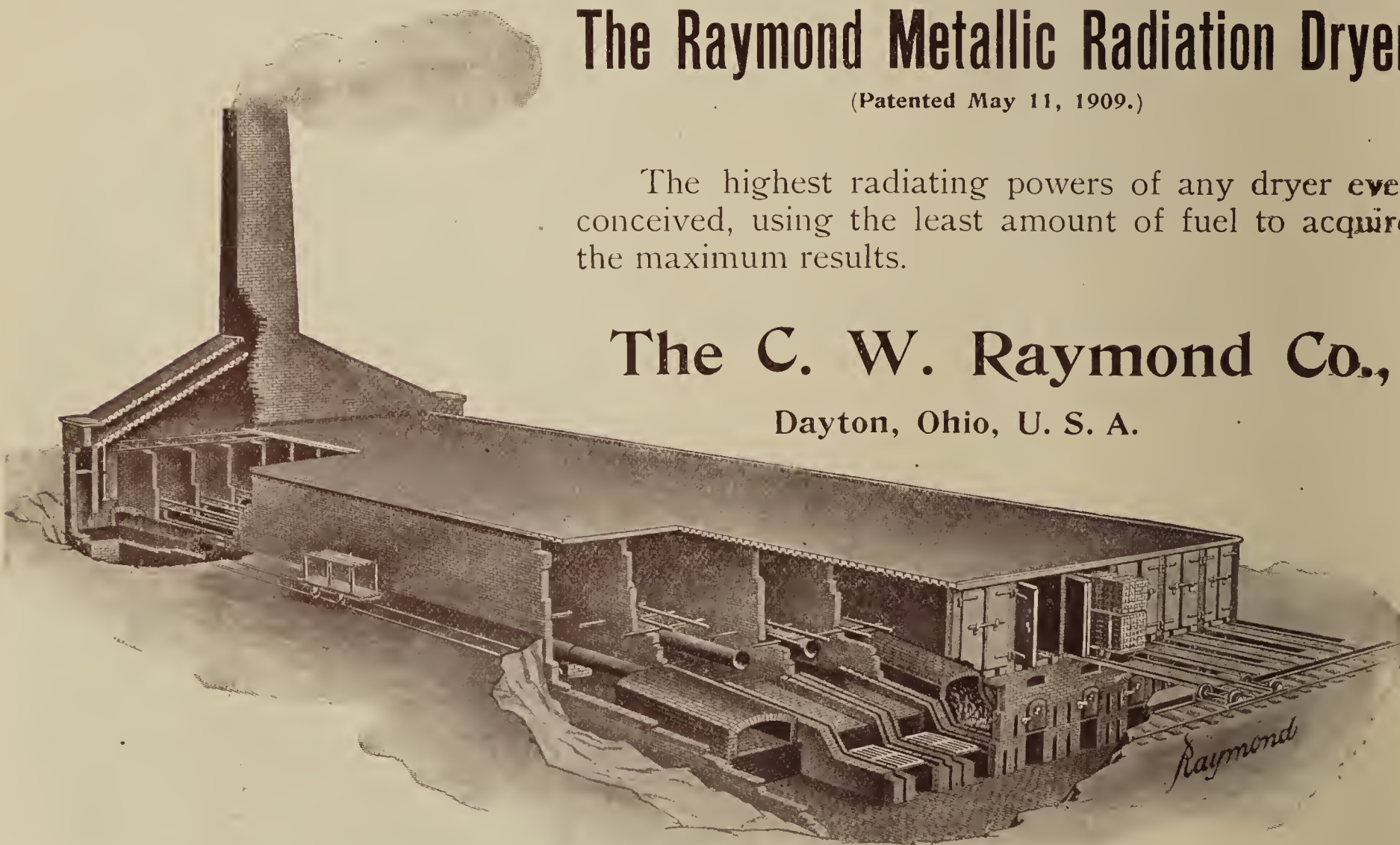
The Raymond Metallic Radiation Dryer

(Patented May 11, 1909.)

The highest radiating powers of any dryer ever conceived, using the least amount of fuel to acquire the maximum results.

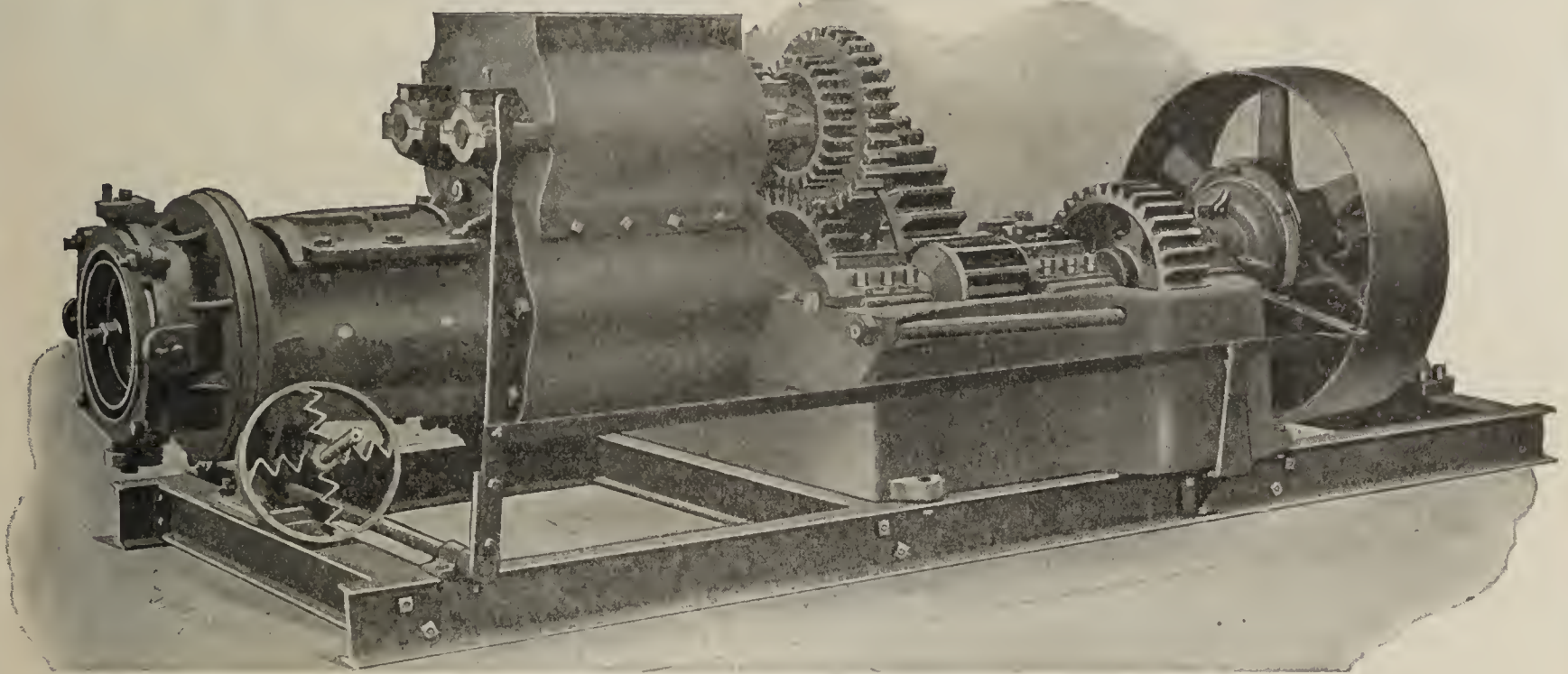
The C. W. Raymond Co.,

Dayton, Ohio, U. S. A.



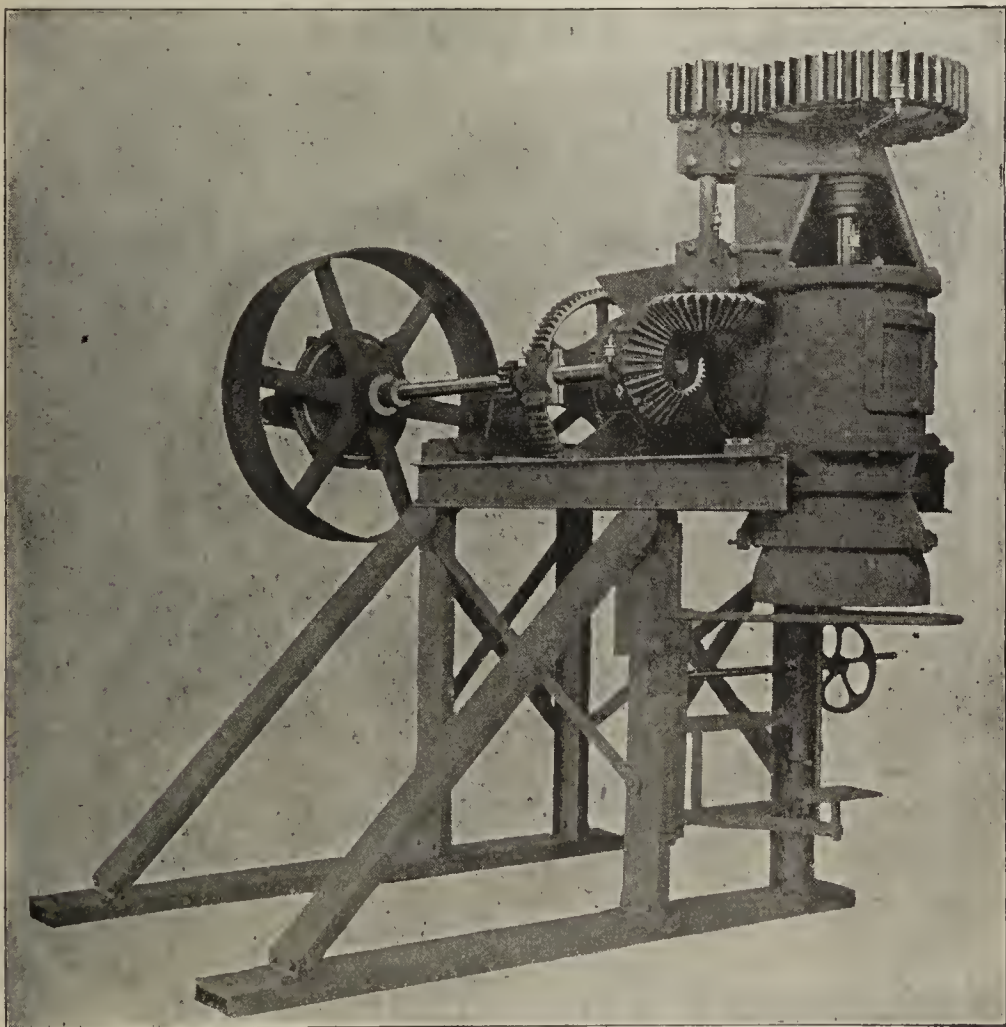
Mention The Clay-Worker.

MADDEN 6D HORIZONTAL TILE MILL.



This machine has the largest capacity of any mill on the market. Will make 30,000 4-inch tile per day in the most stubborn clay. Cut Gears, Hammered Steel Shafting, Rigid Frame. Built to withstand any strain. We build four other sizes to suit the capacity of any plant. Also full line Pug Mills, Disintegrators, Crushers, Barrows, Trucks, Tables and Wire. Write us for prices.

MADDEN & CO., Rushville, Ind.



Good News for Tile Men

**THE BIG PROFITS ARE
IN THE BIG TILE.**

The Anderson Vertical Mill

is the machine you need to keep you in the race.

Tile from 8 inches to 30 inches Diameter,
with dies for the different sizes readily and
quickly interchangeable.

**WEIGHT OF MILL,
8,000 LBS.**

Can be furnished without supporting
structure for mounting on wooden frame-
work or second-story floor, or will be pro-
vided with structural steel supports, easily
erected.

Anderson Foundry & Machine Works, Anderson, Ind.

Some Interesting Facts Relating to Drying Clay Products.

Every brickmaker knows that when brick are dried on an open yard under the rays of a hot sun with no wind, that the top of the brick dries first, contracts and strains the fibre, and the brick is liable to crack while drying or in the kiln when it is burned. If, however, there is less temperature, with a gentle wind, the drying conditions and results are quite different. The high temperature dryers with large heat radiation represents the hot sun drying in conditions and results. Our dryer differs from all others; it is in a class by itself. With a temperature of 130 to 145 degrees in the tunnels, a perfect brick drying air circulation is produced. By Anemometer tests certified to by reputable brickmakers the air velocity in our dryer flues ranges from 5 miles to 8 miles per hour; a warm perfect brick drying summer breeze. This velocity can be reduced to suit the most tender clays, or increased for clays that require more air to dry them. Let us modernize your present dryer or build you a new one. Write us for particulars.

THE KING ENGINEERING CO.,

309 American National Bank Bldg., Richmond, Va.

GOING TO SHUT DOWN OF COURSE.

Can't Make Brick in Winter Without A DRIER.

BETTER GET IN LINE.

"In reply to your favor of the 2d, will say our Drier, which you installed last spring, is giving the utmost satisfaction. We are drying more brick than you guaranteed, and can recommend it to anyone as a first-class Drier in every respect. Easy to operate and no expensive repairs, and never out of order. Wishing you success, we are,
THE CARROLLTON BRICK CO.,
Carrollton, Ky."

The National Dry Kiln Co.,

Exhaust Steam.

Indianapolis, Ind.

THE CLAY-WORKER'S POCKET KIT.

Worth its Weight in Gold to Every Factory Superintendent and Foreman.

EMBODIES

1. Pocket Knife.
2. Leather Punch.
3. Swedging Awl.
4. Wire Cutter.
5. Wire Pliers.
6. Alligator Wrench.
7. Hoof Hook.
8. Screw Driver.
9. Screw Bit.



INVALUABLE TO

Yard Superintendents,
Factory Foremen,
Mechanics, Miners,
Farmers, Horsemen,
Sportsmen and
ALL WORKINGMEN.

This is Not a Cheap Knife, But a First-Class Combination Tool Built for Practical Use.

CUTS OFF BARBED FENCE WIRE AS EASILY
AS AN ORDINARY 8-INCH PLIER.

Can be carried in the pocket and used as an ordinary knife, but is far stronger and more useful.

"A Stitch in Time Saves Nine."—So it is about a clay plant, a bolt tightened at the right time may save a serious breakdown, causing loss of time and money. How often would this be avoided if the superintendent or foreman had the right tool within reach when wanted. How often are these little, but very important details neglected because the necessary tool is not convenient, or has been mislaid, and how much time is lost in consequence. Avoid all this by carrying in your pocket the C. W. Pocket Kit. You will find use for it a hundred times a day.

One Tool Does Not Interfere With the Free Use of
Another. Each One Works Independently.

A Great Premium Offer.

This POCKET KIT, which is a marvel of mechanical ingenuity, will be mailed to any address, postage prepaid, for \$1.50.

Or we will mail this POCKET KIT and THE CLAY-WORKER for One Year to any address in the United States or Canada for

\$2.50

THE C. W. Pocket Kit is built for practical use, and is not filled with knickknacks or flimsy makeshifts as is the case with ordinary combination knives. Instead it is a practical, efficient combination. Its workmanship is first-class. All rivets are countersunk. The temper is drawn in Screw Driver, and Point of Awl to prevent either from breaking. It is no more clumsy or awkward to carry in the pocket than an ordinary three-bladed knife. The blades are made of the best 85 carbon cutlery steel, and tempered to withstand hard usage.

The Pliers and Wire Cutters are Drop-Forged TOOL steel (not steel castings), and tempered especially to do the work required of them, and give entire satisfaction in handling and cutting fence wire, baling and binding wire, harness rivets, etc.

The Leather Punch will be found indispensable for making various sized holes in leather for buckles, rivets, belt lacing, etc.

The Leather Punch acts as a wedging awl or marlin spike WHEN TURNED TO THE LEFT; especially adapted for use in LACING BELTS, untying knots, etc. Besides being a perfect leather punch and swedging awl, this tool is a perfect screw bit, making a tapering hole in wood for various sized screws WHEN TURNED TO THE RIGHT.

The Screw Bit and Screw Driver features of this knife are perfect in their operation.

The Lace Hook and Hoof Hook formed on end of plier handle will be found convenient in many ways.

T. A. Randall & Co., Publishers The Clay-Worker, Indianapolis:

You will please send me THE CLAY-WORKER POCKET KIT and enter my subscription for THE CLAY-WORKER to be sent to the address below regularly, until ordered changed or discontinued,

beginning with the issue. Enclosed find \$.

Name

Postoffice

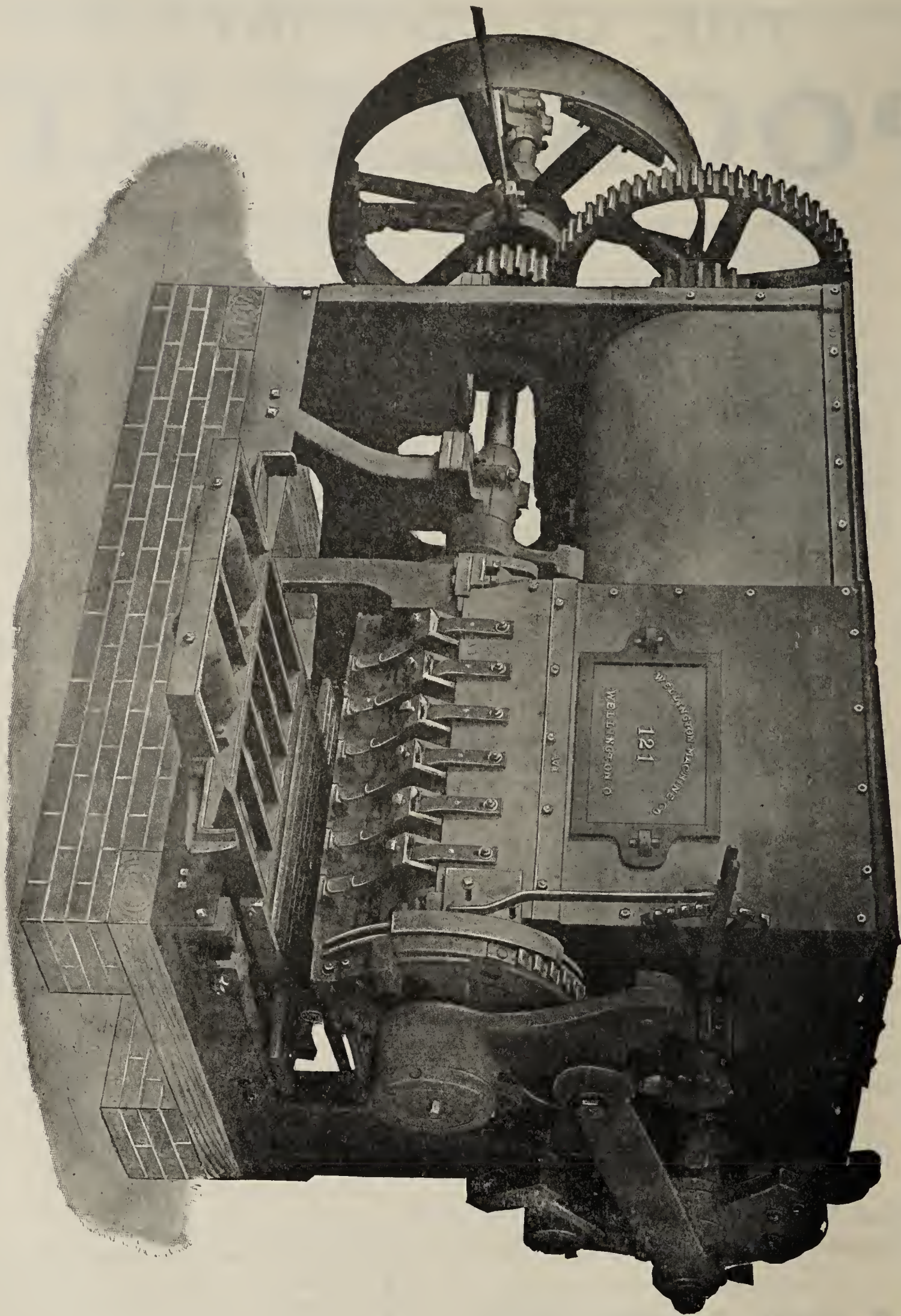
Street and Number

County State

OVER
250
"Monarch"
Brick
Machines
in use.

OVER
600
"Quaker"
Machines
in use.

WRITE
to us
regarding
Disinte-
grators,
Pug Mills,
Mold
Sanders,
Sand Dryers,
Smooth-roll
Crushers,
Molds,
Barrows,
Trucks,
Winding
Drums,
Clay Cars,
Dump Carts,
Elevators,
Dump Tables
and all
kinds of
Kiln
Castings.



The Big "No. 6" "Monarch" Brick Machine.

REMEMBER:

You are losing
money wheeling
brick unless you
have our

**ROLLER-BEARING
BARROWS.**

The Wellington Machine Co.,

WELLINGTON,

OHIO.

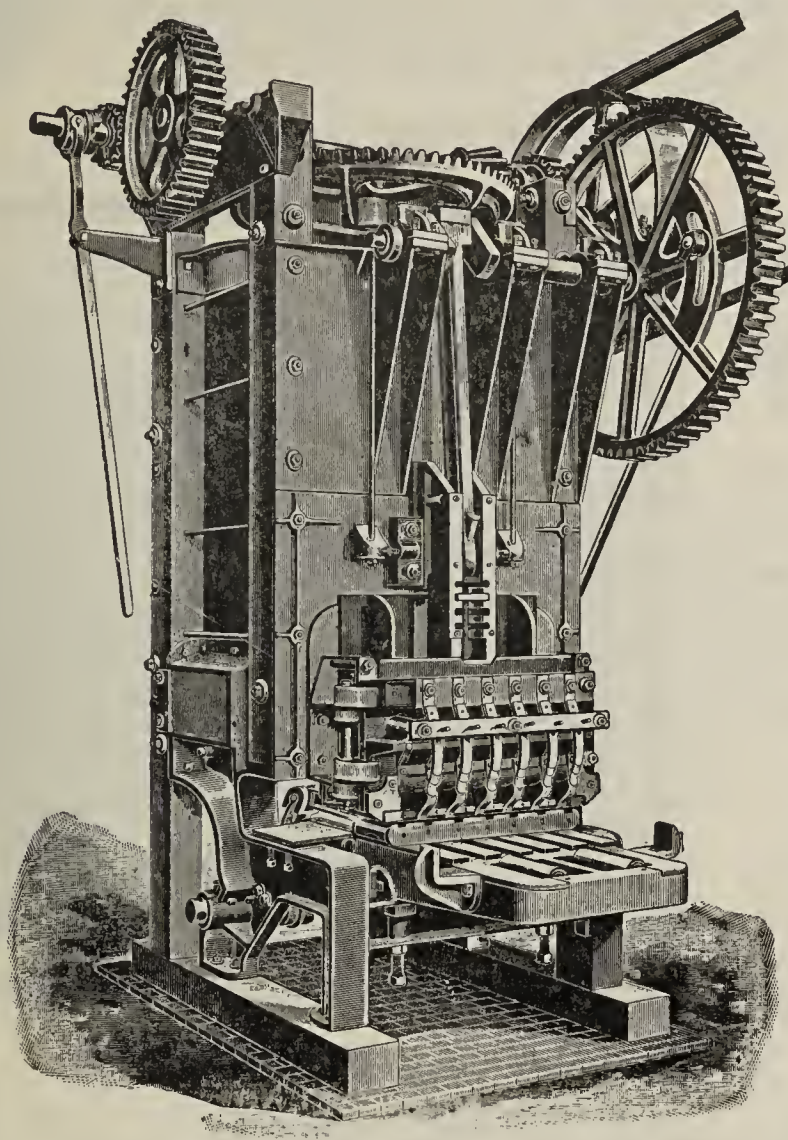
Send for Catalogue.

Mention the Clay-Worker.

Every Buyer of New Haven Machines A Satisfied User.

The "New Vertical" Brick Machine is the most substantial Upright Soft Clay Brick Machine in the world.

We manufacture a full line of supplies including



Pug Mills,
Coal Crushers,
Clay Elevators,
Winding Drums,
Tempered Steel
Brick Strikes,
Clay Cars,
Brick Trucks,

Stamp Mills,
Freight
Elevators,
Friction
Clutches,
Clutch Pulleys,
Revolving
Dump Tables.

"New Haven" Vertical Brick Machine.

In fact we can furnish machinery of the most improved modern construction for brick manufactories of any capacity. Competent workmen are employed in every department, hence we can guarantee our machinery to be well made and capable of performing the work for which it was designed.

The EASTERN MACHINERY CO.,

 **NEW HAVEN, CONN.**

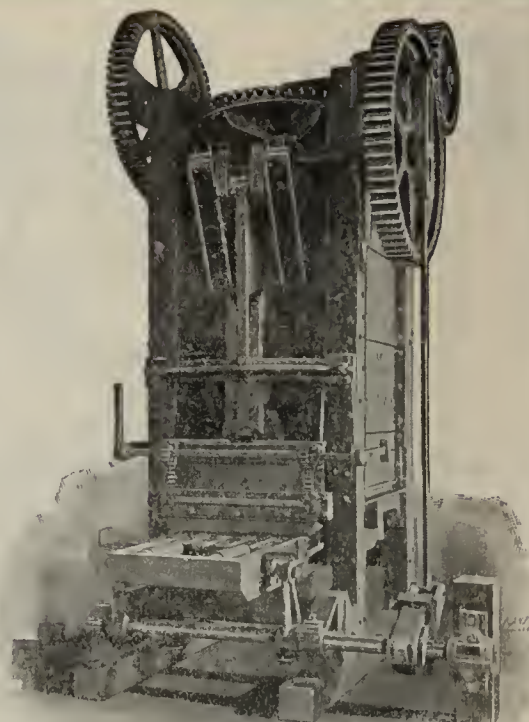
ANIMAL POWER
MACHINE

THE "MARTIN"

PRACTICAL BRICK-MAKING MACHINERY DOWN-TO-DATE

"We Furnish Everything
the Brickmaker Needs"

From CLAY BANK to KILNS

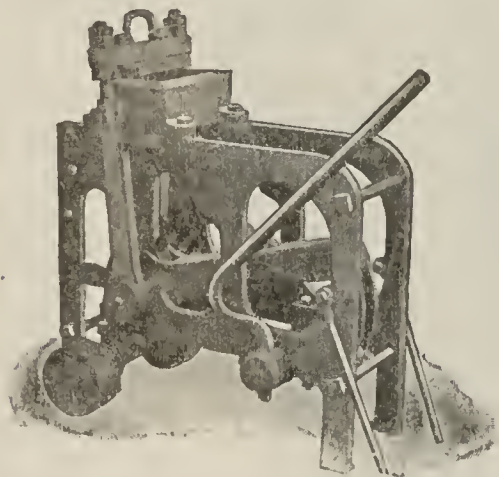


STYLE "A" BRICK MACHINE

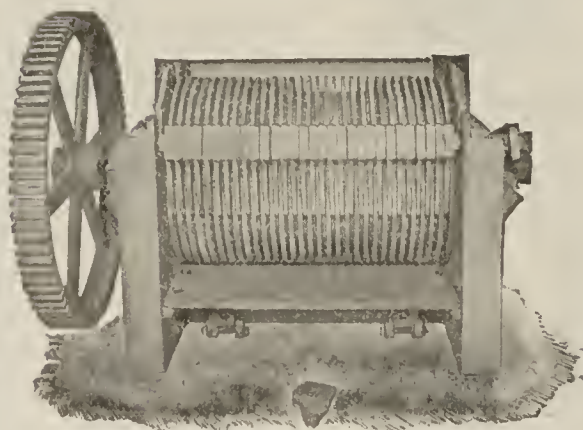
THE OLD WAY

Of Handling and Drying
BRICK--GET WISE

Let Us Figure With You on
the Most Complete and
Labor-Saving System Yet
Devised--The "Martin" Way
--The ONLY SURE WAY



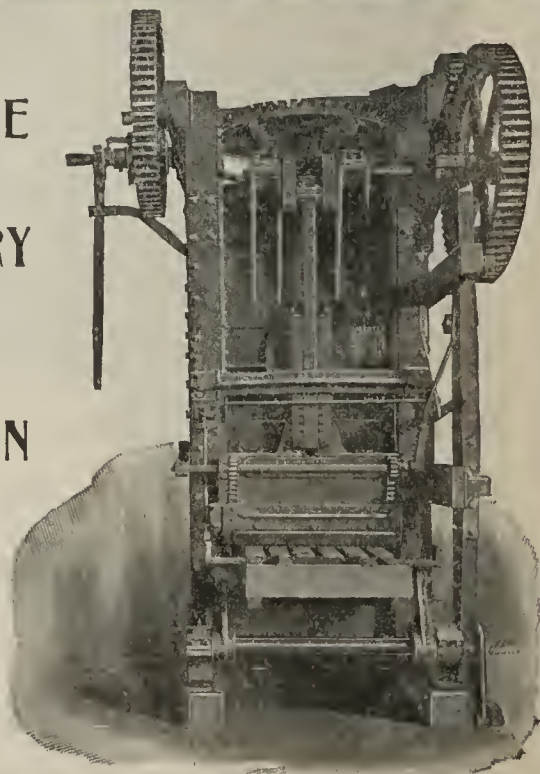
HAND REPRESSES



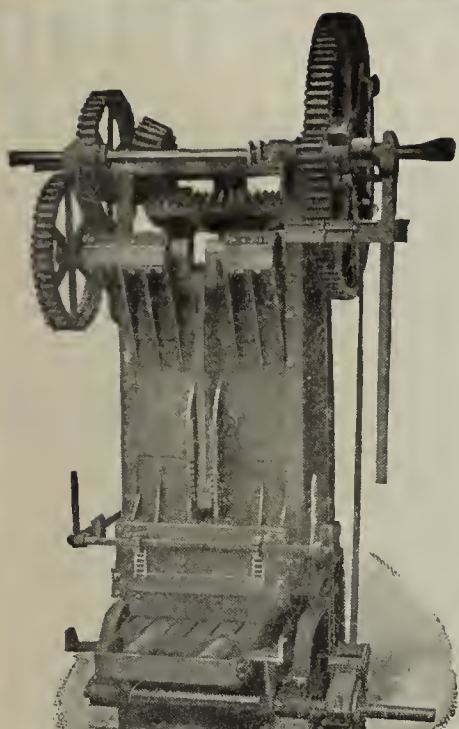
CLAY SCREENS

THE MARTIN COMPANY
HAS THE MOST COMPLETE LINE
OF HIGH-GRADE CRUSHING
AND PULVERIZING MACHINERY
LET US KNOW YOUR NEEDS
AND GET OUR PRICES
WE GUARANTEE SATISFACTION

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



STYLE "A" BRICK MACHINE



STYLE "P" BRICK MACHINE

THE "MARTIN"

BRICK DRYERS

ADAPTED FOR EITHER
SOFT OR STIFF-MUD
BUILDING BRICK

FULLY COVERED BY PATENTS

PATENTED

Feb. 22, 1898 == 599509
Oct. 10, 1905 == 95520
Nov. 14, 1905 == 804489
May 26, 1908 == 888831

UNITED STATES & CANADA

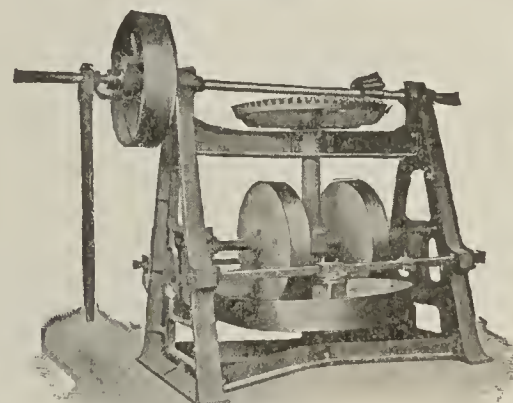


MARTIN'S SAND DRYER

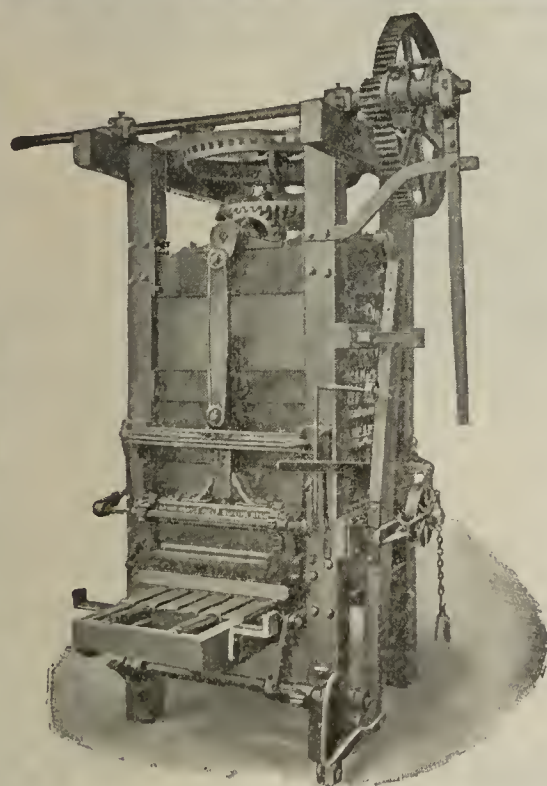


THE NEW WAY
Of Handling and Drying
Brick==INVESTIGATE

The "Martin" System of
Handling and Drying
Brick is Superior in Every
Respect to Any Other Sys-
tem==Quick to Install and
Low in Price==Write Us.



DRY OR WET PANS



STYLE "B" BRICK MACHINE

THE "MARTIN" COMPANY
AT LANCASTER, PA.

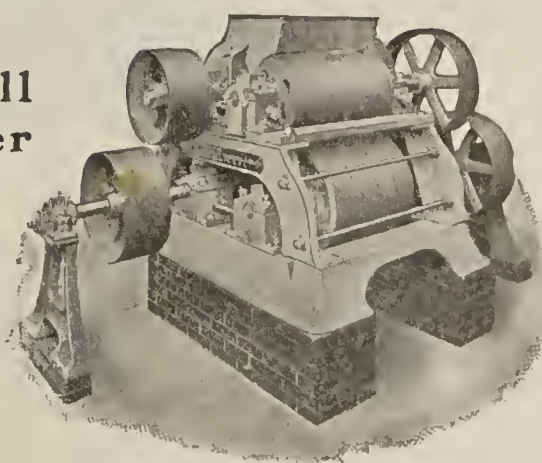
Own and Control These
Important Dryer Patents
and Have Authorized

— NO ONE —

To Manufacture or Sell
This Type of Brick Dryer

ALL CONTRACTS MADE BY

The Henry Martin
Brick Machine Mfg.
Co., Lancaster, Pa.



DISINTEGRATORS

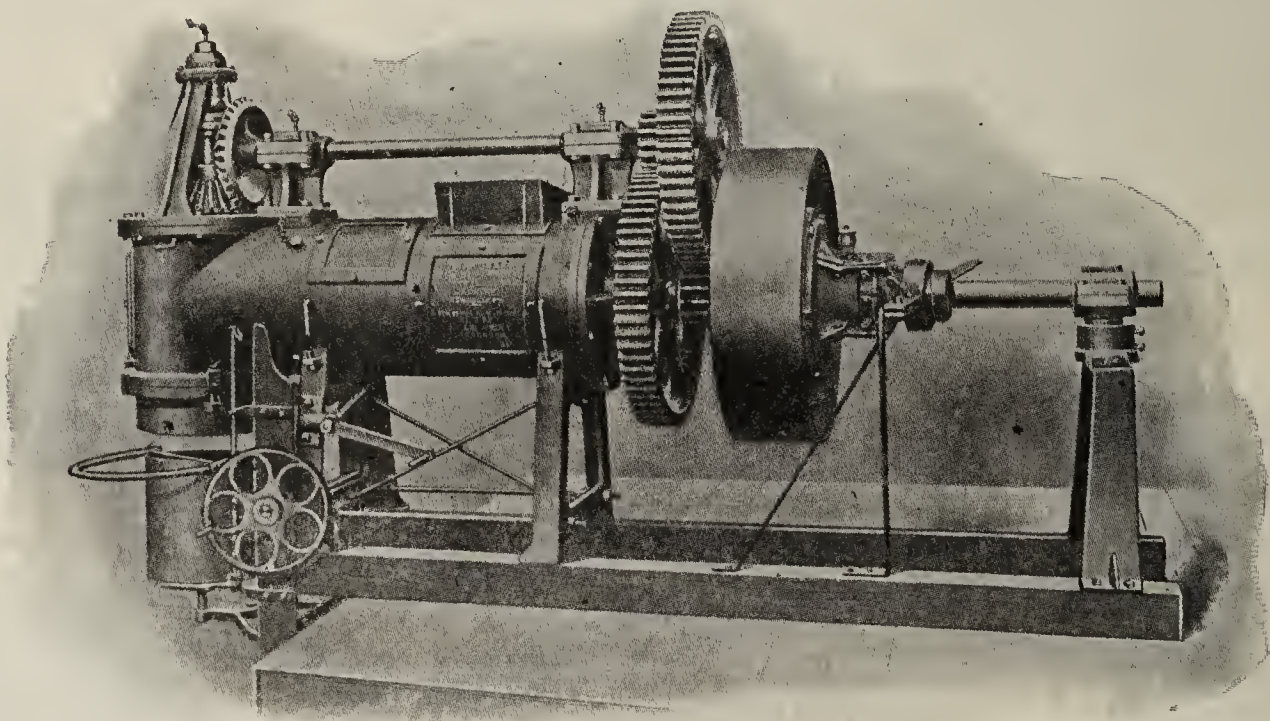
Our New 1909 Model Anderson Giant



We also manufacture a complete line of Dry Press Brick Machinery and brickyard supplies of every description. Write us your needs and let us figure with you.

1908 New Departure

The Only Mill for Making Successfully Tile from 3-in. to 24-in. Diameter.



Greatly improved in strength and convenience. Capacity increased forty to sixty per cent. Power required to operate forty per cent less than formerly.

Write for new catalogue.

**The Anderson Foundry & Machine Works,
ANDERSON, IND.**

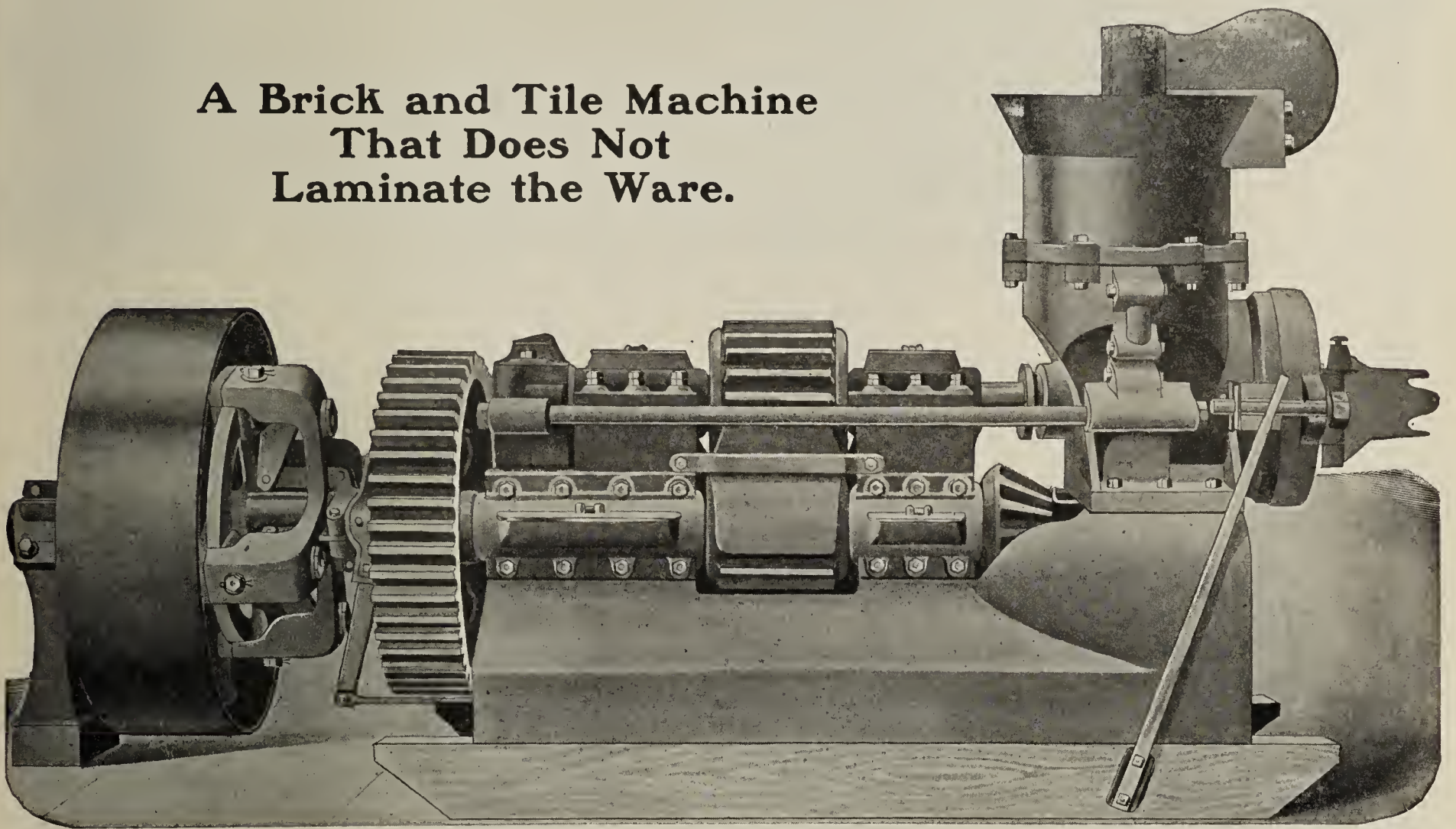
See ad on page 618.

TURN FAILURE INTO SUCCESS

With The Wonder Machine.

A Machine of Large Capacity. Unequaled in
Record of Durability.

A Brick and Tile Machine
That Does Not
Laminate the Ware.

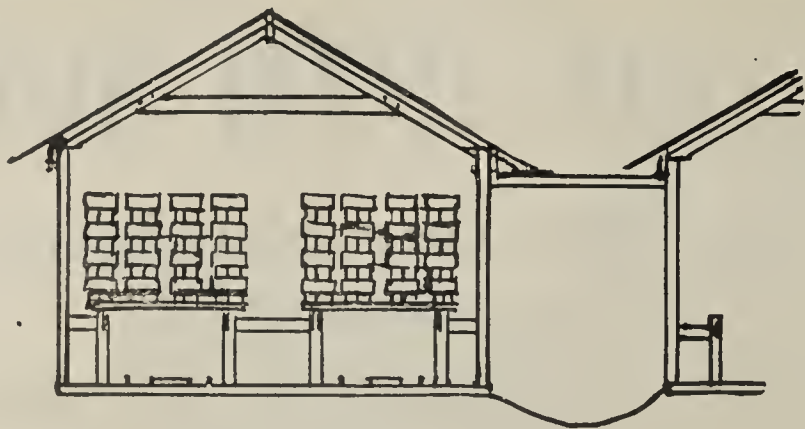


The Big Wonder Brick and Tile Machine.

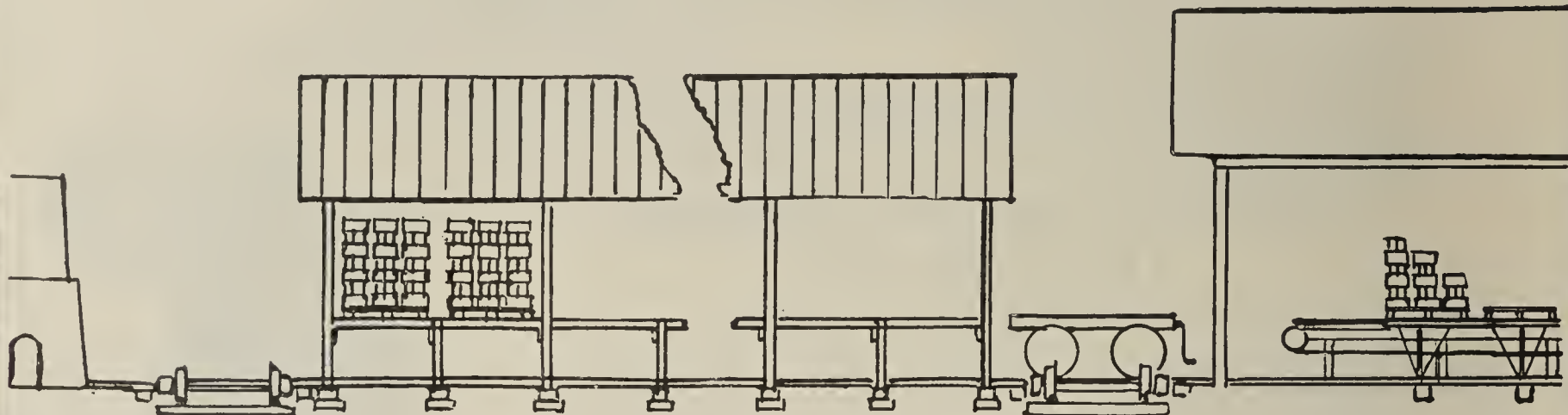
We also make Side-Cut Brick Cutters, Clay Crushers, Dry Pans, Disintegrators, Pug Mills, Granulators and Corrugated and Smooth Roll Crushers.

Write for Catalog and Prices.

THE WALLACE MFG. CO.,
FRANKFORT, IND.



End View



Kilns

Side View

Transfer

Receiving Rack

STEELE'S SYSTEM OF DRYING

The best method of drying for most Southern yards. The cost of construction is not more than one-third the cost of a dryer ordinarily, and the cost of handling is about the same, while the cost for fuel is nothing.



STEELE'S ELEVATING CAR

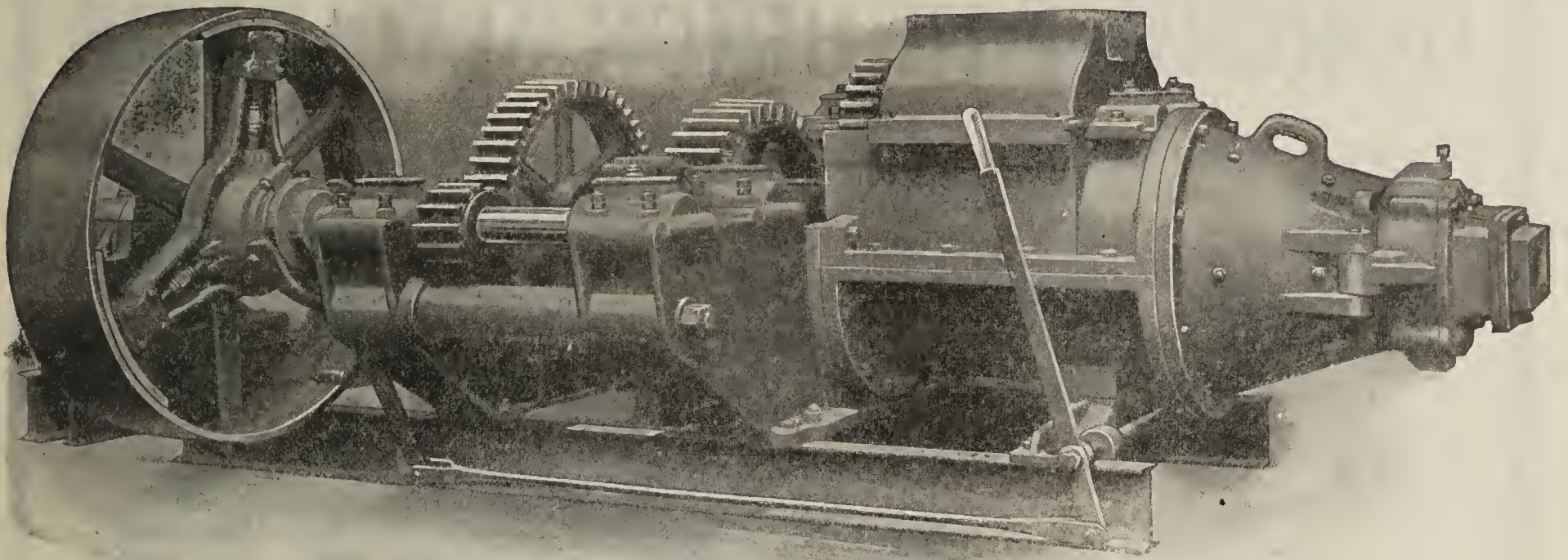
Our Elevating Car is much simpler than any other. Doesn't it look better? We also build a Turntable Rack that will turn.

Our prices will interest you.

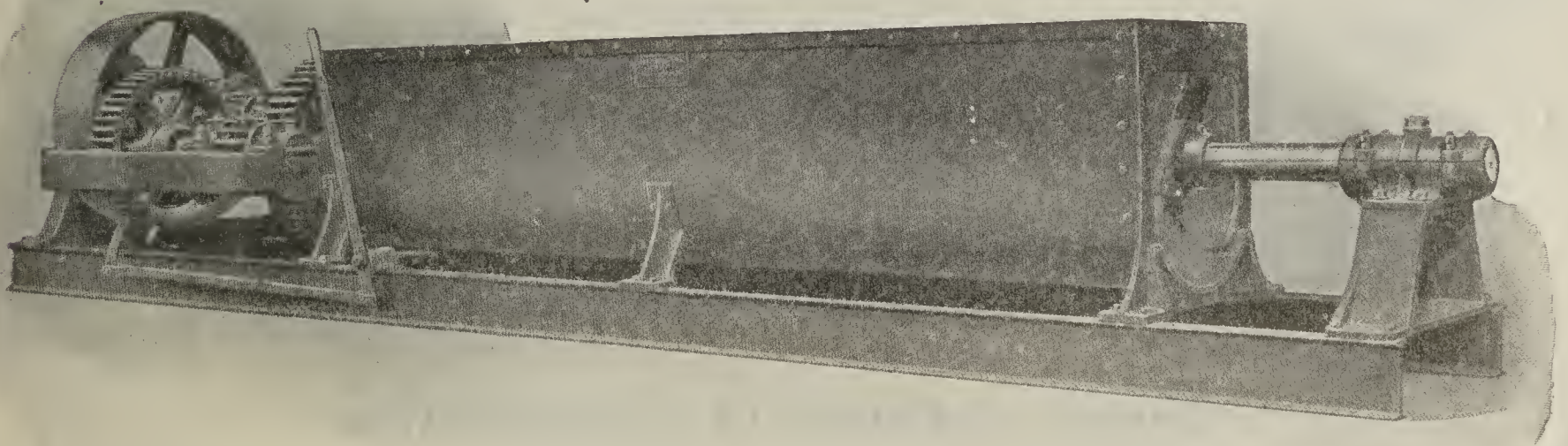
J. C. STEELE & SONS,
STATESVILLE, N. C.

Modern Clayworking Machinery

Single and Combined Machines of Any Capacity.



No. 10½ Auger Brick Machine. Capacity 50,000 to 70,000 Brick per Day.



12 Ft. Pug Mill With Open End.

DRY PANS
SCREENS

CUTTING TABLES
REPRESSES

THE BONNOT COMPANY

305 New York Life Bldg., Kansas City, Mo.

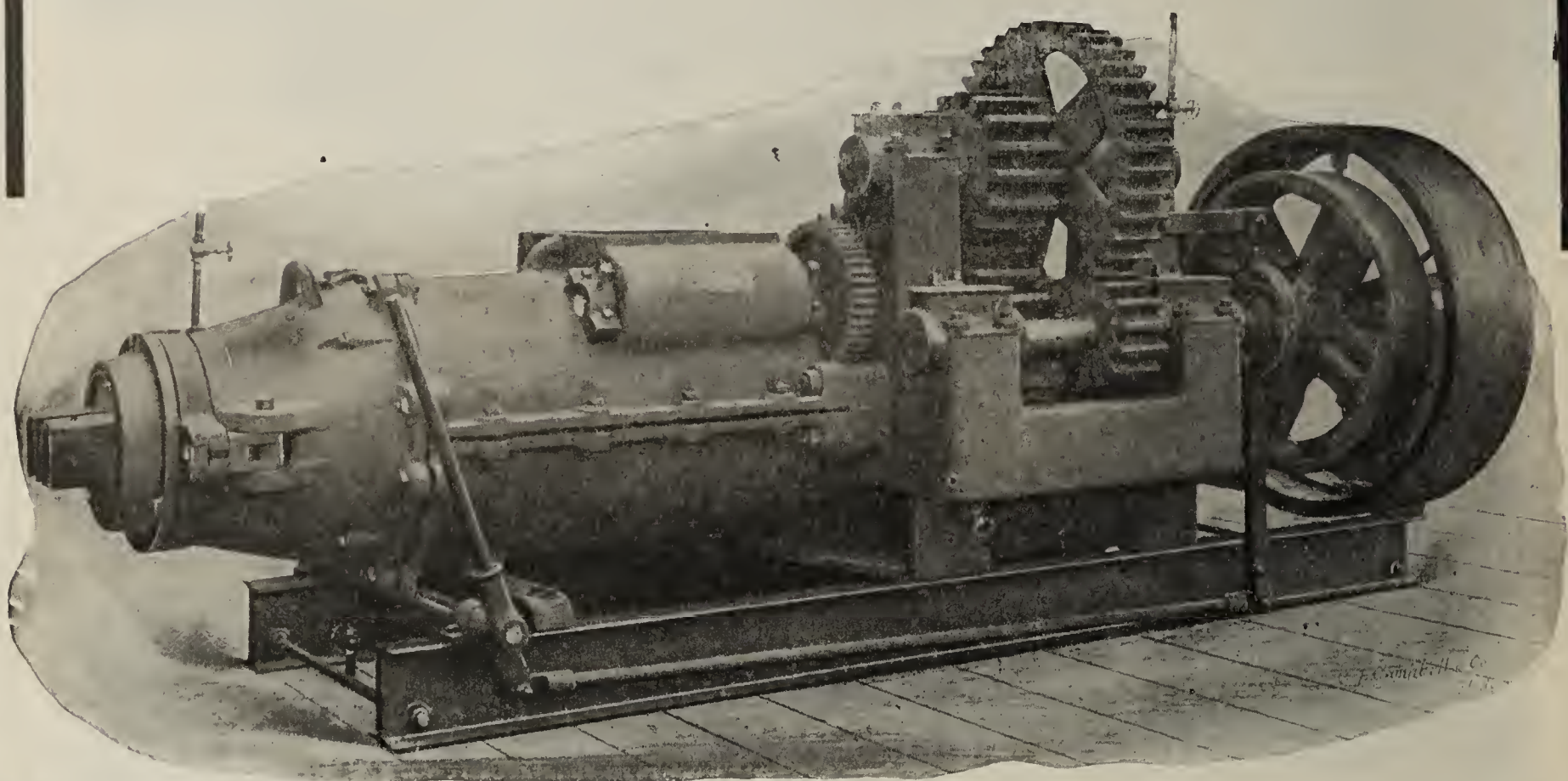
CANTON, OHIO

Mention The Clay-Worker.



HORIZONTAL BRICK MACHINES

Brewer Horizontal Brick Machines are built in three sizes, ranging in capacity from 2,000 to 5,000 bricks per hour, in weight from 5,000 to 14,000 pounds. In many cases the machine rated at 2,000 brick per hour is making 3,500 and the 5,000 machine 7,500. The rated capacity is low, the weights are high in proportion.



Some Features of Construction.

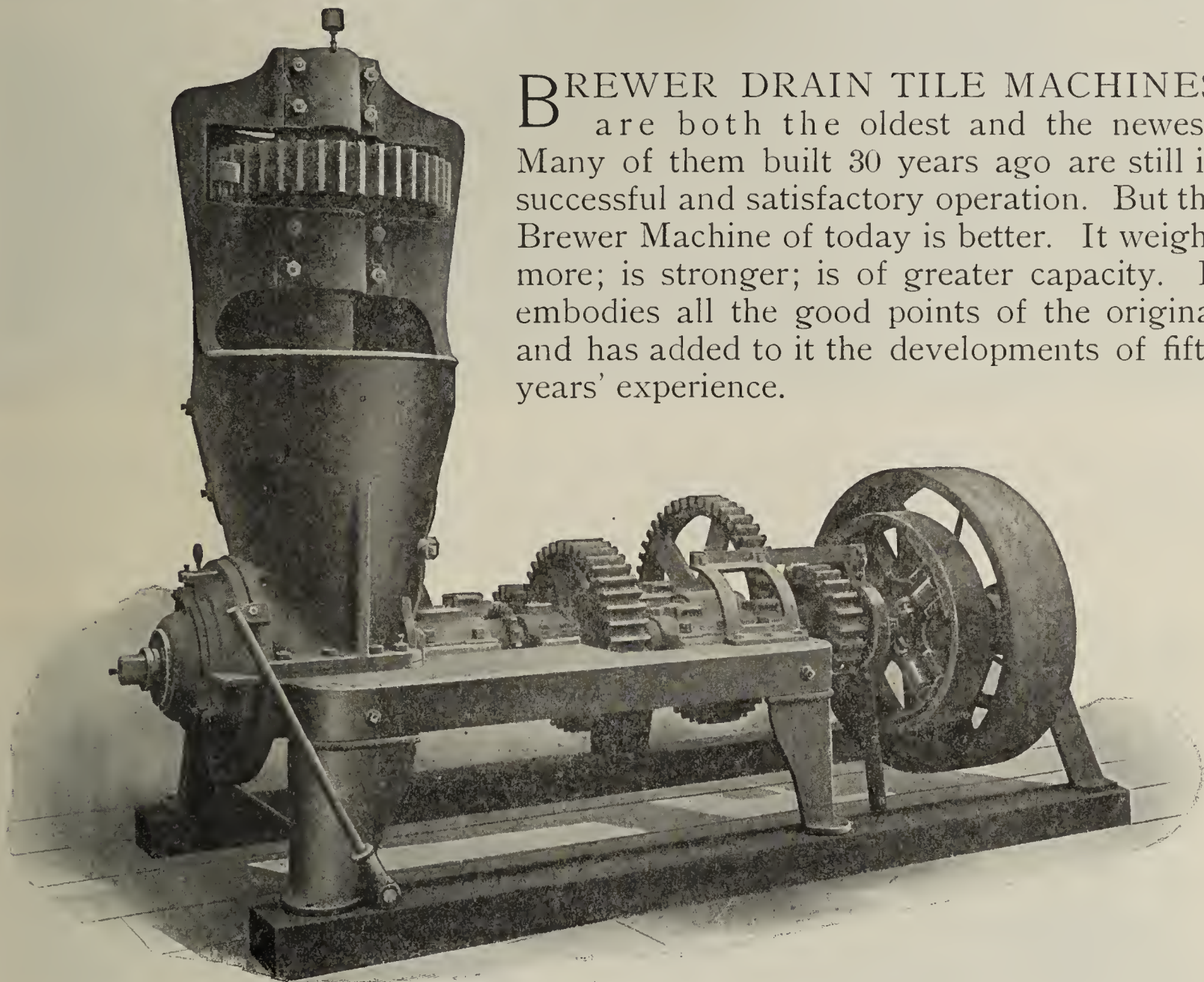
The knives are forged from hard, high-carbon steel; each one independently adjustable for pitch. The expressing screws or augers and the casings which surround them are made of white iron. The bearings are self-oiling. The backthrust bearings are self-oiling, self-aligning and adjustable to take up the wear of the expressing screw. The hoppers are kept clear by a feed roll which does not clog. The gear frames are cast in one piece. The gears are semi-steel. The mounting is self-contained.

Full specifications in our catalog. Ask for it.

H. BREWER & COMPANY, Tecumseh, Mich.



DRAIN TILE MACHINES



BREWER DRAIN TILE MACHINES are both the oldest and the newest. Many of them built 30 years ago are still in successful and satisfactory operation. But the Brewer Machine of today is better. It weighs more; is stronger; is of greater capacity. It embodies all the good points of the original and has added to it the developments of fifty years' experience.

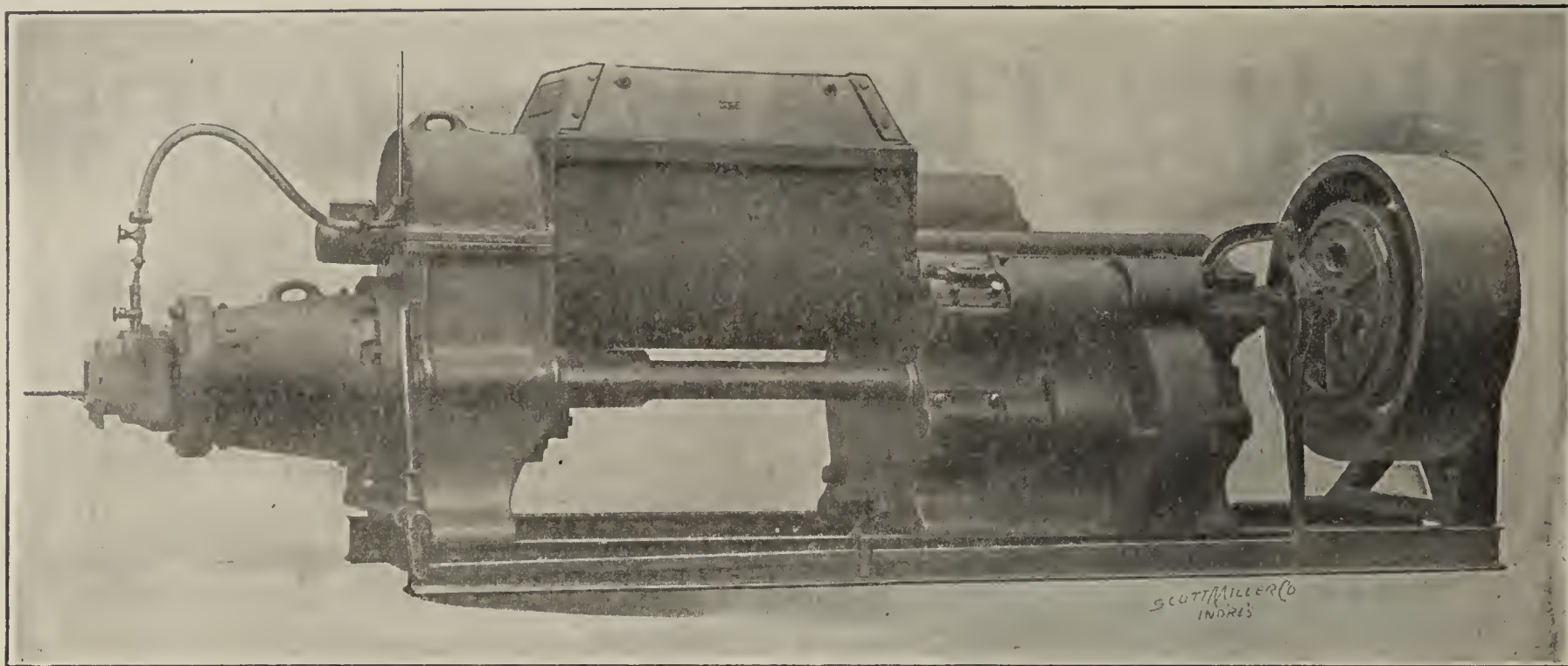
We Build Three Sizes

ranging in capacity from 1,000 4-inch tile per hour up to all that can possibly be handled by any present day method. They range in weight from 5,500 to 10,400 pounds. The upright portion is cast in one piece and machined to the frame. The frame is cast in one piece. The knives are forged from hard high-carbon steel. The augers and casings are of white iron. The cores of the tile dies are held without bridge or bracket or anything which parts the clay as it is being formed into shape. They make good tile where other machines fail.

Our catalog explains all about them and gives detailed specifications.

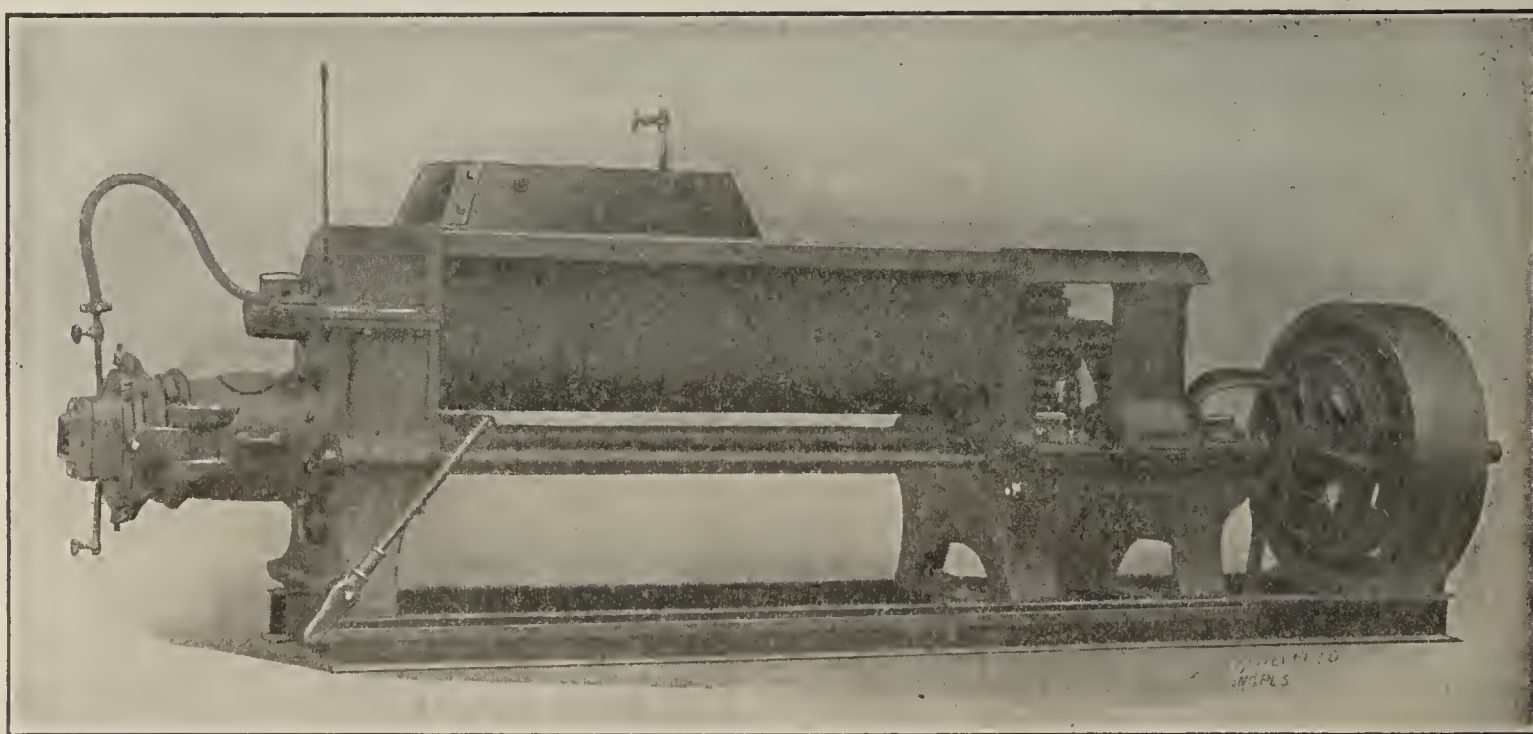
H. BREWER & COMPANY, Tecumseh, Mich.

Good Stiff Mud Brick Machines.



Note the large feeding chamber, three journal bearings for auger shaft, dust-proof removable gear case, and liberal use of best material throughout.

Let us make you better acquainted with our machinery.



We build machines of this type in a variety of sizes. They are intended to mix and temper the clay without the necessity for a separate Pug Mill.

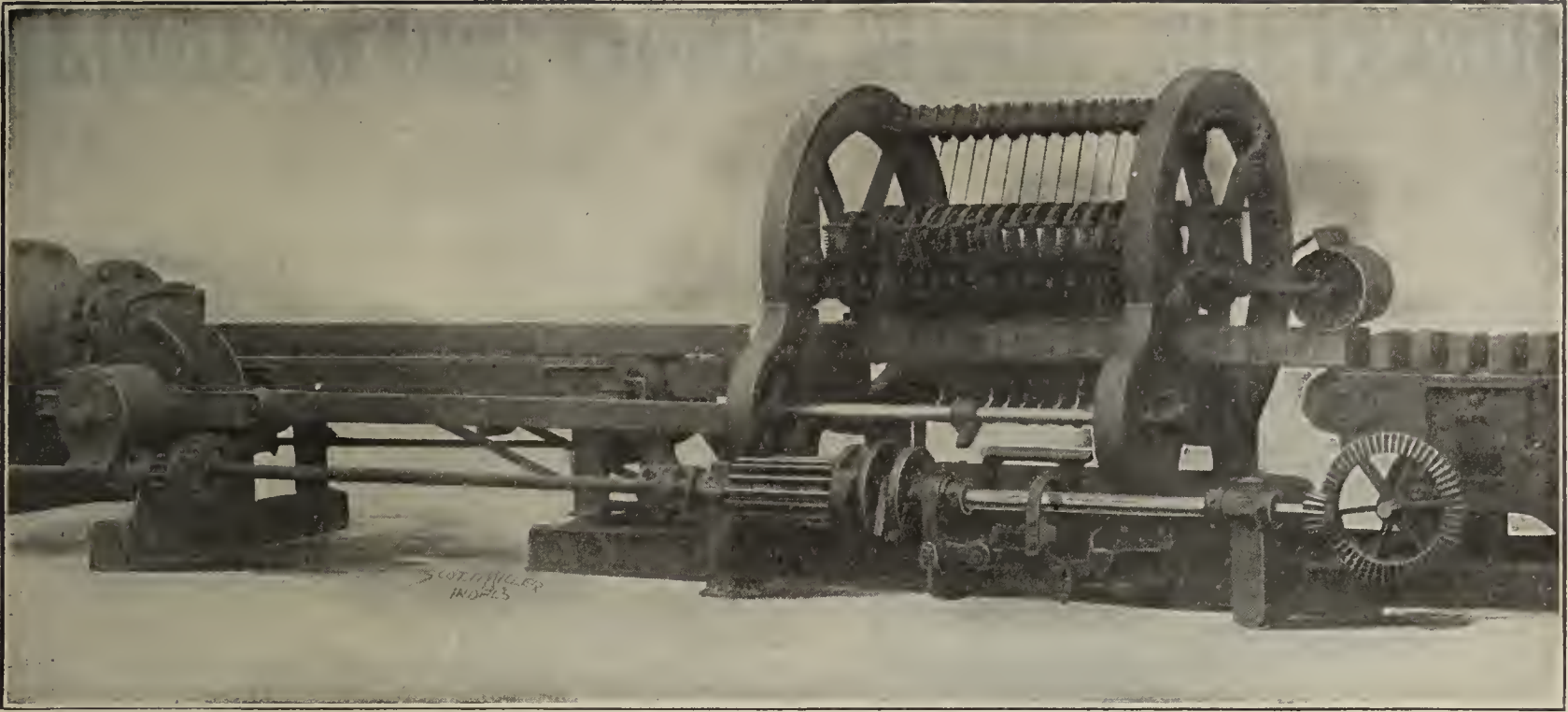
They have important advantages in the way of convenience and economy of operation. They also require only one driving belt.

E. M. Freese & Co.,

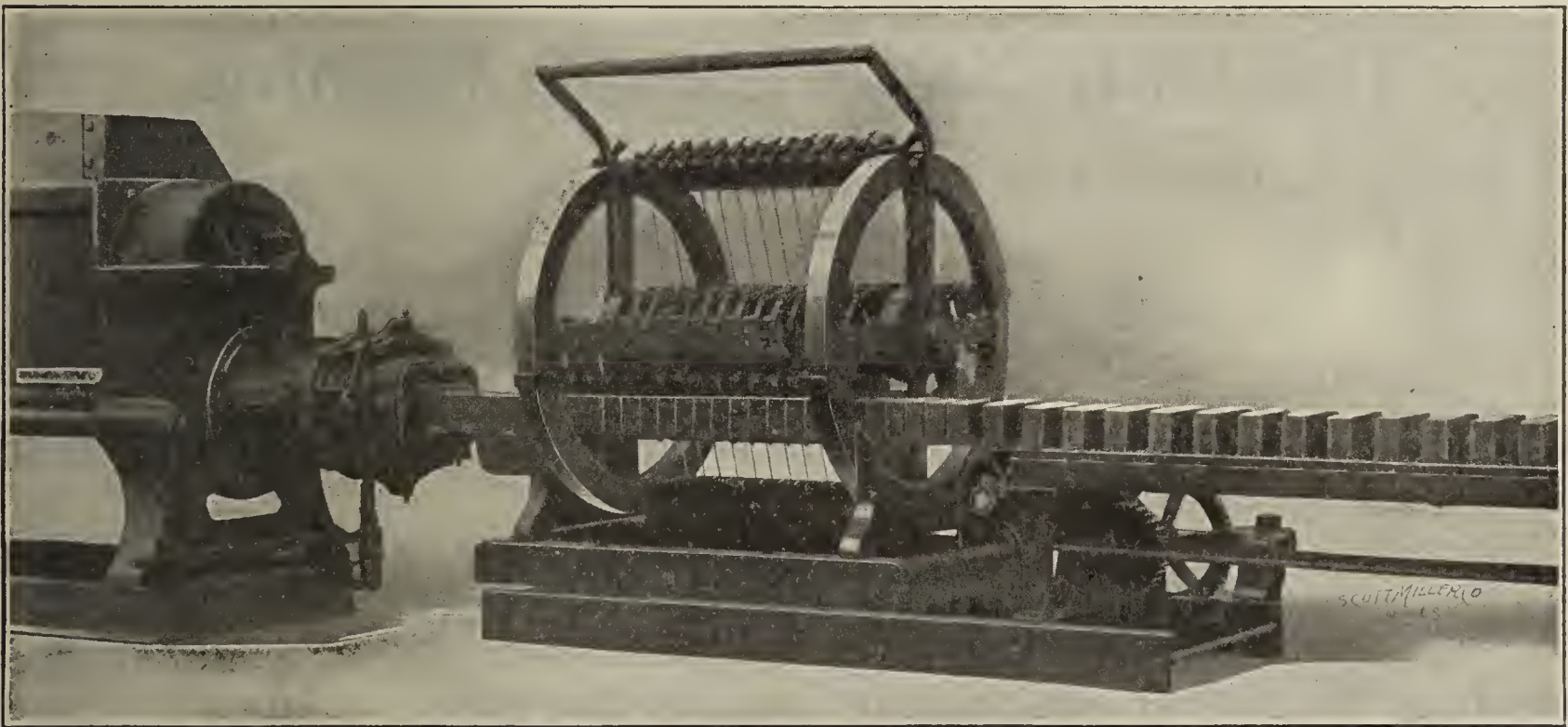
Galion, Ohio.

Write for Catalog

Good Automatic Cutting Tables.



We are the originators of this type of Automatic Cutter. Our Cutters embody important features of merit not found elsewhere. Our Cutters are widely known as superior to any others in the market. The brick can be used for fine fronts without repressing. Built in various sizes and capacities.



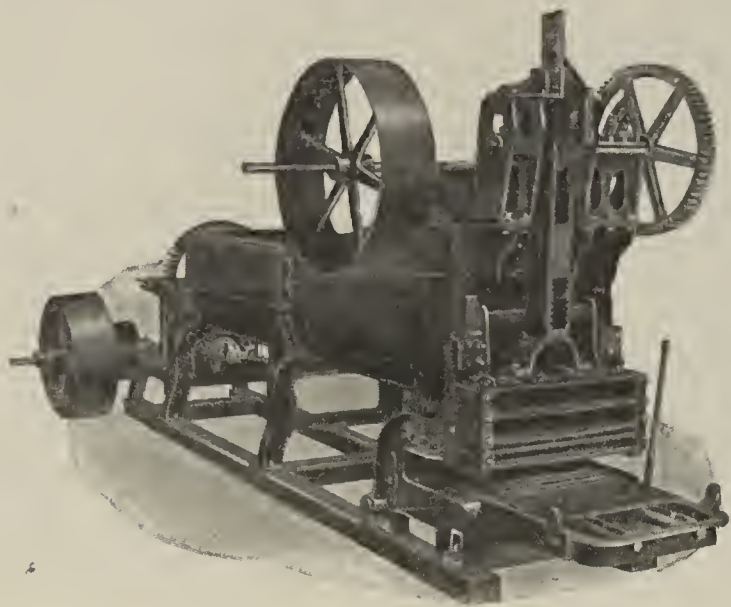
An inexpensive Hand Power Rotating Apparatus. Only one operating lever is used, which serves to cut the brick on the downward movement while the upward movement returns the carriage, ready for the next cut. Extremely simple throughout. Cuts brick of finest quality.

E. M. Freese & Co.,

Galion, Ohio.

(Mention The Clay-Worker.)

The Potts Horizontal Brick Machine, Disintegrator, Mould Sander and Granulator



By using these four machines you will have the Best and Most Complete Sand Mould Brick Plant made.

For Quality and Quantity it has no equal.

Works the clay coming direct from the bank.

Does not require EXTRA Pug Mill. Simple, Strong and Durable.

The Only Sand Mould Machine

in which Cast Steel Gears are used in the construction.

Sand Mould Plants

our specialty. Equipment complete from the Clay Bank to the Kiln.

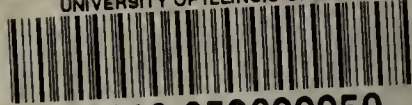
Our Conveyor System

for handling brick from machine to racks is the greatest labor-saving device offered to the trade for several years. It is complete.

For Moulds, Trucks, Barrows, Pug Mills, Winding Drums, Clay Cars, Elevators and Brickyard Supplies in general we can give best Quality. For prices, etc., address

C. & A. POTTS & CO., Indianapolis, Ind.

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